


# Digital Piracy among Young Adults: The Role of Values and Time Perspectives

Fatih Bayraktar<sup>1</sup> and Łukasz Tomczyk<sup>2,\*</sup> 

<sup>1</sup> Department of Psychology, Faculty of Arts & Sciences, Eastern Mediterranean University, Famagusta 99628, Turkey; fatih.bayraktar@emu.edu.tr

<sup>2</sup> Institute of Educational Studies, Faculty of Pedagogy and Psychology, Pedagogical University of Cracow, 30-084 Cracow, Poland

\* Correspondence: lukasz.tomczyk@up.krakow.pl; Tel.: +48-503-738-988

**Abstract:** The aim of the research is to measure the extent of piracy among young adults and to relate this phenomenon to variables, such as values and time orientation. The research fits into the risk paradigm of cyber research. The research was carried out in Northern Cyprus, a country with a persistently high rate of digital piracy. The research involved 318 young adults (Mean Age: 20.9, SD: 2.47). The research process was conducted through the triangulation of three questionnaires: Piracy Risk Scale, Time Perspective Inventory, and the Values Scale. Based on the data collected, it was noted that piracy is not a rare phenomenon among young people (similar to other e-risks), and it is most common for files related to entertainment to be systematically downloaded. Digital piracy is linked to the level of digital competence, as well as hedonistic and fatalistic attitudes to time and values such as materialism and sense of honour. Despite technological developments maximising the legal circulation of cultural and other digital content, piracy has still not been completely eliminated.

**Keywords:** digital piracy; North Cyprus; young adults; time perspectives; values



**Citation:** Bayraktar, F.; Tomczyk, Ł. Digital Piracy among Young Adults: The Role of Values and Time Perspectives. *Sustainability* **2021**, *13*, 9140. <https://doi.org/10.3390/su13169140>

Academic Editor: Ewa Ziemba

Received: 24 June 2021

Accepted: 12 August 2021

Published: 16 August 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Digital piracy is a relatively well-known phenomenon in the literature. Authors dealing with this topic emphasise that it is an issue that has become part of the development of the information society, one that has both its negative consequences (e.g., economic, ethical, social) as well as positive ones (e.g., the development of Video on Demand (VOD) technology, changing the ways in which creative sector companies deliver entertainment content to end users) [1].

As noted in recent research on digital piracy, this phenomenon has not been completely eradicated to date [2–4]. There are many attempts to explain digital piracy, but none of them directly refer to a model linking digital piracy to variables such as the orientation of one's behaviour over time, as well as values. Therefore, it seems justified to pose new research questions related to the extent to which the embeddedness of piracy behaviour is related to the orientation of one's own behaviour in a time perspective while taking the axiological layer into account. Such a juxtaposition fills the hitherto existing gap in studies devoted to digital piracy.

The aim of this study is therefore to relate the extent of piracy among young adults and to relate this phenomenon to variables such as values and time orientation. This aim goes beyond typical studies on piracy, which attempt to understand this phenomenon depending on the legal regulations in a given country, and which only present the scale of the phenomenon.

This article consists of a theoretical part, where the definition of cyberspiracy is presented, and the phenomenon is characterised in the context of previous studies, as well as variables related to values and time location of risky behaviours mediated by the Internet. The methodology section discusses the research procedure, characterises the

research tools and describes the research sample. The results provide data related to the scale of the phenomenon, correlation between variables, and present the results of the prediction of piracy depending on the time orientation and axiological layer. The article concludes with a critical-constructive discussion, as well as postulates for practice resulting from the collected data.

## 2. Theoretical Framework and Overview of Research on Digital Piracy

Digital piracy is defined as being an illegal online activity that includes misconduct such as the unauthorized copying of digital materials, the illegal installation or use of programs, and the installation of single-user licenses on multiple machines [5]. Because of existing copyright laws and the attendant risk of imprisonment, digital piracy is considered as a risk behaviour. It is estimated that, depending on the specific part of the world, the circulation of pirated files (unauthorised copies of music, films, software, books, and games) constitutes from a few to several dozen per cent of all copyrighted material downloaded from the net [6]. There are regions and countries that are characterized by a high rate of piracy. For example, according to the Business Software Alliance, over half of the software used in Central and Eastern Europe, Asia and the Pacific, the Middle East and Africa, and Latin America was downloaded in a pirated manner, i.e., without purchasing the appropriate licences [7]. Beyond these, the legal status of the country can also be considered a contextual factor. The northern part of Cyprus provides an interesting example of this. As is commonly known, North Cyprus is an unrecognized country, and sales of pirated CDs and books are so common because of the lack of universal norms and rules against piracy when compared with EU rules and norms. This normalization of piracy can be a contextual factor which increase the risk of digital piracy. Thus, the first contribution of this research communication shows the scale of piracy at the current stage of development of the information society in Northern Cyprus.

Piracy is a phenomenon that is characterised by varying scales and has not yet been eliminated in all countries. The occurrence of activities related to the infringement of intellectual property protection law forces us to ask questions about the mechanisms conditioning the phenomenon, which paradoxically have not been sufficiently studied so far. Therefore, the present study seeks not only to show the scale of the phenomenon in one of the countries of the Eastern Mediterranean region, but also to explore piracy in connection with variables that are crucial for understanding this phenomenon, namely: values and time perspectives. The main reason these variables have been chosen is to fill a gap in the literature left by previous studies. The specific subdimensions of these constructs might have the potential to be associated with digital piracy as predictors in the form of risk or protective variables. Here, we followed Masten's [8] Principle of Multidimensionality and Bronfenbrenner's [6] Ecological Model. According to the Principle of Multidimensionality, all developmental outcomes (including digital piracy) can be understood by taking individual, proximal and distal factors. Masten [8] mentioned that individual factors were the dominant predictors of developmental outcomes when compared with proximal and distal factors. Bronfenbrenner's [9] Ecological Model stresses that humans develop in a series of ecological systems (i.e., micro-, meso-, exo-, macro-, and chronosystems) and in the centre again the individual factors take place.

Many of the mechanisms of piracy are already well understood and described in the literature. Despite the passage of time and the intensive changes occurring in cyberspace, many of the previously documented regularities are still valid. For example, it is worth mentioning that digital piracy co-occurs with the process of apparent anonymity on the Internet and the displacement of the awareness of creators' losses and removal of responsibility for the consequences of such actions [10], past piracy behaviour [11] and digital competency [12].

The aforementioned factors can be counted as individual level facilitators for digital piracy. However, there are still gaps in the literature related with other individual level predictors of the problem. Therefore, another potential contribution that can be made by

the current study is to test the associations between time perspectives and digital piracy. To the best of our knowledge, there is no study that examines this relationship. Zimbardo and Boyd [13] suggested that human beings encode, store, and recall information based on different categories of time perspectives (TP); Past Positive (i.e., perceiving the past with a nostalgic attitude), Past Negative (i.e., perceiving the past from a negative perspective), Present Fatalistic (i.e., feeling helpless and hopeless towards life), Present Hedonistic (i.e., taking risks with little or no concern for the future), and Future Oriented (i.e., able to delay gratification by focusing on future goals and rewards). Hedonistic TP had been frequently studied as a predictor of risk-taking behaviours, such as risky driving [14] and substance abuse [15]. Therefore, it can be suggested that digital piracy may be linked with this specific time perspective. Because Future Oriented TP is generally considered to represent the opposite of Hedonistic TP, it can be hypothesized that this TP will exist in a negative relationship with digital piracy. Moreover, Present Fatalistic TP may increase the risk of digital piracy for two reasons; first, acts of digital piracy (as with other online activities) can be used to provide relief from negative emotions and to increase life satisfaction as stressed in Uses and Gratification Theory [16]. This specific time perspective was frequently found to be correlated with negative affect and low life satisfaction [17,18]. Second, the COVID-19 pandemic might have increased the incidence of both Fatalistic TP and digital piracy as an example of problematic internet use. Recent findings supported this suggestion [19,20]. Furthermore, the orientation of one's behavior in the time perspective is linked to the anticipation of the consequences of one's actions. This is an interesting theme in the context of reflecting on one's own risky actions (e.g., intellectual property infringements) in a longitudinal context [21,22]. Based on the review of the literature mentioned above, the following research hypotheses were set:

**Hypothesis 1 (H1).** *Present Hedonistic time perspective will increase the risk of digital piracy.*

**Hypothesis 2 (H2).** *Present Fatalistic time perspective will increase the risk of digital piracy.*

**Hypothesis 3 (H3).** *Future Oriented time perspective will decrease the risk of digital piracy.*

Similarly, we will test the associations between values and digital piracy to fill the gap in the literature where, as mentioned earlier, many relationships between piracy and the level of religiosity, level of legal knowledge, wealth, and other factors have been shown [23–26]. Only one published article focuses on the associations between risk taking and values. In this study, the researchers took a materialistic view (i.e., the importance of money), valuing peace and the environment, success orientation, and deference to authority as indicators of values, and found that success orientation with the importance of money increased the risk of gambling and other financial risk-taking behaviours [27]. Following this research, we hypothesized that materialistic values would increase the risk of digital piracy.

**Hypothesis 4 (H4).** *Materialistic values will increase the risk of digital piracy.*

On the other hand, because there is a lack of research into the link between various types of values and digital piracy, we prefer to offer the research question as seen at the end of the section.

Most current university students are commonly considered “digital natives”, which mean that they were born into the digital world and raised in an environment of increasing digitalization [28]. Being a digital native increases both risks (e.g., Excessive Internet Use, Cyberbullying perpetration/cyber-victimization) and benefits (e.g. digital competency, learning about new cultures, increased social networks) [6]. Therefore, examining the incidence and correlations of digital piracy within a sample of university students can contribute to the literature.

In sum, time perspectives and values will be evaluated as individual level factors, and living in an unrecognized country or a country with no laws against digital piracy will be evaluated as the contextual factor. The research questions and hypotheses that underlie the study are as follows:

RQ1: What are the frequencies of acts of digital piracy among university students in North Cyprus?

RQ2: To what extent are the values associated with digital piracy?

### 3. Materials and Methods

#### 3.1. Participants

A total of 318 university students were recruited from a university in the Mediterranean Region by using an online survey (44.2% females, 52.7% males, 3% other, Mean Age: 20.9, SD: 2.47). The sample was multinational and included students from Cyprus, Turkey, Nigeria, Pakistan, Iran, Morocco, Germany, Palestine, Oman, Zimbabwe, the Russian Federation, Saudi Arabia, Turkmenistan, Botswana, and Jordan. A total of 52 students who stated that they were living in their home country during the data collection have not been included in the analyses. So, only those participants who are living in North Cyprus were recruited for data analysis.

#### 3.2. Measurement Tools

All measurement tools have been adapted to Turkish for native students with translation-back translation processes. Original items and back translated items were compared by three referees and they were ranked as 4 in a five points likert scale “1—Not similar to each other, 5—Too similar to each other”. The rankings showed that the items were similar to each other (Cohen’s Kappa values were 0.91, 0.93 and 0.90 for Digital Piracy Questionnaire, Time Perspective Inventory and The Values Scale respectively). The reliability of the measurement tools was tested with Cronbach’s Alpha values. This value was found superior compared to other alternative conceptualizations of reliability [29]. The confirmations of hypothesized associations were evaluated as an indicator of convergent validity.

Demographic Information Questionnaire: This questionnaire included questions about the age, gender, and perceived digital competence of the participants.

Digital Piracy Questionnaire [6]: This questionnaire was developed to measure the digital piracy acts. The questionnaire included a total of 5 items on a 5-point Likert scale (1—Never, 5—Always). Exploratory Factor Analysis (EFA) indicated one factor structure of the questionnaire after measuring Kaiser–Meyer–Olkin (KMO) value as 0.81 which shows an adequacy for sampling. Higher scores indicate higher levels of digital piracy behaviours (e.g., “I download files illegally to share them with my friends”, “Exchanging illegal files helps me stay up-to-date”). Cronbach’s Alpha for the questionnaire was 0.89.

Time Perspective Inventory [13,14]: The inventory included a total of 56 items on a five-point Likert scale (1—Never, 5—Always). KMO value (0.79) was sufficient for EFA. The sample was divided into two and EFA was conducted for the first half and Confirmatory Factor Analysis (CFA) for the second. EFA indicated a five factors structure with the Eigen Values 2.18, 2.75, 4.13, 5.42, and 6.99. All items were loaded under their original sub-dimensions with a minimum 0.30 factor load. Cronbach’s Alpha coefficients were found as 0.84, 0.60, 0.81, 0.83, and 0.76, for Past Negative (e.g., Painful past experiences keep being replayed in my mind), Past Positive (e.g., Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories), Present-Fatalistic (e.g., My life path is controlled by forces I cannot influence), Present-Hedonistic (e.g., I do things impulsively), and Future (e.g., I believe that a person’s day should be planned ahead each morning) sub-scales respectively. CFA was conducted with maximum likelihood estimation. Following Byrne [30] and Hu and Bentler [31]  $df/\chi^2$  ratio was expected as minimum 1/5, RMSEA value as minimum 0.08, GFI, AGFI; CFI and NNFI values as minimum 0.90. This analysis also confirmed the five sub-dimensions ( $\chi^2$  (122, N = 318) = 586,  $p < 0.001$ , RMSEA = 0.06,

GFI = 0.93, AGFI = 0.91, CFI = 0.90, NNFI = 0.92). All these subscales were examined independently and tested as separate variables.

The Values Scale [32]: A total of 39 values were rated on a 9-point Likert scale (1—Not important at all, 9—Extremely important). KMO value (0.95) was sufficient for EFA. EFA indicated a five factors structure with the Eigen Values 1.29, 1.46, 1.62, 2.59 and 2.85. CFA also confirmed the five sub-scales [ $\chi^2$  (146, N = 318) = 425,  $p < 0.001$ , RMSEA = 0.05, GFI = 0.91, AGFI = 0.93, CFI = 0.92, NNFI = 0.90]. The Cronbach's Alphas for the community values (i.e., responsibility), career values (i.e., status), materialistic values (i.e., money), intellectual values (i.e., education), and values of honour (i.e., justice) subscales ranged between 0.78 and 0.80. The internal consistency of the whole scale was 0.97.

### 3.3. Research Procedure

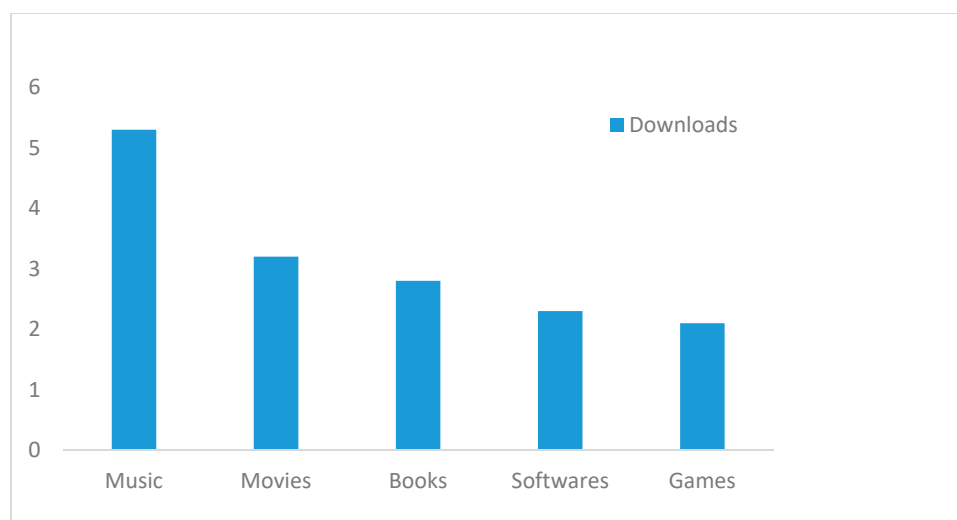
The data were collected by using an online survey due to the ongoing COVID-19 Pandemic. After receiving the approval of the Psychology Department Research Ethics Committee, online surveys were distributed by using a convenient sampling technique. Informed consent was clearly presented before the presentation of the questions. A debriefing form was sent to the participants explaining the minor deception in this study. Instead of referencing digital piracy explicitly, the researchers spoke of risky online activities. The reason for this minor deception was to prevent a high withdrawal rate because of the negative connotation of the concept "Piracy".

The research was conducted using social science principles and in accordance with IRB guidelines. Participation in the study was voluntary. The respondents were informed about the purpose of the study. Each respondent was free to withdraw from the study at any time. The survey was anonymous. Additionally, all participants were informed about the real aim of the study in the debriefing form. In this form it was clearly stated that they have the right to withdraw from the study (i.e., that their responses would be deleted) even after submitting the answers if they felt at risk.

## 4. Results

Frequencies of acts of digital piracy.

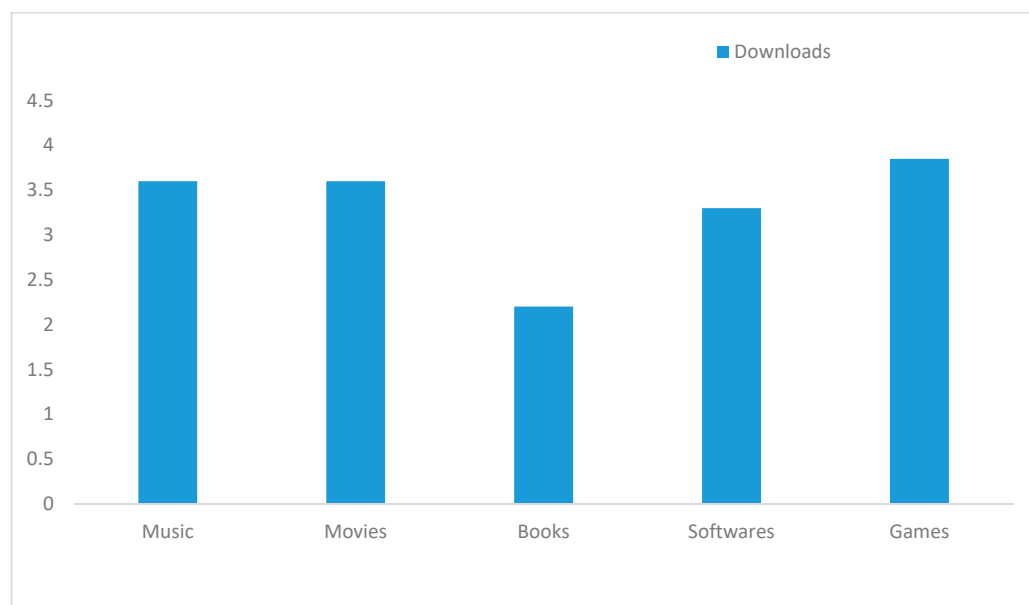
Five percent of the sample reported that they downloaded music in illegal ways every day or almost every day. This was followed by movies, books, software and games (See Figure 1).



**Figure 1.** Percentage of illegal downloads (every day or almost every day).

When the time period was seven days, almost 4% of the participants reported that they downloaded games illegally, followed by music, movies, software, and books (See

Figure 2). It should be stressed, however, that digital piracy is not a behaviour that occurs at high intensity. The scale of the phenomenon related to illegal downloading is similar to other risky behaviours mediated by the Internet.



**Figure 2.** Percentages of illegal downloads (at least once a week).

Before conducting the logistic regression analysis, the correlational coefficients among the variables were computed. The associations were as expected in general (See Table 1).

**Table 1.** Descriptive statistics and correlations for study variables.

Variable	n	M	SD	1	2	3	4	5	6	7	8	10	10	11	12
1. Digital Piracy acts	318	4.06	4.67												
2. Community values	292	79.54	13.43	−0.10											
3. Career values	302	37.45	7.98	−0.13 *	0.83 **										
4. Materialistic values	314	19.85	6.02	0.25 **	0.59 **	0.64 **									
5. Intellectual values	310	38.74	7.64	−0.07	0.82 **	0.84 **	0.58 **								
6. Honour values	311	21.53	5.18	−0.23 **	0.72 **	0.69 **	0.50 **	0.61 **							
7. Past Negative TP	317	25.69	7.06	0.11 *	0.13 *	0.08	0.10	0.06	0.03						
8. Present Hedonistic TP	317	41.41	7.09	−0.09	0.13 *	0.11 *	0.03	0.10	0.20 **	0.22 **					
9. Future oriented TP	317	24.04	4.53	−0.04	0.27 **	0.29 **	0.07	0.19 **	0.30 **	0.10	0.14 *				
10. Past Positive TP	317	21.29	4.46	−0.06	0.17 **	0.13 *	0.07	0.15 **	0.22 **	−0.14 *	0.33 **	0.26 **			
11. Present Fatalistic TP	317	10.74	3.18	0.16 **	−0.03	−0.06	0.10	−0.01	−0.02	0.36 **	0.32 **	0.02	0.16 **		
12. Digital Competence	319	14.17	6.04	0.17 **	−0.07	−0.08	0.01	−0.02	−0.16 **	0.14 *	0.05	−0.03	−0.12 *	0.15 **	

\* Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the 0.01 level (2-tailed).

Logistic Regression Analysis [33] was conducted to test the hypotheses across three steps. This analysis was chosen because of its suitability for risk analysis [34] and identification of protective factors [35]. In the first step, gender, age and digital competence were entered as control variables; time perspectives and values were then entered in the second and third steps respectively. Acts of piracy as a continuous variable was converted into a categorical variable to allow us to conduct the logistic regression. One Standard Deviation (4.67) over the Mean Score (4.06) was used as the cut-off point and the scores above 9 were labelled as high scores of digital piracy, while those scores below 8 were labelled as low scores of digital piracy. In the last step, digital competence, materialistic values, values



of honour, Present Hedonistic, and Present Fatalistic time perspectives were found to be significant predictors. One unit increase in Present Fatalistic time perspective increased the risk of digital piracy almost ten-fold. This was followed by digital competence (increasing the risk seven-fold), Present Hedonistic time perspective (increasing the risk almost six-fold), and materialistic values (increasing the risk four-fold). On the other hand, an increase of one unit in the values of honour decreased the risk of digital piracy four-fold (see Table 2).

**Table 2.** Logistic regression analysis for piracy acts among university students.

Predictor	$\beta$	SE $\beta$	Wald's X2	df	p	e $\beta$
Constant	1.041	1.191	0.758	1	0.384	0.353
Age	0.000	0.000	0.035	1	0.852	1.000
Gender	−0.037	0.316	0.013	1	0.9080	0.964
Digital Competence	0.062	0.023	7.155	1	0.007 **	1.064
Community Values	−0.004	0.023	0.029	1	0.865	0.996
Career Values	−0.044	0.040	1.247	1	0.264	0.957
Materialistic Values	0.076	0.037	4.288	1	0.038 *	1.079
Intellectual Values	0.058	0.043	1.839	1	0.175	1.060
Values of Honour	−0.086	0.024	4.252	1	0.039 *	0.918
Past Negative TP	0.017	0.024	0.551	1	0.458	1.018
P. Hedonistic TP	0.056	0.024	5.587	1	0.018 *	0.945
Future TP	−0.006	0.033	0.032	1	0.858	0.994
Past Positive TP	−0.019	0.035	0.290	1	0.590	0.981
P. Fatalistic TP	0.158	0.051	9.694	1	0.002 **	1.172

Note. Cox and Snell  $R^2 = 0.094$  Nagelkerke  $R^2 = 0.143$  c-statistics: 80.5% \*\*  $p < 0.01$  \*  $p < 0.05$ .

When the findings were summed, it was found that perceiving the present time as risky was the strongest risk factor for digital piracy. To perceive himself/herself as digitally skilled was the next predictor as risk followed by hedonistic cognition and valuing money/property. The only protective factor was valuing virtue and justice.

## 5. Discussion

This study aimed to investigate the individual and contextual factors which increase or decrease the risk of digital piracy among international students recruited from a university in the Mediterranean Region. It was found that digital piracy was not rare among university students. This finding was consistent with studies conducted in nearby countries [36,37]. As mentioned in the Introduction, university students are considered digital natives, born into a digital world and consequently more prone to the benefits and risks introduced by information and communication technologies. Although not all digital natives are digitally competent [38] the findings of our research indicate that one of the factors which increased the risk of digital piracy was digital competence. Therefore, we suggest the idea of being a university student is not central to the issue, but rather that digital competence is a decisive factor in measuring the risk of digital piracy. This result is consistent with the literature and was expected. However, it must be noted that digital competence was used as a control variable in our study and coherent significance in the last step showed its predictive power. Digital piracy is an example of how a competence can be misused. Instead of misusing it and taking a risk, digital competence can be used to the benefit of the person. The Future of Jobs Report 2020 (Weforum.org, accessed on: 13 August 2021) [39] indicated that monitoring and controlling technology use, along with technology design and programming, will be among the top skills required for jobs in 2025.

Living in a country that lacks legislative regulations against piracy was evaluated as a contextual risk factor in our study. As mentioned above, the northern part of Cyprus is an unrecognized country and sales of pirated CDs, books, and software are so common despite the fact that there is a copyright law based on 1911 British Government Rules. As might be expected of a law that is over a century old, the current provisions do not legislate

against digital piracy. This could account for some of the level of digital piracy among university students, although digital piracy itself is something of a universal problem.

As highlighted earlier, there has been no study which tested the link between values and digital piracy. As hypothesized, materialistic values increased the risk, while values of honour were found to be a protective factor. Materialistic values stress the importance of money, property, and status for the participants. Digital piracy is a kind of act which the basic motivation is not to pay the fee of the service. Therefore, valuing money and other materialistic things may trigger this act. On the other hand, the people who value the virtue and justice might perceive the digital piracy as a kind of theft beyond of an unethical behaviour.

Another contribution of the current research is the discovery of the significant link between Present Fatalistic time perspective and digital piracy. This specific TP was the strongest predictor for an increased risk of digital piracy. As mentioned earlier, this can be explained to some extent by taking the conditions of the COVID-19 pandemic into account. The university students might feel helpless and hopeless because of the pandemic and this might have caused them to increase the level of acts of digital piracy to provide relief from negative emotions. However, it must be noted that this is purely speculation because there was no direct question which sought to measure anxiety linked to COVID-19 in the sample.

The association between Present Hedonistic TP and digital piracy was significant, as hypothesized. It was already well documented that this TP linked with risk taking behaviours. Digital piracy is also accepted as an online risk behaviour because of the clear laws and legislations that exist to prevent it. Therefore, this finding was in line with previous findings. However, it must be noted that this was the first study which tested this link in an unrecognized country which lacks laws against digital piracy. Therefore, this link can be explained as representing the respondents' need to increase gratification. Although Present Fatalistic and Present Hedonistic TPs seem to stand in opposition to one another, they can be observed at the same time and may increase the level of risky behaviour.

The only unsupported hypothesis was the one which indicated the expectation of a link between Future Oriented TP and digital piracy. The absence of this association can also be explained by the devastating conditions of the pandemic. The participants might not have any hope related to the future because of the ongoing uncertainty. At this point it must be noted that the vaccination program had not begun when the data were collected.

In sum, the current study yielded promising results to contribute to the literature of digital piracy. The findings hold a certain potential for implications in the field of digital piracy. However, future studies may increase the strength of the current research by using a longitudinal design to see the links in time. In addition, the study has limitations because of its quantitative nature. Although statistically significant associations shed light to the phenomenon a qualitative method could be used to explore the dynamics in depth. The quantitative way of measuring digital piracy also has limitations in the way it can be interpreted. Many people fail to adequately classify their own actions in the context of infringement of the law.

Considering the data collected, the authors are aware that the research sample selected is not representative, which means that it does not allow for generalisation. Moreover, the applied research model does not take a number of important variables into account, such as the level of legal knowledge of the respondents in the scope of intellectual property protection law, previous experience with piracy, influence of peers on piracy, level of religiousness and other key factors. All this, on the one hand, makes the presented model incomplete, while on the other hand, it allows for emphasising the issue of values, time orientation and digital competence.

## 6. Implications

The findings were theoretically sound. As mentioned before, individual level factors are the dominant predictors of developmental outcomes. The strong associations between



specific time perspectives, values, digital competence and digital piracy supported the centrality of individual characteristics, as mentioned by Bronfenbrenner [9] and Masten [8].

Although digital competency was one of the strongest predictors of digital piracy, it can be used to gain benefits. The Future of Jobs 2020 Report (<https://www.weforum.org/reports/the-future-of-jobs-report-2020>, accessed on 13 August 2021) [39] mentioned that monitoring and controlling technology use, as well as technology design and programming (which are indicators of digital competence) will be among the top skills required for jobs in 2025. University students can be supervised about using this kind of skill so as to avoid risk and benefit from gains.

The findings can also be used as topics for teaching digital ethics. Unfortunately, there are a few higher education institutions that heed ethics in the digital world. The costs of digital piracy (i.e., loss of jobs or financial losses) can be raised while strengthening the values of virtue and justice. In addition, the perspective of time can be handled to increase the level of mindfulness [40,41]. Beyond this there is some research which stressed that mindfulness itself can be a separate time perspective [23]. Future research can focus on this link.

The data collected are part of the discussion on the determinants associated with risk behaviours in cyberspace [36]. The present data allow for a fresh look at prevention programmes that serve to minimise risky behaviours. Effective educational activities should include in their content the formation of soft competences related to the orientation of one's own actions over time, the integration of value issues in formal and non-formal training. Effective prevention of "traditional" threats of cyberspace requires shaping skills useful in evaluating one's own behaviour in a long-term perspective and going beyond simple actions violating norms. The proposed research model related to piracy, values and time orientation is also useful for addressing other e-threats, such as cyberbullying, cyberaggression, identity theft, and sexting among others [42].

## 7. Conclusions

The study of digital piracy is currently not an intensively explored area of analysis compared to other risk behaviours in cyberspace. Digital piracy is a phenomenon that is losing its importance due to the emergence of low-cost or free solutions for accessing software, books, and audio-visual materials. However, given the data collected, digital piracy has not been completely eliminated. The issue of online copyright infringement is a challenge for audio-visual companies and researchers dealing with copyright issues, as well as psychology, sociology, and the pedagogy of new media. Taking the results of research to date into account, and likewise in countries with high respect for copyright, it can be concluded that digital piracy will never be eliminated. This conclusion forces a redefinition of piracy research, taking social, individual, and technical determinants into account.

The data collected clearly suggest that previous research has not sufficiently addressed factors relating to time orientation. This research communication expands a new area of research inquiry into moving beyond perceptions of piracy in the here and now. Understanding this phenomenon, particularly in countries where there is formal and social acceptance of IPR violations, contributes to a deeper understanding of Internet mediated risk behaviour.

**Author Contributions:** Conceptualization, Ł.T. and F.B.; methodology, Ł.T. and F.B.; software, F.B.; validation, F.B.; formal analysis, Ł.T. and F.B.; investigation, F.B.; resources, Ł.T. and F.B.; data curation, Ł.T. and F.B.; writing—original draft preparation, Ł.T. and F.B.; writing—review and editing, Ł.T.; visualization, F.B.; supervision, F.B.; project administration, F.B.; funding acquisition, Ł.T. Both authors have read and agreed to the published version of the manuscript.

**Funding:** The article was written as part of the project "Teachers of the future in the information society—between risk and opportunity paradigm" funded by the Polish National Agency for Academic Exchange under the Bekker programme Grant number: PPN/BEK/2020/1/00176.

**Institutional Review Board Statement:** The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of EMU's Scientific Research and Publication Ethics Board (BAYEK) (protocol code EMU—ETK00-2020-0120 and 31 March 2020).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data available on request.

**Acknowledgments:** We would like to thank all the respondents who participated in the research. Separate thanks go to the Eastern Mediterranean University and the Pedagogical University of Cracow for their organisational and administrative support.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Tomczyk, Ł. Evaluation of Digital Piracy by Youths. *Future Internet* **2021**, *13*, 11. [CrossRef]
- Li, X.; Liao, C.; Xie, Y. Digital Piracy, Creative Productivity, and Customer Care Effort: Evidence from the Digital Publishing Industry. *Mark. Sci.* **2021**, *40*, 685–707. [CrossRef]
- Ahadiat, A.; Maydiantoro, A.; Kesumah, F.S.D. The Theory of Planned Behavior and Marketing Ethics Theory in Predicting Digital Piracy Intentions. *WSEAS Trans. Bus. Econ.* **2021**, *18*, 679–702. [CrossRef]
- Kukla-Gryz, A.; Tyrowicz, J.; Krawczyk, M. Digital piracy and the perception of price fairness: Evidence from a field experiment. *J. Cult. Econ.* **2021**, *45*, 105–131. [CrossRef]
- Prasad, A.; Mahajan, V. How many pirates should a software firm tolerate?: An analysis of piracy protection on the diffusion of software. *Int. J. Res. Mark.* **2003**, *20*, 337–353. [CrossRef]
- Tomczyk, Ł. The Practice of Downloading copyrighted files among adolescents in Poland: Correlations between piracy and other risky and protective behaviours online and offline. *Technol. Soc.* **2019**, *58*, 101137. [CrossRef]
- Bsa.org. Software Management: Security Imperative, Business Opportunity. 2018. Available online: [https://gss.bsa.org/wp-content/uploads/2018/05/2018\\_BSA\\_GSS\\_Report\\_en.pdf](https://gss.bsa.org/wp-content/uploads/2018/05/2018_BSA_GSS_Report_en.pdf) (accessed on 7 April 2021).
- Masten, A.S. Developmental psychopathology: Pathways to the future. *Int. J. Behav. Dev.* **2006**, *30*, 47–54. [CrossRef]
- Bronfenbrenner, U. Basic concepts. In *The Ecology of Human Development*; Harvard University Press: Cambridge, MA, USA, 1979; pp. 3–15.
- Hinduja, S. Deindividuation and Internet Software Piracy. *CyberPsychology Behav.* **2008**, *11*, 391–398. [CrossRef] [PubMed]
- Cronan, T.P.; Al-Rafee, S. Factors that Influence the Intention to Pirate Software and Media. *J. Bus. Ethics* **2007**, *78*, 527–545. [CrossRef]
- Gan, L.L.; Koh, H.C. An empirical study of software piracy among tertiary institutions in Singapore. *Inf. Manag.* **2006**, *43*, 640–649. [CrossRef]
- Zimbardo, P.G.; Boyd, J.N. Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric. *Time Perspect. Theory Rev. Res. Appl.* **2015**, 17–55. [CrossRef]
- Zimbardo, P.G.; Keough, K.A.; Boyd, J.N. Present time perspective as a predictor of risky driving. *Pers. Individ. Differ.* **1997**, *23*, 1007–1023. [CrossRef]
- Keough, K.A.; Zimbardo, P.G.; Boyd, J.N. Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic Appl. Soc. Psychol.* **1999**, *21*, 149–164. [CrossRef]
- West, R.L.; Turner, L.H. *Introducing Communication Theory: Analysis and Application*, 4th ed.; McGraw Hill Higher Education: New York, NY, USA, 2009.
- Chen, T.; Liu, L.-L.; Cui, J.-F.; Chen, X.-J.; Wang, J.; Zhang, Y.-B.; Wang, Y.; Li, X.-B.; Neumann, D.L.; Shum, D.H.; et al. Present-fatalistic time perspective and life satisfaction: The moderating role of age. *Pers. Individ. Differ.* **2016**, *99*, 161–165. [CrossRef]
- Sailer, U.; Rosenberg, P.; Al Nima, A.; Gamble, A.; Gärling, T.; Archer, T.; Garcia, D. A happier and less sinister past, a more hedonistic and less fatalistic present and a more structured future: Time perspective and well-being. *PeerJ* **2014**, *2*, e303. [CrossRef]
- Mazza, C.; Ricci, E.; Biondi, S.; Colasanti, M.; Ferracuti, S.; Napoli, C.; Roma, P. A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3165. [CrossRef]
- AlHeneidi, H.; Alsumait, L.; Alsumait, D.; Smith, A.P. Loneliness and Problematic Internet Use during COVID-19 Lock-Down. *Behav. Sci.* **2021**, *11*, 5. [CrossRef]
- Adorjan, M.C.; Ricciardelli, R. *Cyber-Risk Youth*; Routledge: London, UK, 2018. [CrossRef]
- Jeong, B.K.; Yoon, T.; Khan, S.S. Improving the Effectiveness of Anti-Piracy Educational Deterrence Efforts: The Role of Message Frame, Issue Involvement, Risk Perception, and Message Evidence on Perceived Message Effectiveness. *J. Theor. Appl. Electron. Commer. Res.* **2020**, *16*, 298–319. [CrossRef]
- Sjöberg, L.; Engelberg, E. Attitudes to economic risk taking, sensation seeking and values of business students specializing in finance. *J. Behav. Financ.* **2009**, *10*, 33–43. [CrossRef]

24. Ballano, V. Technology, Law Enforcement, and Illegal Camcording in Philippine Cinemas: A Preliminary Analysis. *Int. J. Sustain. Policy Pract.* **2021**, *17*, 51–62. [\[CrossRef\]](#)
25. Tran, T.; Ho, M.-T.; Pham, T.-H.; Nguyen, M.-H.; Nguyen, K.-L.P.; Vuong, T.-T.; Nguyen, T.-D.; Nguyen, T.-L.; Khuc, Q.; La, V.-P.; et al. How Digital Natives Learn and Thrive in the Digital Age: Evidence from an Emerging Economy. *Sustainability* **2020**, *12*, 3819. [\[CrossRef\]](#)
26. Jeong, B.-K.; Zhao, K.; Khouja, M. Consumer Piracy Risk: Conceptualization and Measurement in Music Sharing. *Int. J. Electron. Commer.* **2012**, *16*, 89–118. [\[CrossRef\]](#)
27. Seema, R.; Sircova, A. Mindfulness—A Time Perspective? Estonian Study. *Balt. J. Psychol.* **2003**, *14*, 4–21.
28. Jones, C.; Ramanau, R.; Cross, S.; Healing, G. Net generation or Digital Natives: Is there a distinct new generation entering university? *Comput. Educ.* **2010**, *54*, 722–732. [\[CrossRef\]](#)
29. Zinbarg, R.E.; Revelle, W.; Yovel, I.; Li, W. Cronbach's  $\alpha$ , Revelle's  $\beta$ , and McDonald's  $\omega$ H: Their relations with each other and two alternative conceptualizations of reliability. *Psychometrika* **2005**, *70*, 123–133. [\[CrossRef\]](#)
30. Byrne, B.M. Structural Equation Modeling With AMOS, EQS, and LISREL: Comparative Approaches to Testing for the Factorial Validity of a Measuring Instrument. *Int. J. Test.* **2001**, *1*, 55–86. [\[CrossRef\]](#)
31. Hu, L.T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55. [\[CrossRef\]](#)
32. Schwartz, S.H. An Overview of the Schwartz Theory of Basic Values. *Online Read. Psychol. Cult.* **2012**, *2*. [\[CrossRef\]](#)
33. Crick, N.R.; Dodge, K.A. Cross-validation of covariance structures. *Multivar. Behav. Res.* **1996**, *67*, 993–1002. [\[CrossRef\]](#)
34. Bayaga, A. Multinomial logistic regression: Usage and application in risk analysis. *J. Appl. Quant. Methods* **2010**, *5*, 288–297.
35. Pardini, D.A.; Loeber, R.; Farrington, D.; Stouthamer-Loeber, M. Identifying Direct Protective Factors for Nonviolence. *Am. J. Prev. Med.* **2012**, *43*, S28–S40. [\[CrossRef\]](#)
36. Akbulut, Y. Exploration of the antecedents of digital piracy through a structural equation model. *Comput. Educ.* **2014**, *78*, 294–305. [\[CrossRef\]](#)
37. Akbulut, Y.; Dönmez, O. Predictors of digital piracy among Turkish undergraduate students. *Telemat. Inform.* **2018**, *35*, 1324–1334. [\[CrossRef\]](#)
38. Li, Y.; Ranieri, M. Are 'digital natives' really digitally competent?—A study on Chinese teenagers. *Br. J. Educ. Technol.* **2010**, *41*, 1029–1042. [\[CrossRef\]](#)
39. Weforum.org. The Future of Jobs Report 2020. 2020. Available online: <https://www.weforum.org/reports/the-future-of-jobs-report-2020> (accessed on 7 April 2021).
40. Wittmann, M.; Peter, J.; Gutina, O.; Otten, S.; Kohls, N.; Meissner, K. Individual differences in self-attributed mindfulness levels are related to the experience of time and cognitive self-control. *Pers. Individ. Differ.* **2014**, *64*, 41–45. [\[CrossRef\]](#)
41. Dvoryanchikov, N.V.; Bovina, I.B.; Delibalt, V.V.; Dozortseva, E.G.; Bogdanovich, N.V.; Rubtsova, O.V. Deviant online behavior in adolescent and youth circles: In search of a risk assessment model. *Int. J. Cogn. Res. Sci. Eng. Educ.* **2020**, *8*, 105–119. [\[CrossRef\]](#)
42. Pyżalski, J.; Zdrodowska, A.; Tomczyk, Ł.; Abramczuk, K. *Polskie Badanie EU Kids Online 2018 Najważniejsze Wyniki i Wnioski*; Adam Mickiewicz University Poznan: Poznań, Poland, 2019.