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Internet Use for School-Mandated and Self-Initiated Learning: Good, Bad, or Both?

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Abstract

Because delivery of school assignments and other learning materials has been migrating to online learning environments, use of the Internet for learning has become obligatory for high school students. However, research on the consequences of Internet learning remains equivocal, with some advocating benefits of such learning and others warning about its potential negative effects. In this study, we approach Internet use for learning from a motivational perspective and argue that such learning can be both positive and negative depending on whether it contributes to harmonious or obsessive Internet passion. We test how two types of Internet use for learning, school mandated and self-initiated, may relate to harmonious and obsessive Internet passion among high schoolers in the United States and Russia. The results indicate that Internet use for school-mandated learning is positively related to both harmonious and obsessive Internet passion, and these results hold in both countries. Internet use for self-initiated learning was also positively related to harmonious Internet passion in both Russia and the United States, but was unrelated to obsessive Internet passion in either country. This research not only augments the nomological network of the Internet passion construct but also informs educators on how to incorporate Internet use into the learning environment in ways that are likely to promote harmonious Internet passion and decrease obsessive Internet passion.

Keywords: harmonious Internet passion, obsessive Internet passion, school-mandated learning, self-initiated learning

Introduction

SINCE ITS ADVENT in early 1950s, the Internet has paradoxically been described as one of the world's best and worst inventions. Its virtues include rapid data transmission, new methods of communication, and the increased accessibility of information.[1] Critics highlight an array of negative outcomes of the Internet, including a reduction of face-to-face interpersonal interaction,[2] obsessive use,[3] and addiction.[4]

In an effort to capitalize on the Internet's potential to enhance student learning, educators have integrated the Internet into both K-12 and university learning environments.[5,6] Use of the Internet has become obligatory for many students now that delivery of school assignments and other learning materials has migrated to online learning. Because the Internet offers valuable information,[7] students also routinely use the Internet for self-initiated learning.

Evidence regarding the effectiveness of Internet use for learning has been equivocal. Some researchers describe the Internet as an excellent medium for teaching and learning.[8] Others, however, warn that Internet-based learning may lead to pathological Internet use.[9] We combine these two perspectives in this study and argue that Internet use has both positive and negative potential, depending on whether it contributes to harmonious or obsessive Internet passion.

We also differentiate between two types of Internet use for learning: school mandated and self-initiated. This distinction supports a more nuanced picture of what has previously been viewed as a single pattern on Internet usage. Recognizing differential Internet usage patterns enables us to identify differential effects. We then test our model using high school students in the United States and Russia to recognize that the integration of the Internet into learning is a global phenomenon.[10] The use of these two samples increases the global generalizability of our results.

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Harmonious and obsessive Internet passion

Drawing on the dual passion framework developed in psychology,[11] recent studies have introduced the construct of dual Internet passion.[3,12] Internet passion is defined as a strong inclination toward using the Internet that individuals perceive to be both interesting and important and in which they are willing to invest time and energy.[13] Depending on how individuals internalize their Internet passion into their identities, Internet passion can be either harmonious or obsessive.[3] In the case of harmonious passion, internalization is autonomous and is driven by the intrinsic satisfaction the individual derives from engaging in the activity; individuals with harmonious passion enjoy their favorite activity and balance it with other activities in their lives. In the case of obsessive passion, internalization is controlled by external factors, including compensatory functions that the activity may serve, such as enhancing self-esteem or obtaining desired rewards or appraisals. Individuals with obsessive passion are excessively involved in their favorite activity and do so at the expense of other activities in their lives.

The consequences of passion vary depending on the passion type. Harmonious passion is known to be positively associated with mental health, positive effect, flow elements (i.e., concentration, control, and autotelic experience), vitality, and effective commitment.[14,11] In contrast, obsessive passion is negatively associated with mental health and is positively related to negative effect, shame, and anxiety.[14,11] Recent studies demonstrate that harmonious Internet passion is positively related to cognitive and social competence and general self-worth and is unrelated to addiction.[3,15] Conversely, obsessive Internet passion negatively links to cognitive and social competence and general self-worth and contributes to Internet addiction.[15]

Much less attention has been focused on the antecedents of passion. For example, Mageau et al.[16] found that a key determinant of whether children and teenagers developed harmonious or obsessive passion was the degree of environmental support for autonomous activity. Other significant contributors to passion include preference for activity specialization, parental activity valuation, and activity identification.[16] In the context of Internet passion, studies have been limited to specific idiosyncratic contexts, including online shopping[17] and online gaming.[18]

To date, no studies have specifically examined the antecedents of Internet passion in the context of Internet-based learning. Given the increased use of the Internet for learning, it is important that antecedents of Internet passion in the learning context are identified and examined. This knowledge will augment the nomological network associated with the Internet passion construct and will enable educators to better incorporate Internet use into the learning environment in ways that are likely to harness harmonious Internet passion and circumvent obsessive Internet passion.

Internet use for learning

As Barron[19] observed, learning may take place in school settings or laboratories or may occur as a result of various learner-initiated activities outside of these traditional educational settings. Previous work has identified learner independence as the key differences between school-mandated learning and self-initiated learning.[19] We suggest that this independence can be conceptualized as a function of the locus of motivation for the student and the source of structure and guidance for the activity. We use school mandated learning to refer to knowledge acquisition activities that are formally structured by the school and initiated by students in response to a directive from school personnel. Self-initiated learning, in contrast, occurs when student engagement is triggered by internal motivation. In self-initiated learning activities students structure and direct their own knowledge acquisition activities rather than relying on teachers, parents, or other adults to do so.[20] The differences between two types of learning may spawn different Internet behaviors which we discuss below.

The Internet provides a number of learning opportunities for students, including quick access to accurate information, instantly graded web assignments, and live chats and online tutorials with teachers.[21] These opportunities make it possible for teachers to cover more course-related material at a faster pace, increase students' participation, and provide instant feedback. In combination, these changes make courses more engaging.[21] For these reasons, among others, educators have an incentive to integrate the Internet into the learning environment.

Integration of the Internet into the learning process has the potential to make learning both more efficient and more intrinsically motivating. As a consequence students may find that content mastery occurs more rapidly and that some time can be reallocated from learning activities to other activities. This may increase student autonomy by making it possible for students to exercise additional control over the learning process. For example, the Internet may allow students to balance time spent on the Internet with other activities in and outside of school,[3] such as sports or volunteering. This balanced use of the Internet may create a context conducive to the emergence of harmonious Internet passion.

Hypothesis 1: Internet use for school-mandated learning is positively related to harmonious Internet passion.

In contrast, the accessibility and ease of use of the Internet may increase competition among students, and this may lead to increased external pressure to perform. Students may spend more time on the Internet searching for the most competitive ways to complete a school project, feeding to the controlled internalization of this behavior. These conditions may result in the emergence of obsessive Internet passion.

Hypothesis 2: Internet use for school-mandated learning is positively related to obsessive Internet passion.

Self-initiated learning is, by definition, more autonomous and more intrinsically motivated than school-mandated learning. Self-initiated learning is also more strongly associated with self-observation, self-judgment, and self-regulation.[20] In other words, self-initiated learning involves greater control over one's own behavior.[22] Individuals who are better able to self-regulate will likely be better able to limit their Internet use by balancing it with other activities in their lives. This reasoning suggests that Internet use associated with self-learning will be positively related to harmonious Internet passion and negatively related to obsessive Internet passion.

Hypothesis 3: Internet use for self-initiated learning is positively related to harmonious Internet passion.

Hypothesis 4: Internet use for self-initiated learning is negatively related to obsessive Internet passion.

We further argue that school-mandated Internet-based education is likely to stimulate self-initiated Internet-based learning. Internet use for school-mandated learning often includes a teacher playing the role of a ''sage on the stage.''[23] The ultimate goal of such learning is to increase access to knowledge and facilitate learners becoming lifelong learners.[23] Similarly, Barron[19] underscores interdependencies between school-centric and self-initiated learning by noting that school-centric learning can be instrumental in stimulating students' independent pursuit of knowledge.

Hypothesis 5: Internet use for school-mandated learning is positively related to Internet use for self-initiated learning.

Methods

The data were collected among high school students in the United States and Russia. The surveys were paper and pencil and were completed by respondents during school hours. Participation in the study was anonymous and voluntary; participants were entered into a drawing to win 1 of 15 $10 iTunes gift cards. The survey was translated and back translated to assure accuracy in meaning before it was administered to the Russian respondents.[24]

In the United States, 212 high school students enrolled in a core course at the time of data collection were contacted. One hundred thirty-two participated in the study. The final U.S. sample was 42 percent female, 5 percent freshmen, 41 percent sophomores, 30 percent juniors, and 24 percent seniors. These students spent an average of 5 hours per day using the Internet.

In Russia, 154 high school students enrolled in a core course were contacted. One hundred eleven participated in the study. The final Russian sample was 76 percent female, 6 percent freshmen, 28 percent sophomores, 51 percent juniors, and 12 percent seniors. These students spent an average of 6 hours per day using the Internet.

Measures

All variables in the study were measured using a seven-point Likert type scale ranging from strongly disagree to strongly agree. We developed the scales to measure Internet use for school-mandated and self-initiated learning. The former scale included three items as follows: ''I use the Internet to complete my homework assignments,'' ''I use the Internet to prepare for quizzes and tests,'' and ''I use the Internet to do research for group and individual assignments or projects.'' The Cronbach's alphas for the scale were 0.78 and 0.87, in the U.S. and Russia samples, respectively. The self-initiated scale also included three items as follows: ''I use the Internet to satisfy my curiosity to learn something new,'' ''I use the Internet to find answers to some questions I am interested in,'' and ''I use the Internet to learn things I did not know before.'' The Cronbach's alphas for the scale were 0.93 and 0.94, in the U.S. and Russia samples, respectively. Harmonious and obsessive passion were assessed using the 14-item Vallerand et al.'s[11] passion measure adapted to Internet use. The sample items include ''The use of the Internet allows me to live a variety of experiences'' and ''I am emotionally dependent on the Internet,'' for harmonious and obsessive Internet passion, respectively. The Cronbach's alphas were 0.85 and 0.90 for each passion in the United States and were 0.83 and 0.93 in Russia.

Results

Descriptive statistics are shown in Table 1.

Confirmatory factor analysis

Confirmatory factor analysis results indicated that the proposed four-factor measurement model (school-mandated and self-initiated learning, harmonious and obsessive Internet passion) adequately fits the data in the United States [$\chi^2_{(48)} = 87.86$, comparative fit index (CFI) = 0.98, non-normed fit index (NNFI) = 0.98, root mean square error of approximation (RMSEA) = 0.08] and Russia [$\chi^2_{(48)} = 67.57$, CFI = 0.99, NNFI = 0.99, RMSEA = 0.06]. In each sample, we further compared the hypothesized model with two alternative models: a three-factor model, in which the items

Table 1. Descriptive Statistics and Correlations (United States and Russia Samples)

	Mean	SD	*AVE*	*CR*	*1*	*2*	*3*	*4*
Variable	*U.S. sample* (n = *132*)							
1. Internet use for school-mandated learning	5.89	1.12	0.68	0.86	0.78			
2. Internet use for self-initiated learning	5.79	1.32	0.71	0.75	0.44**	0.93		
3. Harmonious Internet passion	4.43	1.22	0.56	0.78	0.27**	0.45**	0.85	
4. Obsessive Internet passion	3.43	1.38	0.76	0.90	0.20*	–0.01	0.34**	0.90
	Russian sample (n = *111*)							
1. Internet use for school-mandated learning	5.41	1.30	0.78	0.92	0.87			
2. Internet use for self-initiated learning	5.69	1.13	0.73	0.78	0.33**	0.94		
3. Harmonious Internet passion	3.84	1.22	0.56	0.78	0.26**	0.26**	0.83	
4. Obsessive Internet passion	2.44	1.42	0.84	0.94	0.11	0.09	0.48**	0.93

*$p < 0.05$.
**$p < 0.01$.
Cronbach's α is presented in the diagonal.
AVE, average variance extracted; CR, composite reliabilities.

from two uses of the Internet scales loaded on a single factor; and a single-factor model, in which the items of all four scales loaded on a single factor. In each sample, the hypothesized four-factor model demonstrated a better fit than any of the alternative models, supporting the discriminant validity of the four constructs. To further examine the internal qualities of the four-factor model in each country, we used average variance extracted (AVE) and composite reliabilities (CR). As Table 1 indicates, all four constructs in either U.S. or Russia exceeded the recommended minimum standard of 0.5 for AVE and the minimum standard of 0.6 for CR.[25]

Multigroup analysis

The measurement invariance tests were performed to test for cross-cultural scale invariance.[26] The chi-square values were $\chi^2_{(118)} = 133.37$ and $\chi^2_{(114)} = 138.17$, for the configural and metric invariance tests, respectively, yielding the nonsignificant chi-square change of $\Delta\chi^2_{(4)} = 4.80$, $p > 0.05$. These results support our assertion of scale invariance across the U.S. and Russian samples.

Hypothesis testing

Figure 1 summarizes the findings in the two countries. The structural model provided an adequate fit in both the United States ($\chi^2_{(51)} = 139.33$, CFI = 0.96, NNFI = 0.95, RMSEA = 0.09) and Russia ($\chi^2_{(51)} = 62.75$, CFI = 0.99, NNFI = 0.99, RMSEA = 0.04).

As predicted by Hypothesis 1, a positive link was found between Internet use for school-mandated learning and harmonious Internet passion in both the United States and Russia. Thus Hypothesis 1 is supported. As predicted by Hypothesis 2, Internet use for school-mandated learning was positively related to obsessive Internet passion in both countries. Hypothesis 3 predicted that Internet use for self-initiated learning would be positively associated with harmonious Internet passion. Again, this hypothesis was supported in both countries. Contrary to Hypothesis 4, however, Internet use for self-initiated learning was unrelated to obsessive Internet passion in either country. Finally, Hypothesis 5 was supported in that two uses of the Internet; Internet use for school-mandated learning and Internet use for self-initiated learning were positively interrelated in the United States and Russia.

Post hoc *analyses*

The significant relationships between (1) Internet use for school-mandated learning and Internet use for self-initiated learning and between (2) Internet use for self-initiated learning and harmonious Internet passion in Russia suggested a possible mediating effect of self-initiated learning which we tested *post hoc*. We examined a series of nested models to determine whether the mediation is full or partial. We constrained the direct path from Internet use for self-initiated learning to harmonious Internet passion. This resulted in a significantly worsened model fit [$\Delta\chi^2_{(1)} = 18.02$, $p < 0.001$], suggesting a partial mediating effect of Internet use for self-initiated learning. This suggests that Internet use for self-initiated learning is a conduit of the link between school-mandated learning and harmonious Internet passion among high school students in Russia.

Discussion

As the Internet is being increasingly integrated into K-12 and secondary education programs, it is imperative to understand the consequences of Internet use for student welfare. This is particularly important, given that research on Internet adoption for education suggests that technology innovations ''have had only isolated marginal effects on how and what children learn in school, despite early champions of their revolutionary educational potential.''[27]

In the present study, we distinguish between school-mandated and self-initiated Internet-based learning and explore how each is related to harmonious and obsessive Internet passion in samples of high school students in the United States and Russia. As expected, we found that school-mandated Internet-based learning is related to both harmonious and obsessive Internet passion in both countries. Similarly, Internet use for self-initiated learning was associated with harmonious Internet passion in both countries. We did not find any association between Internet use for self-initiated learning and obsessive Internet passion in either country. These nonsignificant results are not surprising, given the prior inconsistent research on the relationships between obsessive passion and other outcomes.[28] Potential explanations for this nonsignificance may be that these relationships manifest in more complex ways, for example, as curvilinear[29] or moderated relationships[30] and should be examined in future studies.

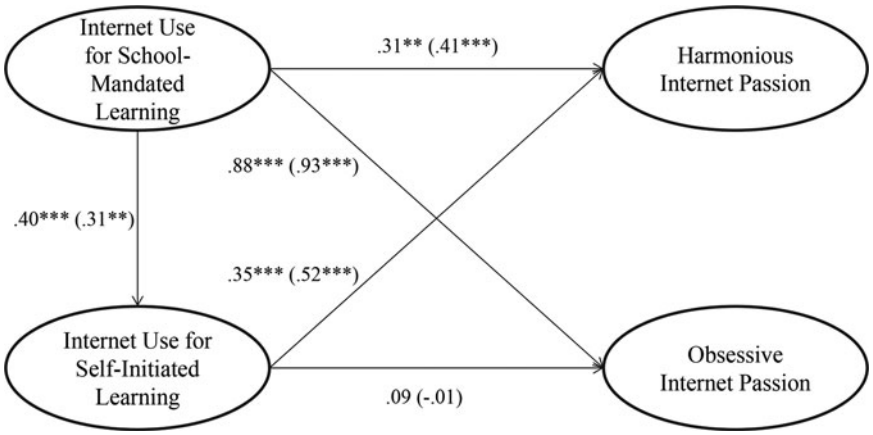

FIG. 1. Hypothesis Testing in the United States ($n = 132$) and Russia ($n = 111$). Standardized beta-coefficients are reported: the first coefficient is for the U.S. sample, and the second coefficient (in parentheses) is for the Russia sample. ***$p < 0.001$; **$p < 0.01$.

Implications for research

This study appears to be the first study that differentiates the effects of Internet use for school-mandated and self-initiated learning. Our results suggest that these effects can be both good (when they are associated with harmonious Internet passion) and bad (when they are linked to obsessive Internet passion). We also believe that this is one of the first studies that examine the antecedents of Internet passion. As such, this study extends research on Internet-based learning by addressing important questions about the benefits (and risks) of Internet-based learning.

Our study answers the call for cross-cultural comparisons that are required to better understand students' use of the Internet in different national cultural backgrounds.[10] Our cross-cultural comparisons did not reveal any cultural differences between students in the United States and Russia. While it would be inappropriate to make strong generalizations based on these null findings, we do speculate that the level of economic and technological development across countries, particularly with Internet access and sophistication among students, may prove to be more important than traditional cultural variables.

Finally, our findings augment research on pathological Internet use[31] by demonstrating that this phenomenon extends beyond gaming and entertainment to the learning context and that there may be negative consequences in the form of obsessive Internet passion in this context as well. Future researchers should investigate how educators can structure Internet learning environments to promote harmonious Internet passion and to constrain obsessive Internet passion.

Implications for practice and limitations

We identify specific actions that both educators in high schools and students should consider implementing to promote harmonious Internet passion and discourage obsessive Internet passion in the context of Internet-based learning. It is important to note that Internet-based learning, despite long-standing beliefs about its benefits for educational goals,[8] can serve as a potential gateway for the emergence of obsessive Internet passion. Knowing that harmonious Internet passion is driven by one's inherent enjoyment of using the Internet, educators should champion Internet-based learning as an environment to be enjoyed, rather than feared. Interesting projects and assignments that encourage student autonomy will likely contribute to the development of harmonious Internet passion. At the same time, teachers should watch for those who struggle with online learning tasks and/or who feel overwhelmed because these students may be experiencing reduced self-control and, therefore, may be more prone to obsessive Internet passion. Teachers should offer assistance and support for such students and promote peer mentoring and group work to enhance student competencies and discourage inter-student competition.

Although the cross-sectional design of the study does not permit causal inferences, the consistency of the results obtained in two independently collected samples adds additional confidence in the validity of our findings. However, future researchers should conduct longitudinal and experimental studies to more rigorously test these relationships. Finally, we do not distinguish between specific activities associated with each of the learning types. For example, school-mandated Internet-based learning may include courses that are offered completely online, in a hybrid format, or face-to-face, with each format requiring different levels of Internet-based learning. Each of these different activities may potentially have different effects on harmonious and obsessive Internet passion and should be examined by future research.

Author Disclosure Statement

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