

Adolescent Readers vs Online-Surfers: Aggression Rates and School Climate Perceptions

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ABSTRACT

Background. This article is devoted to research on different forms of leisure activity (reading and online surfing) as factors in the psychological well-being of contemporary adolescents. The article also provides an overview of research related to various aspects of adolescent well-being, specifically the risks of aggression and the school climate perceptions.

Objective. The aim of the study was to concretize the links between preferred forms of leisure activity (reading or online surfing), adolescents' school climate perceptions and aggressiveness.

Design. A quasi-experimental scheme was developed. The sample consisted of 883 respondents (41% male, mean age = 16 years old). Data analysis included two-way ANOVA and Tukey's Test. Data collection was conducted by an anonymous online questionnaire in 2017-2018.

Results. Significant relationships have been established between both individual factors (reading or online surfing), and their interaction with indicators of the school climate perception. Aggressiveness was associated with a preference for spending one's free time on the Internet.

Conclusion. The study makes a contribution to the discussion about the role of digital technologies as a factor of well-being for the modern teenager and confirms the positive role of reading as a form of leisure activity. The research question of the impact of reading from hard copy or screen is also touched upon.

Keywords: Reading, online surfing, school climate, school environment, aggressiveness, adolescents

Highlights:

- Reading as a preferable form of leisure activity among contemporary adolescents was positively related to the quality of school climate perception, and in particular, with parameters of teacher-student relationships, and the perception of respect and justice at school.

- The interaction of factors (reading and Internet surfing as different forms of leisure activity) was significantly associated with various indicators of the perception of the school environment among contemporary adolescents.
- Online surfing as a preferable form of leisure activity among contemporary adolescents was positively related to the risk of aggressiveness.

АННОТАЦИЯ

Актуальность Статья посвящена исследованию различных форм досуга (чтение и онлайн-активность) как факторов психологического благополучия современных подростков. В статье также представлен обзор исследований различных аспектов благополучия современных подростков, в частности восприятия школьного климата и рисков агрессивности.

Цель. Исследование направлено на конкретизацию связей между предпочитаемыми формами досуга (чтением или онлайн-активностью), восприятием школьного климата и агрессивностью подростков.

Дизайн. В исследовании была реализована квази-экспериментальная схема. Выборка составила 883 респондента (41% юноши, ср. возраст 16 лет). Обработка данных включала реализацию двухфакторного дисперсионного анализа и применение критерия Тьюки. Сбор данных был осуществлен методом анонимного онлайн-опроса в 2017-2018 годах.

Результаты. В рамках исследования были установлены значимые взаимосвязи показателей восприятия школьного климата как с отдельными факторами (чтение или онлайн-серфинг), так и с их взаимодействием. Также установлена связь агрессивности подростков с предпочтением проводить свободное время в Интернете.

Выводы. Исследование вносит вклад в дискуссию о роли цифровых технологий как фактора благополучия современного подростка и подтверждает позитивную роль чтения как формы досуговой деятельности. Также затрагивается исследовательский вопрос о влиянии на благополучие подростков чтения с бумажного носителя или экрана.

Ключевые слова: Чтение, онлайн-активность, школьный климат, школьная среда, агрессивность, подростки

Ключевые положения:

- Предпочтение чтения как формы досуга современных подростков положительно связано с различными параметрами восприятия школьного климата, в частности, с восприятием качества взаимоотношений учителей и учеников, а также с восприятием уважения и справедливости в школьной среде.
- Установлены связи взаимодействия факторов (чтение и интернет-серфинг как различные формы досуговой деятельности) с показателями восприятия школьного климата современными подростками.
- Выявлена положительная связь онлайн-активности как предпочтительной формы досуга современных подростков и риска агрессивности.

RESUMEN

Introducción. El artículo está dedicado al estudio de diversas formas de ocio (lectura y actividad en línea) como factores de bienestar psicológico de los adolescentes modernos. El artículo también ofrece una visión general de las investigaciones sobre diversos aspectos del bienestar de los adolescentes modernos, en particular la percepción del clima escolar y los riesgos de agresión.

Objetivo. La investigación está dirigida a concretar los vínculos entre las formas preferidas de ocio (lectura o actividad en línea), la percepción del clima escolar y la agresividad de los adolescentes.

Diseño. En el estudio se aplicó un plan cuasiexperimental. La muestra fue de 883 encuestados (41% de hombres jóvenes, edad promedio 16 años). El procesamiento de datos incluyó el análisis de varianza de dos factores y la aplicación del criterio de Tukey. La recopilación de datos se llevó a cabo mediante una encuesta anónima en línea en los años 2017-2018.

Resultados. En el estudio se establecieron relaciones significativas en los indicadores de percepción del clima escolar tanto con los factores individuales (lectura o navegación en línea) como con su interacción. También se estableció una relación entre la agresividad de los adolescentes y la preferencia por pasar el tiempo libre en Internet.

Conclusiones. El estudio contribuye al debate sobre el papel de la tecnología digital como factor de bienestar de los adolescentes modernos y confirma el papel positivo de la lectura como forma de ocio. También aborda la pregunta de investigación sobre el impacto en el bienestar de los adolescentes de la lectura en papel y en la pantalla.

Palabras clave: Lectura; actividad en línea; clima escolar; entorno escolar; agresividad; adolescentes

Destacados:

- La preferencia por la lectura como una forma de ocio de los adolescentes modernos está positivamente relacionada con diversos aspectos de la percepción del clima escolar, en particular, con la percepción de la calidad de las relaciones entre profesores y alumnos, así como con la percepción del respeto y equidad en el entorno escolar.
- Se han establecido relaciones entre la interacción de factores (lectura y navegación en línea como diversas formas de actividad de ocio) con indicadores de percepción del clima escolar de los adolescentes modernos.
- Se ha identificado una relación positiva entre la actividad en línea como una forma preferida de ocio de los adolescentes modernos y el riesgo de agresividad

RESUME

Origines. Cet article est consacré à la recherche des différentes formes des activités de loisir (lecture et navigation en ligne) en tant que le facteur de bien-être psychologique des adolescents contemporains. Cet article donne aussi une idée générale de la recherche liée aux aspects variés du bien-être d'adolescent et notamment aux risques d'agression et perception du climat scolaire.

Objectif. Le but de la recherche était de concrétiser les liens entre les formes des activités de loisir préférées (lecture ou navigation en ligne), les perceptions des adolescents du climat scolaire et l'agressivité.

Mise au point. On a élaboré un schéma quasi-experimental. L'échantillon contenait 883 personnes enquêtées (41% d'hommes avec un âge moyen de 16 ans). L'analyse des données comprenait le test bidirectionnel ANOVA (l'analyse de la variance) et le test de Tukey. La collecte de données a été réalisée par un questionnaire anonyme en ligne en 2017-2018.

Résultats. Des relations significatives ont été établies entre les facteurs individuels (lecture ou navigation en ligne) et leur interaction avec les indicateurs de perception du climat scolaire. L'agressivité était associée à une préférence pour passer son temps libre sur Internet.

Conclusion. L'étude contribue à la discussion sur le rôle des technologies numériques comme facteur de bien-être de l'adolescent moderne et confirme le rôle positif de la lecture

comme forme de loisir. La question de recherche de l'impact de la lecture sur papier ou sur écran est également abordée.

Mots-clés: Lecture, navigation en ligne, climat scolaire, environnement scolaire, agressivité, adolescents

Points principaux:

- La lecture comme forme d'activité de loisir préférée chez les adolescents modernes était positivement liée à la qualité de la perception du climat scolaire, et en particulier aux paramètres des rapports enseignant-élève et à la perception du respect et de la justice à l'école.
- L'interaction de facteurs (la lecture et la navigation sur Internet comme différentes formes d'activités de loisir) était associée de manière significative à divers indicateurs de la perception de l'environnement scolaire chez les adolescents modernes.
- La navigation en ligne comme forme d'activité de loisir préférée chez les adolescents modernes était positivement liée au risque d'agressivité.

Introduction

The problem of children's and adolescents' forms of leisure activity is a highly-debated issue within the modern parental and expert community. There is a point of view that modern parenthood is characterized by tendencies of diversification and "disappearance of understandable models of how to raise children in a family that were taught to parents when they were themselves children" (Polivanova, 2018). According to this point of view, parenting practices have become an object of conscious planning. As a result, adolescent leisure activity also becomes an object of parental conscious planning, or at least a matter of parental concern. Children's excessive time online causes anxiety for many parents. For many parents, the question also remains open of whether and how to instill a love of reading in a child. The present study was aimed at understanding the specific connection between adolescents' preferred forms of leisure activity (reading or online surfing), and well-being parameters, specifically school climate perceptions and aggressiveness.

The issue of the role of reading during adolescence, and in particular, the specifics of reading from hard copy or a screen among teenagers, has attracted the attention of researchers (Borisenko et al., 2020; Mangen et al., 2013). The involvement of children and adolescents in interaction with digital technologies is the subject of many studies (Orben & Przybylski, 2019; Preoțiuc-Pietro et al., 2015); however, there is no clear answer about the benefits or harms of this phenomenon (Children's well-being in the digital age, 2019). According to a number of studies, the use of digital technologies is associated with the risk of aggression (Caner & Erkin, 2021), and, in particular, cyberbullying (Sampasa-Kanyinga & Hamilton, 2015).

School climate (or environment) could be defined as the permanent characteristics of an educational institution that are perceived by members of the school community, affect their behavior, reflect the properties of the institution, and can also be quantified (Chirkina & Khavenson, 2017).

Research on the social climate in educational institutions has a long history. The starting point for the study of this phenomenon can be considered the work of

J. Whithall (1949), in which a technique for measuring the socio-emotional climate in classrooms was proposed, based on an expert assessment of various actions by the teacher in relation to the class or individual students (Withall, 1949). The forerunners of this work were the classical studies of leadership by R. Lippitt and R.K. White, carried out within the framework of Kurt Lewin's approach (Lippitt & White, 1943).

Early studies of the school climate were connected with the phenomenon of leadership, for example (Wiggins, 1972). The turning point was the use of survey technology for various groups of the school community, aimed at assessing the norms adopted in the institution, and expectations from interaction with other members of the school community (Brookover et al., 1978). Further development consists of considering and clarifying the links of the school climate with various indicators of personal well-being and risks of aggression (Huang & Anyon, 2020; McGrath et al., 2020; Mertens et al., 2020). The study of the school climate is usually focused on two directions — the analysis of the consequences of being in a school team with qualitatively different characteristics of relations, and the structure of the environment itself—that is, the components that make it up (Chirkina & Khavenson, 2017).

Adolescent leisure activity is not a usual variable in scientific reports on school climate. On the one hand, the connection between these phenomena is indirect. On the other hand, both these phenomena are related to the parameters of well-being and risks of aggression. For example, according to L.M. Fawcett (2007), there “was some support for the hypothesis that involvement in structured ‘leisure’ activities would be associated with higher levels of self-worth and life satisfaction, less boredom, and less frequent engagement in risky behaviors” (Fawcett, 2007). Leisure activity time of adolescents was included in some research as one predictor of a family environment quality (Garton et al., 2007), or a correlate of school absenteeism (Ingul, 2012). As perception of the school climate is a part of students' well-being, we put forward a hypothesis that preferable forms of leisure activity would be connected to the perception of the school climate.

This article represents an attempt to compare the role of reading versus online surfing, as forms of adolescent leisure activity in their connection with indicators of well-being: specifically, the perception of the school climate and the risk of aggressiveness.

Methods

Participants

The research sample consisted of 883 respondents from seven regions of the Russian Federation. The sample included students from various types of schools. Gender distribution: boys = 41%, girls = 59%. The average age of the respondents was 16 years.

Procedure

The study was implemented in the form of an anonymous online survey conducted in schools in eight regions of Russia. The data was collected in 2017–2018 during the project “The Program of School Aggression and Bullying Research,” led by professor

A.A. Rean. Data analysis was conducted using RStudio (R version 4.3.1) (R Core Team, 2021). The data analysis included the following procedures: Two-way ANOVA and Tukey's Test, which were conducted by using the following R packages: readxl (Wickham & Bryan, 2023), dplyr (Wickham et al., 2023), psych (Revelle, 2023), ggplot2 (Wickham, 2016), and apaTables (Stanley, 2023).

Questionnaires

The assessment of aggressiveness in the framework of our study was carried out in accordance with the Buss-Durkey concept. Statements were used that identify typical manifestations of behavioral reactions corresponding to various types of aggressive behavior identified within this framework. A total of 16 statements were included, with which the subjects expressed their degree of agreement or disagreement on a four-point scale. For each of the types of aggressiveness, there are from one to three statements. Within the framework of the Buss-Durkey concept, each statement from the original questionnaire refers to only one type of aggression; in this context, the use of individual questions to assess the parameter of interest to us seems quite reasonable. Psychometric analysis of this technique has been implemented in a number of works (Rean, et al., 2019; 2020; Konovalov, 2022). In the current study, only the total score of aggressiveness was used.

School climate measurements were made by using the "School climate survey" (Novikova, Rean, & Konovalov, 2021) which consists of four scales: "Teacher-Student Relationships," "Student-Student Relationships," "School Safety," and "Respect and Justice." In the current study, only the scales "Teacher-Student Relationships" and "Respect and Justice" were used.

The assessment of leisure activity preferences was made by using the multiple answer question: "How do you like to spend your free time when you don't need to be at school or extra classes, and you don't need to do homework?" There were eight possible answers: "I read," "I surf the Internet," "I go for a walk," "I help with the housework," "I do my hobby," "I communicate with friends (personal meeting)," "I go to the cinema, museums, theater," or "I don't have free time." In this study, only data on the selection of the first two types of responses were analyzed.

Results

According to the quasi-experimental scheme that was used in the current study, the factors of reading and online-activity were measured separately; the interaction of factors was also examined. For these purposes, the two-way ANOVA analysis was used. Post-hoc analysis included Tukey's Test to examine significant differences between the average scores of three dependent variables (Teacher-Student Relationship, Respect and Justice in School, and aggressiveness), in the context of different forms of preferred leisure activity (reading or Internet surfing).

The two-way ANOVA analysis showed that the factor of reading (as a form of leisure activity) was significantly connected to the Teacher-Student Relationship (*Table 1*). The factor of Internet use during free time was not connected to the dependent variable. The interaction of factors was also significant.

Table 1

Fixed-Effects ANOVA Results for Measurement of the Teacher-Student Relationship

Predictor	SS	df	MS	F	p	partial η^2	90% CI
(Intercept)	84174.56	1	84174.56	3370.57	<.001		
Reading	131.13	1	131.13	5.25	.022	.01	[.00, .02]
Internet	38.48	1	38.48	1.54	.215	.00	[.00, .01]
Reading x Internet	173.09	1	173.09	6.93	.009	.01	[.00, .02]
Error	21951.61	879	24.97				

Note. SS = Sum of squares. df = degrees of freedom. MS = mean square. CI indicates the confidence interval for partial η^2 .

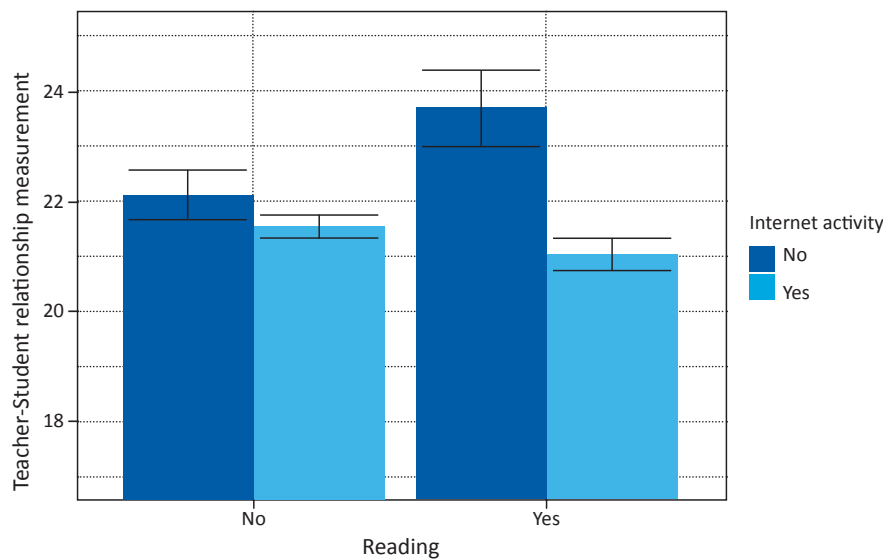


Figure 1. Mean rate differences of the measurement of the Teacher-Student relationship for readers and online-users

Figure 1 shows the differences in average rates of groups that prefer different types of leisure activity (reading or online activity). The highest rates for the indicator “Teacher-Student Relationship” are demonstrated by a group of respondents who preferred reading to online activity. Also, high rates were typical for the group of respondents who preferred neither reading, nor online activity. Respondents who preferred to spend their free time online were characterized by significantly lower measurement of the quality of the Teacher-Student relationship (Table 4).

The two-way ANOVA analysis shows that the factor of reading (as a form of leisure activity) was significantly connected to the measurement of respect and justice in school (Table 2). The single factor of Internet using during free time was not connected to the dependent variable. The interaction of factors was also significant (Table 2).

Table 2
Fixed-Effects ANOVA Results for Measurement of Respect and Justice in School

Predictor	SS	df	MS	F	p	partial η^2	90% CI
(Intercept)	24171.63	1	24171.63	3890.24	<.001		
Reading	54.91	1	54.91	8.84	.003	.01	[.00, .02]
Internet	0.96	1	0.96	0.16	.694	.00	[.00, .00]
Reading x Internet	70.46	1	70.46	11.34	.001	.01	[.00, .03]
Error	5461.58	879	6.21				

Note. SS = Sum of squares. df = degrees of freedom. MS = mean square. CI indicates the confidence interval for partial η^2 .

The post-hoc analysis shown that the highest rates of the indicator “Respect and Justice in School” were demonstrated by respondents who preferred reading to online activity (Figure 2). Significant differences were found between the aforementioned group and the following groups: Internet surfers who didn’t read, students who preferred both types of leisure activity, and those adolescents who preferred neither reading, nor online surfing, during free time (Table 4). According to the post-hoc analysis, there was no significant difference between the group which preferred neither reading nor online activity, and the group which preferred only Internet usage.

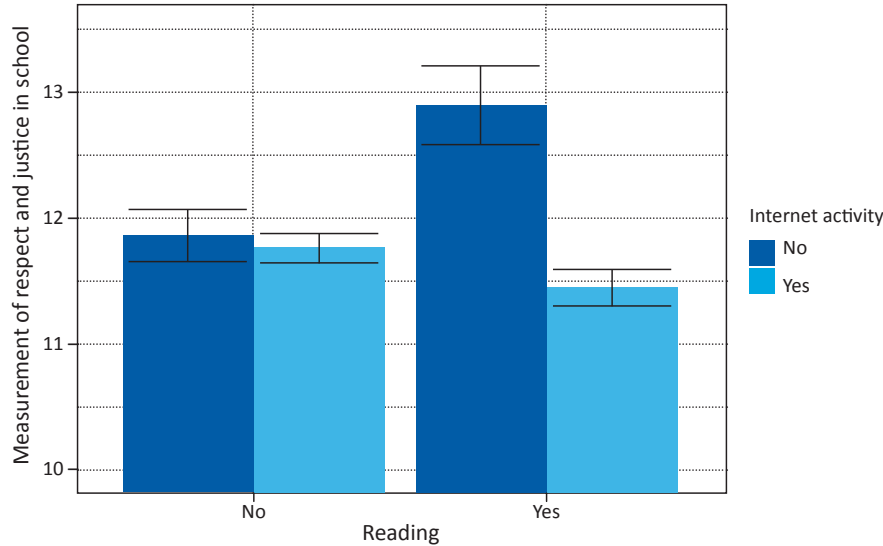


Figure 2. Mean rate differences of “Respect and Justice in school” measurement of readers and online-users.

The two-way ANOVA analysis has shown that the factor of online activity as a form of leisure activity, was significantly connected to the measurement of aggressiveness (Table 3). Neither the single factor of reading during free time, nor the interaction of factors, were connected to the dependent variable (Table 3).

Table 3

Fixed-Effects ANOVA Results for Aggressiveness

Predictor	SS	df	MS	F	p	partial η^2	90% CI
Reading	83.49	1	83.49	0.76	.382	.00	
Internet	1013.25	1	1013.25	9.28	.002	.01	[.00, .02]
Reading x Internet	90.59	1	90.59	0.83	.363	.00	[.00, .01]
Error	95998.22	879	109.21				

Note. SS = Sum of squares. df = degrees of freedom. MS = mean square. CI indicates the confidence interval for partial η^2 .

Table 4

Results of post-hoc Tukey's Test

Teacher-Student Relationship Measurement				
Reading:Internet	diff	lwr	upr	p adj
yes:no-no:no	1.584	-0.195	3.364	0.1
no:yes-no:no	-0.578	-1.778	0.621	0.6
yes:yes-no:no	-1.094	-2.332	0.143	0.1
no:yes-yes:no	-2.163	-3.801	-0.524	0.003**
yes:yes-yes:no	-2.679	-4.345	-1.012	0.0002**
yes:yes-no:yes	-0.515	-1.539	0.508	0.56
Measurement of respect and justice in school				
Reading:Internet	diff	lwr	upr	p adj
yes:no-no:no	1.025	0.137	1.913	0.016*
no:yes-no:no	-0.091	-0.690	0.506	0.97
yes:yes-no:no	-0.406	-1.023	0.211	0.32
no:yes-yes:no	-1.116	-1.934	-0.299	0.002**
yes:yes-yes:no	-1.431	-2.262	-0.600	0.00006**
yes:yes-no:yes	-0.314	-0.825	0.196	0.38
Aggressiveness				
Reading:Internet	diff	lwr	upr	p adj
yes:no-no:no	-1.772	-5.494	1.95003	0.61
no:yes-no:no	1.890	-0.618	4.4004	0.212
yes:yes-no:no	1.638	-0.9505	4.227	0.362
no:yes-yes:no	3.663	0.236	7.089	0.03*
yes:yes-yes:no	3.410	-0.0742	6.894	0.057
yes:yes-no:yes	-0.252	-2.394	1.888	0.99
yes:yes-no:yes	-0.252	-2.394	1.888	0.99

Note. Diff — difference between means, lwr/upr — lower and upper Confidence Intervals, p adj — p value; * p less than 0.05; **p less than 0.01

According to *Figure 3*, the respondents who preferred online activity as a form of leisure activity, demonstrated significantly higher rates of aggressiveness in comparison with the group which preferred reading as their main type of leisure activity. The other differences between groups were not significant (*Table 4*).

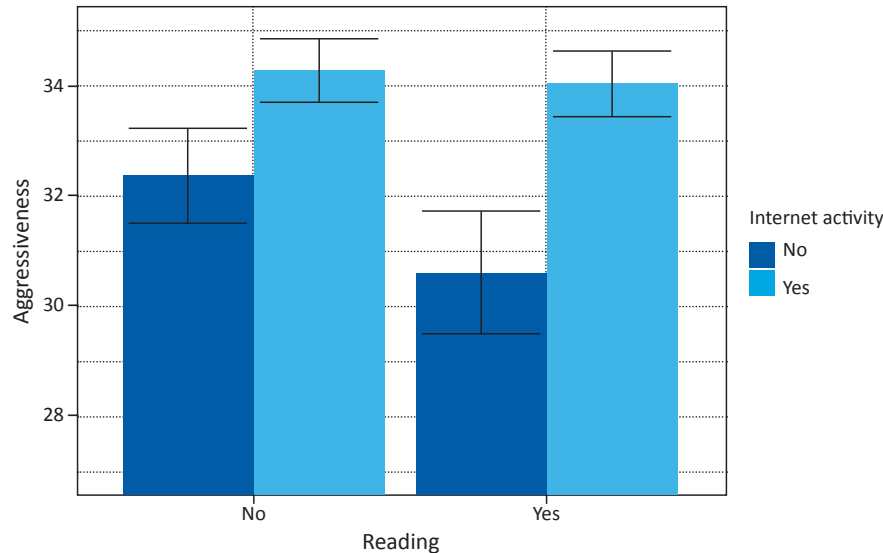


Figure 3. Mean rate differences of aggressiveness between readers and online-users

Discussion

In some cases, the results clarified the relationship between digital technologies and psychological well-being. The data are consistent with the view that the use of digital technologies is associated with risks of aggression and hostility (Elson & Ferguson, 2014). On the other hand, the results obtained make it possible to expand the discussion about the effects of reading hard copy versus activity online (Borisenko et al., 2020; Mangen et al., 2013) by including the issues of well-being and its risks.

However, we should note that the results do not clearly indicate the advantages of one of the types of adolescent leisure time activity considered in this article. We state this because the significance of the interaction of factors in connection with the indicators of the school climate has been established within the framework of data analysis. Probably, the practices of reading, and spending time on the Internet, are associated with various aspects of the socialization of modern adolescents (not necessarily negative). It can be assumed that online communication practices are positively associated with general communicative competence, which also contributes to a positive perception of the school climate. However, an independent study is required to verify these assumptions.

Conclusion

The main results of the current study could be formulated in terms of the relationship of the variables used. Firstly, reading as a preferred form of leisure-time activity among contemporary adolescents is positively connected to the quality of perception

of the school environment—specifically, with parameters of teacher-student relationships, and the perception of respect and justice at school. Secondly, online surfing as a form of preferable leisure-time activity among contemporary adolescents is positively related to the risk of aggressiveness. Finally, we could state that the interaction of factors (reading and Internet surfing as different forms of leisure activity) is significantly associated with various indicators of the school climate perception among contemporary adolescents.

Further research should be directed to the following range of issues: positive and negative consequences of the practice of online surfing (as a form of leisure activity), and inclusion in the consideration of other forms of leisure activity for adolescents, the relationship between the specifics of reading as a practice, and various indicators of subjective well-being.

Limitations

The limitations of the current study are primarily related to the uneven distribution of respondents into groups. The group of respondents who preferred reading and did not practice online surfing was the smallest (78 respondents). So, replication of the results obtained by controlling the number of groups is required. We should also note the limitations associated with the use of self-reporting techniques: respondents may give the more socially-acceptable answer, rather than being truthful, or subjects may not be able to assess themselves accurately.

Ethics Statement

Respondents confirmed their consent to the study in the online form used in the survey.

Informed Consent from the Participants' Legal Guardians

The study involved respondents whose parents provided written consent to participate in psychological diagnostics or social monitoring.

Conflict of Interest

The author declares no conflict of interest.

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