Psicothema

Psicothema 2018, Vol. 30, No. 2, 195-200
doi: 10.7334/psicothema2017.282

ISSN 0214 - 9915 CODEN PSOTEG

www.psicothema.com

Problematic Internet use, maladaptive future time perspective and school context

María José Díaz-Aguado, Javier Martín-Babarro and Laia Falcón
Universidad Complutense de Madrid

Abstract

Background: Spain is among the European countries with the highest prevalence of adolescents at risk of Internet addiction, a problem that could be linked to youth unemployment and leaving education early. This research evaluated the role of three variables relative to school context on Problematic Internet Use (PIU) and on the relationship between PIU and Maladaptive Future Time Perspective (MFTP, defined as an excessive focus on the present and a fatalistic attitude towards the future, a variable that had not previously been studied in terms of its relationship to adolescents' PIU). **Method:** The study was carried out with 1288 adolescents, aged 12 to 16 years old, enrolled at 31 secondary schools in Madrid, Spain. **Results:** As expected, we found that MFTP and hostile treatment by teachers were associated with an increase in PIU, whereas school appreciation was associated with a decrease in PIU. In addition, hostile treatment by teachers had a moderate effect on the MFTP-PIU relationship. **Conclusions:** In order to prevent PIU it is important to foster confidence in adolescents in their own potential to build the future from the present through positive interaction with teachers, stimulating an appreciation of school within these digital natives' peer group culture.

Keywords: Problematic Internet Use, school context, adolescence, future time perspective, student-teacher relationship.

Resumen

Uso problemático de Internet, perspectiva desadaptativa hacia el futuro y contexto escolar. **Antecedentes:** España es uno de los países europeos con mayor prevalencia de adolescentes en riesgo de adicción a Internet; problema que cabe relacionar con sus elevadas tasas de desempleo juvenil y abandono escolar prematuro. Esta investigación estudia el papel de tres variables del contexto escolar sobre el Uso Problemático de Internet (PIU), así como sobre la relación entre PIU y la Perspectiva Desadaptativa hacia el Futuro (MFTP, definida como una excesiva centración en el presente y actitud fatalista hacia el futuro, variable que no había sido todavía investigada en relación al PIU de los adolescentes). **Método:** se ha realizado con 1.288 adolescentes, de 12 a 16 años, de 31 centros de Educación Secundaria de Madrid, España. **Resultados:** como se esperaba, se encuentra que la MFTP y el tratamiento hostil del profesorado están directamente asociados con un aumento de PIU, mientras que la valoración de la escuela está asociada con un descenso de PIU. Además, el tratamiento hostil del profesorado tiene efecto de moderación en la relación entre MFTP-PIU. **Conclusiones:** para prevenir PIU es importante fortalecer la confianza de los adolescentes en su poder para construir el futuro desde el presente, a través de una adecuada interacción con el profesorado que ayude a incrementar la valoración de la escuela desde la cultura del grupo de iguales de los nativos digitales.

Palabras clave: uso problemático de internet, contexto escolar, adolescencia, perspectiva hacia el futuro, relación profesor-alumno.

Adolescence represents a stage that brings new opportunities as well as risks (Jessor, 1992; Leung, 2004), as is reflected by young people's relationship with the Internet. Most teens tend to use it properly but misuse can put them at considerable risk (Steinberg, 2008). One of their main problems is often referred to as Problematic Internet Use (PIU), defined as generalized and compulsive internet use associated with a loss of control and negative consequences, such as problems with school performance (Caplan, 2002). The international prevalence of this problem varies according to the relationship with quality of life, as shown by subjective indicators of life satisfaction and objective indicators of environmental quality (Cheng & Li, 2014). The study by Tsitsika, Janikian, & Schoenmakers (2014) of adolescents in seven European countries (Greece, Spain, Poland, Germany, Romania, the Netherlands and Iceland) found that Dysfunctional Internet Behavior varied widely between the countries studied, from 7.9% in Iceland to 22.8% in Spain. In order to understand the social context of this high prevalence of the Spanish situation, it should be taken into account that Spain suffers from high rates of early school leaving and youth unemployment (in the year of this comparative study, the rates were 23.5% and 57%, respectively, INE, 2014). These two conditions result in feelings of loss of control and reduced life quality, and have been linked in different contexts to addictions and other risk behaviours (Freudenberg & Ruglis, 2007; Jessor, 1992).

The Davis cognitive-behavioral model (2001) posits that pathological Internet use is associated to maladaptive cognitions

Received: July 26, 2017 • Accepted: January 21, 2018
Corresponding author: María José Díaz-Aguado
Facultad de Psicología
Universidad Complutense de Madrid
28223 Pozuelo de Alarcón (Spain)
e-mail: mjdiazag@ucm.es

and social problems such as social isolation or lack of social support. According to this model, the need for the social contact and reinforcement obtained online produces an increased desire to remain within a virtual social life. Such maladaptive cognitions lead adolescents to believe that through their online existence they can find the reinforcement and social contact lacking in their offline lives. In support of this model, PIU has been found to be associated to social problems such as loneliness, lack of social support and inadequate social skills (Ghassemzadeh, Shahraray, & Moradi, 2008; Kim, LaRose, & Peng, 2006). Research had linked such social difficulties mainly to the family context and peer group, finding that these problems are both the cause and effect of PIU (Chng, Li, Liau, & Khoo, 2015; Esen & Gündogdu, 2010; Kim, LaRose, & Peng, 2009). The research presented here aims to go beyond previous investigations by analyzing the relationship between PIU and three school context variables: hostile treatment by teachers, confrontation between students and appreciation of school.

According to the Davis model, the pathological use of the Internet is the result of maladaptive cognitions about the self and the world, along with behaviors that increase and reinforce them. From this perspective, Davis underlines distorted cognitions about socioemotional Internet use as sufficient proximal cause of such pathological use. Studies had confirmed that such beliefs about the preference for online social interaction play an important role on the etiology, development and effects of PIU (Caplan, 2002, 2007). Davies (2001) suggests that PIU may be linked to other maladaptive cognitions that are not directly connected with the Internet, but this hypothesis has yet to be adequately researched. One exception is the study by Chong, Chye, Huan, & Ang (2014), carried out with adolescents to test the relationship between socioemotional regulation competence and PIU in Singapore, a context where the pressure for high academic achievement is intense. The results showed that the maladaptive cognitions derived from the high academic expectations of parents and teachers act as a mediating variable between the general competence of socioemotional regulation and the ability to self-regulate online interactions (one factor of PIU). Another interesting and unexpected result was that the relationship between socioemotional regulation competence and two other PIU factors (compulsive use of the Internet and withdrawal from the Internet) is only relevant when such maladaptive cognitions are taken into account (Chong et al., 2014). These results underline the need to research the relationship between PIU and the frequent cognitions of adolescents' cultural and school contexts. In this research, we aim to test the relationship between PIU and a Maladaptive Future Time Perspective (MFTP) that is spreading in Spain among some adolescents, probably in reaction to the high level of youth unemployment. Studies find that MFTP is more probable among youngsters who feel they have failed at school, drop out prematurely, and choose other activities that require less effort and bring immediate gratification (Martin Serrano & Velarde Hermida, 2001). Such an excessive focus on present time with a lack of future orientation is reinforced by certain media productions aimed at the adolescent audience and, specifically, by series depicting teenage characters in school contexts as heroes in their total identification with MFTP (Falcón & Díaz-Aguado, 2014). In other cultural contexts, it was also found that adolescents' lack of future orientation is associated to the search for immediate gratification (Steinberg et al., 2009); both characteristics increase the probability of early school leaving (Worrell et al., 2001) and other risk behaviors such as the consumption of tobacco, alcohol and cannabis (Wills, Sandy, & Yaeger, 2001), and pathological gambling (Costenza & Nigro, 2015).

Most studies on the temporal perspective have been carried out on university students, using the five-factor ZTPY scale (Zimbardo et al., 1999): negative-past, positive-past, present-hedonistic, present-fatalistic and future. The main difference in Spain (with people aged 19 to 67) lies in the focus on the two factors relating to the present: three elements of the present-hedonistic are included in the present-fatalistic. This study also finds that young Spanish people (aged 19 to 29) are more oriented towards the present-hedonistic than older adults (Díaz-Morales, 2006). Regarding adolescents' risk behaviour, researchers like Will et al. (2001) have found that the most relevant factors of the temporal perspective are the lack of future orientation and high present orientation. We have only found two works on the relationship between the temporal perspective and PIU and neither focused on adolescents: in the first, Chittaro & Vianello (2013) measured adults in Italy (mean age of 32) on the ZTPY scale and found that those who had a negative outlook on their past actions and a fatalistic perspective on their current actions were at greater risk of PIU; the second, by Przepiorka & Blachnio (2016) in Poland, used a reduced version of the ZTPY scale, found with people from 18 to 58 years old that past-negative and present-fatalistic orientations were positive predictors for both Facebook and Internet addiction, whereas good future time perspective was a negative predictor. Present-hedonistic orientation was a negative predictor only of Internet addiction.

Almost all the items on the ZTPY scale ask what the subject thinks and feels regarding the self (his or her own past, present and future) and only three items focus on beliefs regarding what is happening in the world (for instance, asking if the subject agrees with the statement: "You can't really plan for the future because things change so much"). Our study evaluated this kind of beliefs -MFTP about the world- that prevent adolescents from orienting themselves adequately to the future by rejecting responsibility and focusing on a hedonistic and fatalistic present to justify through normative beliefs their need for immediate gratification. This MFTP may be easy to share among peers, especially in the current context of digital natives, who are very orientated towards the search for immediate gratification (Prensky, 2001). In previous research, this type of belief is measured on the Value of the Future Time Perspective sub-scale (Hussman & Shell, 2008), often finding that such negative beliefs are associated to lower school achievement and performance. These results suggest that such normative beliefs regarding what is convenient or not could play a very important role in the regulation of behavior, and could interact with the social context more strongly than cognitions about personal future.

There is substantial evidence to suggest the following conclusions about the relationship of school context and risk behaviors: 1) a lack of opportunity to develop healthy relationships in school is a powerful predictor of problem behaviors in adolescents (Catalano, Haggerty, Oesterle et al., 2004; Díaz-Aguado & Martínez Arias, 2013; McNeely & Falci, 2004); school disengagement and poor teacher-student relationships are main risk conditions of problematic behavior (Fletcher, Bonell, & Hargreaves, 2006; Trianes, de la Morena, & Raya, 2006); 3) there are bidirectional associations between disengagement at school and behavioral problems over time (Wang & Fredricks, 2014).

Previous research on the relationship between school situation and PIU evaluated individual school variables and found that adolescents who recognized to receive support from teachers and who engaged with their school were less likely to develop PIU (Sun et al., 2005; Yen, Ko, Yen, Chang, & Cheng, 2009). Other studies have also shown that the nature of peer group relationships can reduce or increase the likelihood of PIU (Esen & Gündogdu, 2010), depending on the constructive or risk orientation of that group (Li, Wang, Zhao, Bao, & Li). We do not know of any research that evaluated the relationship between PIU and school situation from a multilevel context perspective, as this study aims to do.

The objective of this study was to understand how to prevent PIU in adolescents by analyzing the role of five variables that may act as risk or protector conditions. We specifically examined the role of: 1) two types of maladaptive cognitions as individual variables (hypothesis one); 2) three school variables as multilevel context variables (hypotheses two and three); 3) the moderating role of school context variables on the association between maladaptive cognitions about the future and PIU (hypothesis five).

Following prior research, we hypothesized that:

H1. An increase in each type of maladaptive cognition (MCISU and MFTP) is associated with an increase in PIU.

H2. An increase in hostile treatment by teachers is associated with increase in PIU.

H3. An increase in school appreciation is associated with a decline in PIU.

H4. An increase in confrontation between students is associated with an increase in PIU.

H5. Hostile treatment by teachers moderates the relationship between MFTP and PIU.

Method

Participants

The design of this study is cross-sectional with non-random sampling and included 1391 students (49.31% girls; 50.69% boys) 12 to 16 years of age (mean age: 14.80; SD:1.26); 1041 (80.82%). The participants were enrolled at 32 compulsory secondary education schools in Madrid who consented to take part in the behavioral risk prevention program conducted by the Preventive Psychology Unit of the Complutense at the University of Madrid (Díaz-Aguado, Martínez-Arias, & Ordóñez, 2013). A total of 103 students were eliminated from the sample due to incomplete data, leaving a final sample of 1,288 students.

Instruments

Individual level variables. The two Internet measures (PIU and MCISU) were elaborated with the 14 most significant items for adolescents and their social context of the GPIUS scale (Caplan, 2002). Our analysis yielded the two factors used in this study: PIU and MCISU. The GPIUS scale has been validated in Spain by positive results (Gámez-Guadix, Orue, & Calvete, 2013). The MFTP items are similar to the Future Time Perspective (subscale Value) of Hussman & Shell (2008) but were designed from answers given in individual interviews and group discussions with teens in Spain and subsequently discussed and selected by a panel of experts on adolescents (Díaz-Aguado et al., 2013). The number of items and examples of the elements from these three scales are as follows.

Problematic Internet Use (PIU). Seven items on the compulsive use of the Internet with loss of control (e.g."I feel lost if I can't go online"; "I had unable to reduce time online"; "I hard to stop thinking about what is waiting for me online) and negative outcomes (e.g., "I have gotten into trouble with my school because of being online."). In this and the following scale the adolescents were asked to what extent they agreed (from 1 to 5) with each item (α=0.85).

Maladaptive Cognitions about Internet Socio-emotional Use (MCISU). Seven items on the alleged social benefits and improvement in mood gained by using the Internet (e.g., "I have been better treated online than in face-to-face relationships;" "I use the Net to make myself feel better when I'm down;" α=0.78).

Maladaptive Future Time Perspective (MFTP). Five items on the level of agreement (from 1 to 7) with beliefs that reflect a fatalistic perspective on building the future from the present (e.g., "The way life is, it is absurd to worry about having a better future;" "The future is so uncertain that it is better not to think about it;" α=0.73).

School level variables. The three school context measures (hostile treatment by teachers, confrontation between students, and school appreciation) were assessed by adapting questions used by the OECD in order to evaluate the school context aggregating students' responses in each school; only the elements from school appreciation scale are the same as those in the OECD study (2004). These three scales for school context have been validated in Spain by previous research where the reader can consult their psychometric properties (Díaz-Aguado, Martínez-Arias, & Martín-Babarro, 2010). In that study, 46 indicators of the quality of school context assessed through student responses were validated. The three used in our study were selected for their relevance as indicators of the main relationships with teachers, peers, and the school as a whole. The number of items and examples of the elements for each scale are the following.

Hostile Treatment by Teachers. Five items that ask students about the number of classes (none, few, several, or most) in which school teachers behaved towards some students in the following ways: 1. "He/she answers them badly;" 2. "He/she prevents them from participating;" 3. "He/she picks on them;" 4. "He/she intimidates them with threats related to grades;" 5. "He/she insults, offends, or ridicules them" (α=0.87).

Confrontation between Students. Three items on the extent to which those surveyed agree (from 1 to 4) that, at their school there are: 1. "Fights between students;" 2. "Groups of students that are hostile towards each other;" 3. "School gangs that poison the school climate" (α = 0.68).

School Appreciation. Four items on the extent to which they agree (from 1 to 4) that attending school: 1. "Helps me gain confidence in myself to make decisions;" 2. "Teaches me to make decisions that may be useful in when doing a job;" 3. "Does little to prepare me for adult life" (in reverse); 4. "Is a waste of time" (in reverse; α=0.73).

Procedure

The school principals requested informed consent from the parents of the participants. Data collection was carried out with online questionnaire. Students were told that the survey was

voluntary, that they could withdraw at any time, and that their responses were anonymous. One researcher and one teacher remained in the room during survey administration to answer questions and resolve potential computer problems. The average time required to complete the questionnaire was approximately 35 minutes and it took place during regular school hours.

Data analysis

A multilevel analysis was performed to test the hypotheses using HLM7 (Raudenbush, Bryk, & Congdon, 2010). This software was used because the data sample presented a hierarchical structure with students nested within schools and this technique allows for analysis of the dependent variable segmented on different levels (Snijders & Bosker, 1999). All predictor variables were mean-centered by converting to z-standard scores, which enabled analysis of the size of the effect for each variable in the model (Snijders et al., 1999). The individual-level variables were MFTP and MCISU, while the school-level variables were confrontation between students, hostile treatment by teachers, and school appreciation. The intraclass correlation coefficient (ICC) was calculated to analyze between-school variance for the dependent variable, which indicated the appropriateness of the analysis (ICC = .18). The descriptive results and the Pearson correlations were calculated separately for the individual-level variables and the school-level variables. A multilevel model was then calculated and interaction effect obtained were tested following guidelines provided by the Johnson-Neyman technique based on regions of significance (Preacher, Curran, & Bauer, 2006).

Results

Descriptive statistics and correlations

The descriptive statistics and correlations calculated are shown in Table 1. The findings demonstrated a positive correlation between PIU and MFTP (r = .33) and MCISU (r = .57) among the individual-level variables; MCISU and MFTP were also positively correlated with each other (r = .31). The analysis of the school-level variables indicated a negative correlation between school appreciation and hostile treatment by teachers (r = -.34).

Table 1
Descriptive scores and correlations between variables

	M	SD	1	2	3
Individual variables					
1. Problematic Internet Use	6.47	5.13			
2. MFTP	8.96	5.64	0.331**		
3. MCISU	5.29	4.67	0.574**	0.316**	
			4	**5**	**6**
School level variables					
4. Confrontation between students	7.57	1.74			
5. Hostile treatment of teachers	7.84	2.75	0.165**		
6. School appreciation	15.97	2.58	0.017·	-0.347**	

* $p<0.05$; ** $p<.01$
MFTP: Maladaptive Future Time Perspective; MCISU: Maladaptive Cognitions about Internet Socio-emotional Use

Multilevel analyses

At the individual level, MCISU was found to positively predict PIU ($\gamma = 2.65$, t = 19.31; $p < .001$; Table 2); MFTP was also positively associated with PIU ($\gamma = 0.84$, t = 7.47; $p < .001$), while school appreciation was negatively associated with PIU ($\gamma = 0.58$, t = -2.68; $p < .01$). These results suggest that students had lower PIU scores in schools with higher average scores for school appreciation. Hostile treatment by teachers was positively related with PIU ($\gamma = 0.63$, t = 2.04; $p < .05$); therefore, students reported a higher level of PIU in schools with greater teacher hostility.

In line with these results, the cross-level analysis between individual and school level variables showed a moderating effect of hostile treatment by teachers on the association between MFTP and PIU ($\gamma = 0.30$, t = 2.23; $p < .05$). A more detailed analysis of this two-way interaction was performed according to guidelines provided by the Johnson-Neyman technique (Preacher, Curran, & Bauer, 2006) that allows us to identify the points at which the effect of the moderator is statistically significant on the association of the predictor with the dependent variable. According to this analysis, MFTP was no longer related to PIU when hostile treatment by teachers was 8.9 or lower (b = 0.68, t = 3.11; p < .01) (see Figure 1).

Discussion

The results of this research support the relationship between two types of maladaptive cognitions to PIU risk. In line with Davis' theoretical model (2001), previous studies had confirmed this relationship both in adults and in adolescents with respect to maladaptive cognitions about Internet, which our study also confirms (Li et al., 2010; Caplan, 2007). In addition, the relation between cognitions about the self in adults, based on negative

Table 2
Results of multivariate multilevel regression analysis of school-level effects and their interaction with individual Maladaptive Future Time Perspective regarding Problematic Internet Use (PIU)

Predictors	γ	SE	T
Intercept	6.414	0.193	33.14***
Individual level			
MFTP	0.849	0.113	7.47***
MCISU	2.652	0.137	19.31***
MFTP x MCISU	0.010	0.101	0.09
School level			
Confrontation between students	0.009	0.365	0.02
School appreciation	-0.581	0.216	-2.68**
Hostile treatment by teachers	0.633	0.309	2.04*
Cross-level interaction			
Interaction with MFTP			
Confrontation between students	0.008	0.152	0.05
Hostile treatment by teachers	0.304	0.136	2.23*
School appreciation	-0.011	0.112	-0.01
Interaction with MCISU			
Confrontation between students	0.065	0.091	0.71
Hostile treatment of teachers	0.036	0.244	0.15
School appreciation	0.095	0.177	0.53

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
MFTP: Maladaptive future time perspective; MCISU: Maladaptive cognitions about Internet socio-emotional use

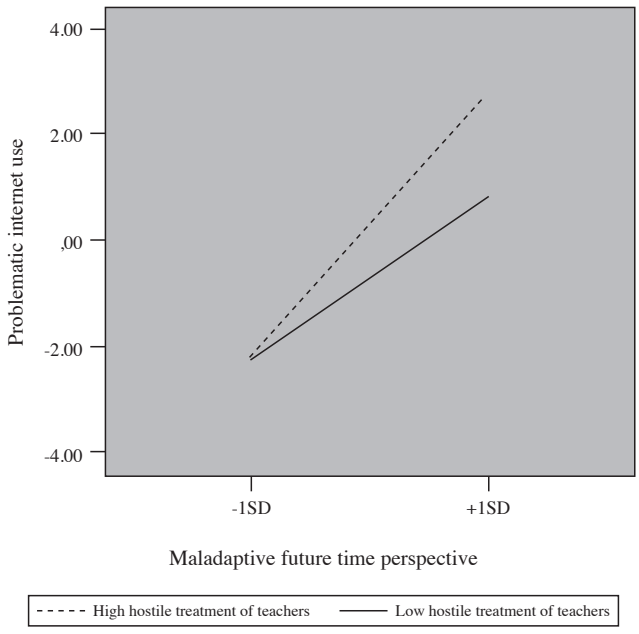

Figure 1. Interaction between maladaptive future time perspective and hostile treatment by teachers regarding problematic Internet use

past actions and fatalistic present actions, and PIU has also been confirmed. Our findings contribute to the support of the relationship with new maladaptive cognitions about the world (MFTP) in adolescents, a fatalistic perspective about the future that increases PIU risk. In order to understand the relevance of this finding, it is important to consider that digital natives' orientation towards immediate gratification (Prensky, 2001) can make them especially vulnerable to MFTP, which can result in an excessive focus on the present and lack of orientation towards the future, obstructing the empowerment necessary to address it. Furthermore, our results support the idea that attending a school in which students perceive that they are treated in a discriminatory and hostile manner by teachers increases the association between MFTP and PIU. These findings suggest that the stress generated by teachers' hostile treatment in the present and the difficulty that teenagers have in handling it reinforces the association between maladaptive cognitions about difficulty in controlling the future and PIU. These two problems could in turn undermine interaction with teachers and increase the risk that teachers display discriminatory and hostile behaviors in order to control the classroom. The results highlight an important contextual problem, hostile treatment by teachers, which should be eradicated in order to prevent PIU and be replaced instead by proactive inclusive classroom management. The most important contribution of this research is the confirmation of the association between PIU and two school context variables by multilevel analysis. Our results suggest that school must be improved by strengthening the relationship between teachers and students and encouraging school appreciation within the student peer group culture in order to prevent PIU. The association between PIU and school conditions -teacher support and engagement of students- has already been proved (Esen et al., 2010; Sun et al., 2005), but previous studies evaluated these school conditions as individual variables, and this did not yield as clear a conclusion as the one in our study about the importance of intervening in the whole school context to diminish the risks of PIU.

Our results do not confirm that there is an increase in PIU relative to different levels of confrontation between students. Why does a variable that could increase student stress not amount to a PIU risk condition? Possibly due to the fact that, although confrontation between students can be considered a source of stress and a risk condition, it could also provide students with opportunities to integrate within one of the various off-line peer groups that arise as a result of such confrontations, hence reducing the need to find an online social refuge and the risk of PIU.

In line with the results from the Singapore study (Chong et al., 2014) about cognitions derived from a social environment with excessive pressure on school performance, our results reflect the need to consider other cognitions related to the social context that could hinder life project construction. In order to prevent this problem it is necessary to generate confidence in adolescents in their own potential to build the future from the present, through appropriate interaction with teachers that reinforce such confidence and increase appreciation of the school within digital natives' peer group culture. Providing adolescents with appropriate opportunities for control their life offline within the school context will reduce the need for them to search for these opportunities online and lower their risk of PIU.

To overcome the main limitations of this study, in future research we hope to: 1) complete the study's cross-sectional design with a longitudinal follow-up on the relationship of the problems evaluated with other risk situations; 2) include measures provided by teachers and peers 3) and extend the study to a broader cultural context.

References

Caplan, S.E. (2002). Problematic Internet use and psychosocial well-being: Development of a theory-based cognitive-behavioral measure. *Computers in Human Behavior, 18*, 533-575. https://doi.org/10.1016/S0747-5632(02)00004-3

Caplan, S.E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychology & Behavior, 10*, 234-241. https://doi.org/10.1089/cpb.2006.9963

Caplan, S. E. (2010). Theory and measurement of generalized problematic Internet use: A two-step approach. *Computers in Human Behavior*, *26*, 1089-1097. https://doi.org/10.1016/j.chb.2010.03.012

Catalano, R.F., Haggerty, K.P., Oesterle, S., et al. (2004). The importance of bonding to school for healthy development: Findings from the Social Development Research Group. *Journal of School Health, 74*, 252-261. doi: 10.1111/j.1746-1561.2004.tb08281.x

Cheng, C., & Li, A. Y. L. (2014). Internet addiction prevalence and quality of (real) life: A meta-analysis of 31 nations across seven world regions. *Cyberpsychology, Behavior, and Social Networking*, *17*, 755-760. https://doi.org/10.1089/cyber.2014.0317

Chng, G. S., Li, D., Liau, A. K., & Khoo, A. (2015). Moderating effects of the family environment for parental mediation and pathological internet use in youths. *Cyberpsychology, Behavior, and Social Networking*, *18*, 30-36. https://doi.org/10.1089/cyber.2014.0368

Chong, W., Chye, S., Huan, V., & Ang, R. (2014). Generalized problematic Internet use and regulation of social emotional competence: The

mediating role of maladaptive cognitions arising from academic expectation stress on adolescents. *Computers in Human Behavior, 38*, 151-158. https://doi.org/10.1016/j.chb.2014.05.023

Chittaro, L., & Vianello, A. (2013). Time perspective as a predictor of problematic Internet use: A study of Facebook users. *Personality and Individual Differences, 55*, 989-993. https://doi.org/10.1016/j.paid.2013.08.007

Davis, R.A. (2001). Cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior, 17*, 187-195. https://doi.org/10.1016/S0747-5632(00)00041-8

Díaz-Aguado Jalón, M. J., & Martínez Arias, R. (2013). Peer bullying and disruption-coercion escalations in student-teacher relationship. *Psicothema*, *25*, 206-213. doi: 10.7334/psicothema2012.312

Díaz-Aguado, M.J., Martínez-Arias, R., & Martín-Babarro, J. (2010). *Estudio estatal sobre la convivencia escolar en la Educación Secundaria Obligatoria* [Study on school climate in Compulsory Secondary Education in Spain]. Madrid: Ministerio de Educación.

Díaz-Aguado, M.J. Martínez, R., & Ordoñez, A. (2013). Prevenir la drogodependencia en adolescentes y mejorar la convivencia desde una perspectiva escolar ecológica [Preventing drug use in adolescence and improving school climate from an ecological approach]. *Revista de Educación, 1,* 338-362. doi: 10.4438/1988-592X-RE-2013- EXT-251

Díaz-Morales, J. F. (2006). Estructura factorial y fiabilidad del Inventario de Perspectiva Temporal de Zimbardo [Factorial structure and reliability of Zimbardo Time Perspective Inventory]. *Psicothema*, *18*, 565-571.

Esen, B., & Gündoğdu, M. (2010). The Relationship between Internet addiction, peer pressure and perceived social support among adolescents. *International Journal of Educational Researchers, 2*, 29-36. http://ijer.eab.org.tr/1/2/4_esen.b.k.pdf

Freudenberg, N., & Ruglis, J. (2007). Reframing school dropout as a public health issue. *Preventing Chronic Disease*, *4*, A107. https://eric.ed.gov/?id=ED499412

Fletcher, A., Bonell, C., & Hargreaves, J. (2006). School Effects on Young People's Drug Use: A Systematic Review of Intervention and Observational Studies. *Journal of Adolescent Health, 42,* 209-220. https://doi.org/10.1016/j.jadohealth.2007.09.020

Gámez-Guadix, M., Orue, I., & Calvete, E. (2013). Evaluation of the cognitive-behavioral model of generalized and problematic Internet use in Spanish adolescents. *Psicothema*, *25*, 299-306. doi:0.7334/psicothema2012.274

Husman, J., & Shell, D. F. (2008). Beliefs and perceptions about the future: A measurement of future time perspective. *Learning and Individual Differences*, *18*, 166-175. https://doi.org/10.1016/j.lindif.2007.08.001

Instituto Nacional de Estadística (2014). *España en cifras 2013* [Spain in numbers 2013]. Madrid: INE.

Jessor, R. (1992). Risk behavior in adolescence: A psychological framework for understanding and action. *Developmental Review, 12*, 374-390. https://doi.org/10.1016/1054-139X(91)90007-K

Kim J., LaRose R., & Peng W. (2009). Loneliness as the cause and the effect of problematic Internet use: The relationship between Internet use and psychological well-being. *CyberPsychology & Behavior, 12*, 451-455. https://doi.org/10.1089/cpb.2008.0327

Leung, L. (2004). Net-generation attributes and seductive properties of the Internet as predictors of online activities and Internet addiction. *Cyberpsychology & Behavior, 7*, 333-348. https://doi.org/10.1089/1094931041291303

Li, D., Li, X., Wang, Y., Zhao, L., Bao, Z., & Wen, F. (2013). School connectedness and problematic Internet use in adolescents: A moderated mediation model of deviant peer affiliation and self-control. *Journal of Abnormal Child Psychology*, *41*, 1231-1242. https://doi.org/10.1007/s10802-013-9761-9

Li D., Zhang W., Li X., Zhen S., & Wang Y. (2010). Stressful life events and problematic Internet use by adolescent females and males: A mediated moderation model. *Computers in Human Behavior, 26*, 1199-1207. https://doi.org/10.1016/j.chb.2010.03.031

Martín-Serrano, M., & Velarde-Hermida, O. (2000). *Informe de Juventud en España 2000* [Youth in Spain 2000 report]. Madrid: Ministerio de Trabajo y Asuntos Sociales-INJUVE.

McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescent: A comparison of social belonging and social support. *Journal of School Health, 74*, 284-292. doi: 10.1111/j.1746-1561.2004.tb08285.x

OECD (2004). *Learning for tomorrow's: First Results from PISA 2003*. Paris: OECD.

Preacher, K.J., Curran, P.J., & Bauer, D.J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437-448. http://dx.doi.org/10.3102/10769986031004437

Prensky, M. (2001). *Digital game bases learning*. New York: McGraw Hill.

Przepiorka, A., & Blachnio, A. (2016). Time perspective in Internet and Facebook addiction. *Computers in Human Behavior*, *60*, 13-18. https://doi.org/10.1016/j.chb.2016.02.045

Raudenbush, S.W., Bryk, A.S., & Congdon, R. (2010). *HLM 7: Hierarchical linear and nonlinear modeling*. Lincolnwood: Scientific Software International.

Snijders, T.A.B., & Bosker, R.J. (1999). *Multilevel analyses: An introduction to basic and advanced multilevel modeling*. London: Sage Publications.

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review, 28,* 78-106. https://doi.org/10.1016/j.dr.2007.08.002

Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. (2009). Age differences in future orientation and delay discounting. *Child Development*, *80*, 28-44. https://doi:10.1111/j.1467-8624.2008.01244.x

Sun, P., Unger, J. B., Palmer, P. H., Gallaher, P., Chou, C. P., Baezconde-Garbanati, L., & Johnson, C. A. (2005). Internet accessibility and usage among urban adolescents in Southern California: Implications for web-based health research. *CyberPsychology & Behavior*, *8*, 441-453. https://doi.org/10.1089/cpb.2005.8.441

Trianes, M. V., Blanca, M. J., De la Morena, L., Infante, L., & Raya, S. (2006). Un cuestionario para evaluar el clima social del centro escolar [A questionnaire to assess school social climate]. *Psicothema*, *18*, 272-277.

Tsitsika, A., Janikian, M., Schoenmakers, T., et al. (2014). The EU NET ADB Consortium, & Richardson, C. Internet addictive behavior in adolescence: A cross-sectional study in seven European countries. *Cyberpsychology, Behavior, and Social Networking, 17*, 528-535. https://doi.org/10.1089/cyber.2013.0382

Wang, M., & Fredricks, J. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child Development, 85,* 722-737. doi:10.1111/cdev.12138

Wills, T. A., Sandy, J. M., & Yaeger, A. M. (2001). Time perspective and early-onset substance use: A model based on stress-coping theory. *Psychology of addictive behaviors*, *15*, 118-125. http://dx.doi.org/10.1037/0893-164X.15.2.118

Worrell, F. C., & Hale, R. L. (2001). The relationship of hope in the future and perceived school climate to school completion. *School Psychology Quarterly*, *16*, 370-388. http://dx.doi.org/10.1521/scpq.16.4.370.19896

Yen, C.F., Ko, C.H., Yen, J.Y., Chang, Y., & Cheng CP. (2009). Multi-dimensional discriminative factors for Internet addiction among adolescents regarding gender and age. *Psychiatry and Clinical Neurosciences, 63,* 357-364.doi: 10.1111/j.1440-1819.2009.01969.x

Zimbardo, P.G.,& Boyd JN. (1999). Putting time in perspective: A valid, reliable individual-difference metric. *Journal of Personality and Social Psychology, 77,* 1271-1288. https://doi.org/10.1007/978-3-319-07368-2_2