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From screen to stage: reducing adolescents' smartphone addiction through theatrical activities in the zone of proximal development

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Abstract

Context and relevance. Smartphone addiction among adolescents is a behavioral addiction characterized by impaired control, withdrawal symptoms, and functional impairments. Despite the high prevalence of the problem among adolescents, there is currently limited targeted research on possible solutions, including the drama approach. The presented work is conducted in the tradition of the cultural-historical scientific school, based on the ideas of L.S. Vygotsky about the zone of proximal development and the concept of “perezhivanie”. **Objective.** To evaluate the effectiveness of the “Digital Theater” activity technology for the prevention and correction of smartphone addiction in adolescents, to analyze the psychological and pedagogical aspects contributing to its impact. **Hypothesis.** Specially organized theatrical activities help reduce smartphone addiction among adolescents. **Methods and materials.** The study sample consisted of 81 adolescents aged 14–15 (two experimental groups and a control group). The adolescents participated in the “Digital Theater” program from February to May 2024. They took part in 24 drama sessions 90-minutes each. Participants completed pre- and post-testing procedures with Smartphone Addiction Scale (Sheynov, 2020). Additionally, qualitative interviews with adolescents were conducted (N = 18), teachers (N = 4), and parents (N = 2). **Results.** The analysis of the quantitative data allows us to conclude that there was a decrease in the tolerance indicator, as well as tendencies toward a reduction in the disruption of daily life, the overall addiction indicator, and the overuse indicator. The qualitative analysis reveals the nature of these changes, indicating that the study participants developed social interaction skills, strengthened their social relationships, preferred real communication over virtual communication, and acquired self-presentation approaches and skills as alternatives to digital methods. **Conclusions.** The “Digital Theater” activity-based technology may serve as a means to prevent and treat smartphone addiction in adolescents. The results are preliminary; further research is needed to assess the effectiveness of this model when applied to different youth groups.

Keywords: smartphone addiction, adolescents, theatrical activities, zone of proximal development, role experimentation, cultural-historical theory

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От экрана к сцене: снижение зависимости подростков от смартфона средствами театральной деятельности при работе с зоной ближайшего развития

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Резюме

Контекст и актуальность. Зависимость от смартфона среди подростков представляет собой поведенческую аддикцию с нарушением контроля, симптомами отмены и функциональными нарушениями. Несмотря на высокую распространенность проблемы в подростковой среде, адресных исследований, посвященных возможным способам ее решения посредством в том числе театральной деятельности, на сегодняшний день крайне мало. Представленная работа выполнена в традиции культурно-исторической научной школы с опорой на идеи Л.С. Выготского о зоне ближайшего развития и концепции переживания. **Целью** представленного здесь исследования было оценить эффективность деятельностной технологии «Мультимедиа-театр» как средства профилактики и коррекции зависимости от смартфона у подростков, обуславливающих ее воздействие факторов. **Гипотеза.** Специально организованная театральная деятельность способствует снижению зависимости от смартфона у подростков. **Методы и материалы.** Выборку исследования составили подростки 14–15 лет (две экспериментальные и контрольная группы общим объемом 81 человек). Подростки принимали участие в программе занятий «Мультимедиа-театр» с февраля по май 2024 г. Всего было проведено 24 сессии по 90 минут. Участники проходили входное и выходное тестирование по методике «Шкала зависимости от смартфона» (Шейнов, 2020). Кроме того, было проведено интервью с подростками (N = 18), педагогами (N = 4) и родителями (N = 2). **Результаты.** Анализ полученных количественных данных позволил зафиксировать снижение показателя «толерантность» и тенденции в снижении «интегрального показателя зависимости», показателей «нарушение повседневной жизни» и «чрезмерное использование». Каче-

ственный анализ показал содержательный характер выявленных изменений, установив у участников исследования развитие навыков социального взаимодействия, укрепление социальных отношений, предпочтение реального общения виртуальному, формирование способов самопрезентации, альтернативных цифровым. **Выводы.** Деятельностная технология «Мультимедиа-театр» может стать способом профилактики и коррекции зависимости от смартфонов у подростков. Полученные результаты носят предварительный характер, требуются дальнейшие исследования эффективности этой модели в работе с подростками.

Ключевые слова: зависимость от смартфона, подростки, театральная деятельность, зона ближайшего развития, ролевое экспериментирование, культурно-историческая теория

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Introduction

Researchers worldwide are currently observing the rapid spread of smartphones among adolescents as a key gadget to communicate, share and gather information, and entertain. According to the data in 2023, smartphone use by 12–14-year-olds has reached critical levels: 90% in Russia (Children Online, 2023) and 98% in the USA and UK (Teens, social media and technology, 2024; Wood et al., 2023). Simultaneously, the widespread adoption of these devices is often accompanied by risks in their use (Abi-Jaoude et al., 2020; Mayerhofer et al., 2024; Merkaš et al., 2024).

As for empirical data, older adolescents in Russia spend from 3.5 to 6 hours daily staring at smartphone screens, which significantly exceeds recommended screen time (Survey: Russian High School Students, 2024). Lon-

gitudinal studies confirm that smartphone addiction (hereafter SA in short) negatively impacts the quality of interpersonal relationships, it also contributes to academic procrastination and reduces academic performance and engagement in school life (Chen et al., 2024). Furthermore, smartphones serve as a multifunctional platform for accessing various potentially addictive applications (social media, video hosting, messengers, games) that leads to the problematic smartphone use behavior and complicates the development of effective interventions to deal with it (Nawaz, 2023).

In this study, smartphone addiction is considered as a behavioral addiction characterized by a loss of control over device usage, withdrawal symptoms upon cessation of use, continued excessive use despite negative consequences, and functional impairments

in multiple life domains (Lin et al., 2016). It is important to distinguish SA from related constructs. Problematic smartphone use (PSU) describes a broader spectrum of dysfunctional usage patterns that do not necessarily reach a clinical level of addiction (Candussi, 2023), whereas excessive use is characterized primarily by a quantitative measure of screen time without the mandatory presence of compulsivity and functional impairments (Nawaz, 2024).

Despite a number of studies that suggest a compensatory function of online communication (Rudolf et al., 2024), other pieces of the research have shown that the social functions of smartphones do not lessen, but rather worsen their negative impact on adolescent mental health (Abi-Jaoude et al., 2020; Mayerhofer et al., 2024; Merka et al., 2024). This phenomenon is explained by the fact that smartphone-mediated interaction often replaces, rather than complements offline communication, which results in a deficit of deep emotional connections that are critical for psychological well-being throughout adolescence. This data justifies the need to develop programs aimed not at limiting smartphone use through external control, but at creating alternative offline practices that can compete with digital activities in terms of emotional intensity, social significance, and satisfaction of basic adolescents' developmental needs (Liu et al., 2020; Salepaki et al., 2025).

Contemporary scientific literature notes a growing interest in research in experimental programs for the SA improvement and prevention. In adolescent and youth environments, programs based on theatrical activities and various drama approaches hold a special place. As shown in several studies (Leather et al., 2019; Berghs et al., 2022; Summer, 2018), various theatrical programs help adolescents cope with behavioral addictions and related problems such as depression and

impulsivity. However, there is a significant lack of research in Russia that specifically addresses to the potential of theatrical activities to prevent and reduce dependence on a smartphone, correct addictive behaviors in adolescents.

In 2024, a research project was implemented by the Center for Interdisciplinary Research on Contemporary Childhood of Moscow State University of Psychology and Pedagogy. It was aimed at comprehensive study of the effects gained from the application of "Digital Storytelling Theater" technology in adolescent environments. One of its central objectives was to evaluate the effectiveness of this technology for the prevention and correction of SA, to figure out the factors contributing to such improvements.

In the context of studying SA, we examine theatrical activity through several characteristics that can potentially contribute to reducing SA. Firstly, role-playing provides adolescents with opportunities to explore alternative social identities and behavioral patterns in a safe environment. By adopting and enacting various roles and with the support of peers and adults, adolescents progress from their actual developmental level (which can be defined as strategies of limited social interactions, primarily mediated by smartphones) to a potential level (an expanded and significantly improved strategies of offline communication). Role-playing, if it is seen as a "psychological tool," mediates the transformation of external social interactions into internal psychological structures through emotionally rich experiences and collaborative activities, creating conditions for adolescents to re-evaluate their behavioral patterns (the idea is formulated basing on L.S. Vygotsky's concept (Vygotsky, 1978)).

Secondly, group work fosters an environment for lively and direct communication, which becomes a healthy alternative to time

spent on smartphones. While doing creative activity in collaboration with others, interpersonal interaction skills that adolescents with SA often lack in are naturally acquired (Berghs et al., 2022; Cha et al., 2018). Such collaboration creates a unique space for mutual development, where adolescents solve problems in teams, learn to negotiate, and support each other. This experience helps them transfer soft skills such as self-regulation and cooperation into their daily lives. Positive social interaction experiences and strong offline emotional connections help avoid problematic social media use and its associated risks (Benvenuti et al., 2023).

Thirdly, emotional engagement ensures deep experience, which, according to the cultural-historical theory, is the observation of the social situation through the lens of the individual's inner world (Sinitsa, 2025). Through the emotional living into (experiencing) created images, adolescents gain access to alternative sources of emotional satisfaction different from “likes” (thumbs up) on social media, which promotes the development of emotional regulation skills (Kafetsios et al., 2017; Lepp et al., 2014).

Finally, the very process of creating a performance as a final product gives adolescents a significant sense of achievement and increases self-belief. This work requires them to concentrate for extended periods, plan, and coordinate actions — precisely the skills that are often weak and underdeveloped in adolescents with SA (Summer, 2018; Wilmer et al., 2017). The public presentation of the performance becomes a moment of social recognition based on real achievements, which helps shift self-esteem sources from the virtual to the real world.

Thus, specially organized theatrical activity within the framework of “Digital Storytelling Theater” represents a unique educational technology that creates a space for adoles-

cents to experiment with roles, positions, and relationships. The potential of this technology in the prevention and correction of smartphone addiction is due to its ability to provide adolescents with opportunities to address a wide range of developmental tasks in the context of live social interaction.

Based on this theoretical and methodological framework, it was **hypothesized** that specially organized theatrical activity might reduce adolescents' smartphone addiction.

The article aims to explore the possibilities of applying the activity-based technology “Multimedia Theater” as a means of preventing and correcting smartphone addiction in adolescents.

Materials and methods

An innovative model of theatrical activity for adolescents “Digital Storytelling Theater”

The model is for educational, developmental, and upbringing purposes via theatrical activities in adolescence under the guidance of O.V. Rubtsova. It was developed from 2019 to 2023 by the Center for Interdisciplinary Research on Contemporary Childhood, a structural unit of Moscow State University of Psychology and Education. It is based on the idea of role-playing experimentation as the leading activity for adolescents which meets the key needs of this age period such as communication, recognition by a reference group, finding one's place in society, identity formation and others. According to the authors of the concept, a role becomes a cultural means of development, but only if it is emotionally experienced by the adolescent within a specially simulated drama (including situations of emotional involvement, internal reaction, the emergence of subjective significance of events experienced in the role, and the actions and states being played out) (Konokotin et al., 2025). In the context of “Digital Story-

telling Theater,” the educator purposefully constructs “micro-dramas” and elicits specific “experiences” from the participants of theatrical activities. Such “controlled experiences” arise in adolescents through exercises for developing improvisation and imagination, playing sketches, applying special theatrical practices, and reflective communication, etc.

The construction of “micro-dramas” and the creation of conditions for the emergence of dramatic “experiences” is a crucial component of the concept and is aimed at constructing the adolescents’ zone of proximal development (ZPD). One of the most important tasks of adolescence is mastering the system of social roles as a new system of signs (Rubtsova, 2023). In this sense, the role “experiences” that arise during interaction allow adolescents to interiorize new social roles and “appropriate” them. This, from O.V. Rubtsova’s perspective, is the key foundation of the ZPD. At the same time, the educator solves the task of constructing a space of help and social support for adolescents through specific techniques and exercises (improvisation, dramatic etudes and sketches, mini plays, drama-based discussions), resulting in the advancement of the ZPD for each participant as well as for the group as a whole learning unit (Zaretsky, 2024; Rubtsova, 2023).

Beyond the variety of activities offered to teenagers during the performance work, the most important principle of constructing the ZPD is the special participation of the educator, which, among the other aspects, is expressed in the rejection of the traditional “teacher-student” hierarchy in interaction: the educator is involved in joint activities with teenagers practically on an equal footing, i.e., as a full participant in the creative process (as a co-author and co-creator, experiencing dramatic “experiences” alongside other participants).

Sample

The study was conducted from February to May, 2024, at the school No. 4 in Kashira town, Moscow Region. The sample ($N = 81$, 36 girls and 45 boys, aged 14–15, 8th graders) consisted of two experimental groups (EG1 and EG2) and one control group (CG), which were already formed groups and classes of the same grade level.

The groups differed in a number of socio-psychological characteristics identified through observations and interviews with teachers before the experiment. The nature of interpersonal relationships in the class, patterns of smartphone use, and readiness to participate in public school activities were important parameters in analyzing the study results. A brief description of each group in the sample is provided below.

EG1 ($N = 32$, 13 girls and 19 boys). Before participating in the “Digital Storytelling Theater” project, adolescents in this group had strained interpersonal relationships: they did not participate in teamwork, had conflicts with peers (even in online chats and social networks), as well as with teachers. At school, they were engrossed in smartphones (always scrolling through news feeds, recording Reels and Stories), that was a strategy to hide their insecurity. In other words, smartphones were used for online self-presentation and communication, adolescents of this group were initially more accustomed to conducting relationships via digital platforms and messengers.

EG2 ($N = 27$, 14 girls and 13 boys) was characterized by group cohesion and high academic motivation, and a desire to acquire new experiences. Competition for the attention of peers and adults was noted in the group. Much like EG1, the adolescents tended to get distracted by life on social digital social networking services but actively helped

them offline, including teamwork and support within this project.

CG (N = 22, 9 girls and 13 boys) had high motivation and pursued personal interests in their studies. Students lacked interest in school events and maintained business-like relationships in class and with teachers. The adolescents were active users of social networks, but used them not as a platform for communication, but as a tool for creating multimedia products or as an information resource. Unlike the adolescents in EG1 and EG2, their accounts did not contain personal photos or display events from their personal lives.

The school administration and teaching staff requested the implementation of a program aimed at providing adolescents with social support and developing social skills as a strategy for their inclusion in the offline life of the school community. According to research, such changes become possible, among other things, by reducing the time spent on mobile devices and fostering a conscious and functional approach to digital technologies (Benvenuti et al., 2023; Wan et al., 2022).

EG1 was in the focus of the research as due to the results of a previous theater project implemented in 2023, this group, unlike EG2, did not show progress in socialization indicators (according to exit testing results) (Poskakalova et al., 2024).

Based on interviews with teachers and data obtained about the classes and students within the framework of a previously implemented project, the research group of the Center for Interdisciplinary Research on Contemporary Childhood together with school teachers defined the contours of the zone of actual development and the zone of proximal development for EG1 and EG2 as independent educational units. For EG1, the zone of proximal development included: reducing problematic smartphone use, shifting the fo-

cus of interaction from virtual to real space, and increasing engagement in offline school activities. For EG2, the zone of proximal development was defined by the following directions: developing self-control and forming conscious and functional smartphone use.

Organization and progress of the study

The experimental program took four months. It consisted of 24 drama sessions, each of the session lasted one and a half hour and was held weekly. Each session included a warm-up (15-20 min.), a main block of activities (50-60 min.), and a reflection session (10-15 min.). As a result, adolescents from EG1 and EG2 created the performance named "Thank you, darlings. Memories of WWII heroes».

The main stages of the project.

1. Introduction and sharing of experiences. A safe space was created through theater games, storytelling, and discussion of personal experiences. Adolescents worked with family memories, stories, and photographs related to the World War II. The military theme allowed teenagers to focus on deep emotions and thoughts, including tragic experiences, and such approach fostered unity and understanding between generations, developed empathy and compassion.

2. Play script writing through teamwork in small groups under the guidance of teachers-facilitators. Based on interviews with relatives and WWII veterans, adolescents created a play script which was based on collected documentary evidence. They also wrote stylized war triangle-letters as artistic elements of the production.

3. Trying out different roles (acting, directing, technical) through etudes and sketches to enrich adolescents' experiences. It was important for educators to interest and involve participants in a maximum number of activities, provide opportunities to try out various

types of artistic work, and identify deficits and internal states that hinder creativity, free acting, and self-expression.

4. Play production. Adolescents were divided into specialized groups, they took part in various artistic workshops, also exchanged roles and functions between groups. Adolescents recorded and edited 10 videos about their relatives' heroic deeds, which were integrated into the play's structure, ensuring a blend of dramatic performance and video content.

5. Reflective communication while viewing videos or dramatic etudes, writing and filling in reflective diaries, group discussions at the end of drama sessions. Teachers-facilitators worked within adolescents' ZPD through personal experiences that participants had in the "Digital Storytelling Theater" project and through the construction of micro-dramas. Teachers-facilitators were particularly focused on substituting adolescents' online activity with creative productive activity (making up stories, performing dramatic etudes and sketches, writing scripts, creating documentary videos).

6. Public presentation of the play to the audience (classmates, school teachers, parents), which completed the cycle of the project stages and provided external feedback on the results.

In their work, the research group of the Center for Interdisciplinary Research on Contemporary Childhood relied on three key components:

Drama tools and techniques. The research team used projective methods (working with war triangle-letters and family photographs, etc.), storytelling, interviews with veterans and relatives, role-playing and free improvisation for the purpose of empathy development.

Principle of forming ZPD (zone of proximal development). There were created two spaces of interaction: horizontal (collaboration with

peers) and vertical (interaction with teachers-facilitators and adults) (Kotlyar, 2002). Being engaged in theatrical activities, adolescents from EG1 and EG2 worked together and though contributed to interaction, creative collaboration, liberation, and the establishment of trusting relationships. Emotionally rich experience ('perezzhivanie' in Vygotskian terms) contributed to the transformation of personal conflicts into artistic representation. Working with adolescents' personal materials (family memories, stories, photographs) increased emotional involvement and developed reflection in the adolescents.

Active participation of teachers-facilitators. They flexibly structured the program content in accordance with the participants' needs, also created situations of choice, ensured psychological safety and stimulated reflection, avoiding directive methods. The drama activities and tasks were built on the principles of co-participation, voluntariness, non-judgment, and support for multiple interpretations.

Materials and methods

Theatrical activity assessment is a complex task due to the difficulty of measuring its developmental effects and their diversity (personal educational outcomes, soft skills, mental abilities). Significant effects are often delayed in time (Van De Water, 2015). Furthermore, the developmental technologies of theatrical pedagogy should be attributed to research in the field of education, meaning they are intended to explain how and why changes occurred, and such technologies are process-oriented. Therefore, analyzing the effectiveness of theatrical tools and drama-base technologies requires both quantitative and qualitative research methods, which is precisely the approach implemented in this formative experiment (Asimidou et al., 2021; Mardas et al., 2020).

All participants in the experiment underwent pre- and post-testing by “Smartphone Addiction Scale” (Kwon et al, 2013), in Russian adaptation by V.P. Sheinov in 2020. This instrument is a validated method for assessing smartphone addiction. The authors of the method consider addiction as a behavioral addiction based on the presence of key clinical signs in loss of control, functional impairments, and withdrawal symptoms.

The test consists of 33 statements that are to be rated on a scale from “definitely yes” (3 points) to “definitely no” (0 points). In addition to an integrative indicator of addiction, the test offers six subscales: daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationship, overuse, and tolerance. The higher the total score, the greater the manifestation of addiction or risk within the corresponding subscale.

In addition to quantitative methods, qualitative data collection methods were also used. Specifically, unstructured interviews were conducted with adolescents ($N = 18$), teachers-facilitators ($N = 4$), and parents ($N = 2$). An unstructured interview is a form of conversation in which the respondent takes the lead, and the researcher only provides a general direction for the conversation, without restricting participants to the rigid framework of pre-prepared questions. The interviews aimed to obtain reflective feedback from the participants on their changes and emotional experiences during the project, and an assessment of the impact of theatrical activities on various aspects of their daily lives, including the patterns of smartphone use.

The analysis of the interview materials was carried out with the use of thematic analysis and cross-verification by two researchers. Qualitative analysis allowed to comprehend deeply the mechanisms by which theatrical activities affected participants and comple-

mented quantitative data with respondents' subjective assessments.

Results of the empirical study

Quantitative data analysis

Pre- and post-test data were analyzed using the Kruskal-Wallis, Mann-Whitney, and Wilcoxon statistical criteria, as well as the method of multiple and pairwise comparisons (with Bonferroni correction). Normality of distribution was checked using the Kolmogorov-Smirnov test. Calculations were performed in the IBM SPSS Statistics 27 statistical package.

According to the results of the quantitative study with the use of the Smartphone Addiction Scale, differences were found between the experimental groups (EG1, EG2) and the control group (CG) in the pre- and post-testing. In the first measurement, significant differences were found between the groups in the tolerance subscale using the Kruskal-Wallis test ($H = 6,710$, $p = 0,035$). Pairwise comparison analysis by group showed that in EG1 the scores were significantly higher than in CG ($p = 0,031$, EG1 ranks = 47,05 and CG = 30,48). Additional analysis using the Mann-Whitney test revealed significant differences in the withdrawal subscale between EG2 and CG ($p = 0,032$): in EG2, scores were lower than in CG (EG1 Me = 5,33 and SD = 3,63, CG Me = 7,35 and SD = 2,84, respectively).

At the end of the experiment, a difference was observed between EG2 and CG on the tolerance scale ($p = 0,031$), while the difference between EG1 and CG disappeared. Scores in EG2 at the end became significantly lower than in CG (ranks: EG1 = 47,38, EG2 = 31,83, CG = 42,98). No significant intergroup differences were found for any other scales.

When analyzing intragroup dynamics, i.e., comparing the scores of EG1, CG, and EG2 at the beginning and end of the project using

the Wilcoxon signed-rank test, no significant shifts were found in any of the groups for the integral indicator of addiction ($p > 0,05$). However, there was a tendency towards a decrease in addiction in EG1 ($p = 0,060$). In EG2, the tolerance score significantly decreased ($p = 0,011$). A tendency towards a decrease in scores on the impaired daily life scale was also found ($p = 0,071$). In CG, no significant intragroup changes occurred for any of the analyzed scales.

To verify the identified trends in the experimental groups, an additional analysis was conducted. Based on the integral indicator of addiction, a variable was created that included values that were obtained in the initial measurement of EG1 and EG2. Based on this variable, groups with different levels of addiction were identified. Percentile values were calculated for three equal groups (values were 32 and 44), and then the adolescents from both experimental groups were split into three groups with low ($N = 20$), medium ($N = 19$), and high ($N = 20$) levels of addiction. It was found that in the group with a high level of addiction, there was a significant decrease in the integral indicator of addiction and data on the “overuse” subscale (Wilcoxon significance test, $p = 0,012$ and $p = 0,009$, respectively).

Thus, statistical analysis showed a decrease in the level of smartphone addiction in adolescents with initially high levels of addiction after 24 theater sessions. Intragroup analysis revealed a significant decrease in the tolerance score and a tendency towards a decrease in the daily-life disturbance score in EG2. In EG1, a tendency towards a decrease in the integral addiction indicator and the overuse score was revealed.

Qualitative analysis of interviews with educators and adolescents

Statistical analysis revealed a downward trend in some indicators in the experimental

groups, but these trends did not reach statistical significance when compared to the control group. Interview analysis helps understand why the quantitative effects were moderate. The changes primarily occurred in the patterns of gadget use: teenagers began to relate to their devices differently, preferring real-life interaction over virtual communication. Such transformations are difficult to capture with standardized questionnaires.

To gain a deeper understanding of the changes in the participants' personal experiences, an analysis of interviews with adolescents, teachers-facilitators, and parents was conducted. It allowed to identify the main features of the observed transformations.

1. Development of social interaction skills.

Participants noted significant progress in their ability to work in a team, listen and hear each other: “*We became more outgoing and cohesive, we started to support each other*” (girl E., EG2); “*Many of us tried out themselves, communicated, and helped each other*” (girl A., EG1); “*The project teaches teamwork, to listen to each other, compromise and interact as well as to be, supportive, friendly, and understanding*” (parent M., EG1).

The teachers-facilitators emphasized:

“*For me, the most important thing was for them to learn not only to speak but also to listen to each other, hear each other, and work together. ... Over three months of work ... they became significantly more of a team*” (educator N.).

“*They prefer to discuss the results of their activities ... during breaks, after lessons ... meaning that offline communication prevailed within the project*” (educator O.).

2. Broadening and deepening social connections and strengthening offline relationships with both peers and significant adults.

Participation in the project contributed to the formation of new social connections and the deepening already existing relationships

within the class. The adolescents stated: *"We already have a friendly class, but we started communicating more with others"* (girl V., EG2); *"... we started to become really good friends"* (boy M., EG2). Parents noted changes in their children: *"She became more open, not withdrawn. She made more acquaintances"* (parent M., EG1), *"She didn't miss a single rehearsal ... during them, the classmates became very close to each other"* (parent of girl Z., EG2). Additionally, educator X. noted that the psychological climate in EG1 improved: *"The level of conflict in the class changed as a result of participating in the project — the adolescents began to find ways to resolve conflicts, they became softer and calmer towards each other ... their communication became more mature and conscious."*

Relationships between classes also strengthened: *"We became more communicative with parallel classes, although we absolutely did not communicate before"* (boy D., EG2); *"I saw that other classes were interacting with me very well"* (girl D., EG2). The adolescents managed to establish more trusting and harmonious relationships with adults: *"My daughter happily shared her impressions of the classes ... I helped her learn the lines with joy, watched together videos from rehearsals"* (parent of girl Z., EG2). Educator X. also highlighted the changes in EG1: *"Communication with adults became politer and more respectful in many ways ... the boys and girls learned to manage their emotions and think before expressing their opinions to adults..."*

3. Formation of alternative ways of self-presentation and social recognition.

Theatrical activity provided adolescents with a platform for self-expression and feedback, alternative to the digital environment. The experience of public speaking and realizing one's impact on the audience was particularly significant: *"Today I was impressed that we were able to evoke feelings in the*

audience. ... We touched the audience, even children cried, not just adults" (boy M., EG2); *"Admiration for oneself, that you could do it, you did it"* (girl V., EG2); *"I saw that they weren't just standing on stage, they were proud of what they were doing"* (educator N.). Adolescents also noted the development of specific self-presentation skills: *"we knew how to present ourselves correctly to people, ... pronounce words correctly, with the right intonation, and formulate our thoughts well"* (girl E., EG2).

4. Emotional engagement.

The participants of the project experienced vivid emotions, which, within the cultural-historical approach, is a driving force for development and can replace the need for constant digital stimulation. The teacher-facilitator noted an evolution in the adolescents' perception: *"At the beginning ... they just had ordinary eyes, as if I was talking about something ordinary or something distant. ... today they connect it [the text] with personal stories and experiences"* (educator N.). The adolescents confirmed the depth of their experiences: *"I felt everything that people who ended up in the WW II could have experienced"* (boy K., EG1); *"Initially, we didn't understand all of this, that it would be so difficult and touch everyone so much"* (girl D., EG2).

Educator X. emphasized the significance of the emotions that the participants received from the project: *"The teens really wanted to get feedback and waited for a response to their participation in the project, and they themselves felt pride in the work they had done... Their emotional state contributed to a change in mood in the class, in the group."*

5. The teacher-facilitator's work in the zone of proximal development.

The teenagers were positively influenced by the special approach of the educators, who created a supportive environment based on the principles of co-authorship and re-

spect. *“First of all, I don’t treat them [the adolescents] as children, but as actors and co-authors. ... I learn from them”* (educator N.); *“Children perceive everything that is created not by themselves as a certain directive [unresponsive and imposed]”* (educator O.).

This approach helped overcome initial barriers: *“At first ... nobody wanted to go, ... but then with each new lesson, there was more and more desire to participate”* (boy K., EG1).

6. Emergence of awareness in smartphone use.

During the project, teenagers showed changes in the focus of attention and time — from virtual to real activities:

“I saw how the boys and girls were changing. At first, they constantly spent time with their phones in hands, even during rehearsals. But then, when they started working on the real stories of their great-grandparents, when they saw how important this work was, the phones took a backseat. They became engrossed in a real endeavor” (educator N.); *“They started connecting to [online class chats] earlier and stopped texting constantly at night ... they became more disciplined in their gadget use”* (educator O.); *“... they are mastering a particular soft skill — the ability to manage their attention in the age of gadgets”* (educator V.).

The adolescents did both reduce their gadget use time and change passive content consumption for the active — they started to use creative smartphone applications: *“They started using digital skills... video recording, editing... in a creative burst”* (educator O.).

The amount of shared offline time increased: *“A special memory will be that we gathered together, spent time together, it was very pleasant — to see everyone assembled”* (girl V., EG2).

An increase in the adolescents’ sense of responsibility is noted: *“She started to ap-*

proach things more responsibly” (parent of girl M., EG1); *“... you feel the full responsibility, if something goes wrong, they will charge me first”* (boy D., EG1); *“We had behavioral problems, sometimes we were tired, we wanted to go home after all lessons, but we forced ourselves, we understood that we needed this”* (girl E., EG2).

Results of the discussion

The data obtained in the current study preliminarily indicate a potential link between adolescent participation in the “Digital Storytelling Theater” project and some changes in smartphone usage patterns. The theater sessions were aimed at developing adolescents’ live communication and teamwork skills, as well as enriching their emotional experience. According to research, it is precisely these offline practices that create a real alternative to time spent on smartphones (Liu et al., 2020; Salepaki et al., 2025).

Theater tools (“sketches,” training sessions, discussions) created offline situations for developing live communication and expanding social circles; given equal opportunities, adolescents preferred real interaction, which shifted their focus from the virtual to the real (Achterhof et al., 2022). Positive emotions and deep experiences in offline interactions (Kafetsios et al., 2017) allowed adolescents to gain richer communication experience, as evidenced by teachers: participants in EG1 and EG2 began to communicate more often offline at school than it was before the project.

Individual characteristics of adolescents (communication preferences, group relationships, goals of smartphone use) were taken into account when working on the development of offline communication skills. Adolescents with already developed offline skills and an instrumental attitude towards smartphones showed a decrease in “tolerance” and a tendency towards reduction “everyday life disruption,” while those who used social

media for self-expression demonstrated a tendency to decrease in integral indicator of addiction and in the indicator of overuse; there were no changes in the control group. These data confirm the positive effect of theatrical activities on adolescent self-regulation and self-control (Summer, 2018; Dawson, Lee, 2018).

The current study shows how the process of improving offline communication skills helps to develop cooperative relationships with peers and adults. Adolescents with technological addictions have a distorted perception of intimacy in relationships, do not recognize social cues, which leads to a deterioration of offline skills and an increased sense of loneliness, drawing them into online communication (Erdem et al., 2021). At the same time, adolescents with problematic social media use employ online communication to receive socio-psychological support and experiment with self-presentation (Khusnutdinova et al., 2023). Participants in the “Digital Storytelling Theater” project widened social circles, interacting with adults of different ages and statuses (teachers, WWII veterans), they also received peer support, and experimented with roles in a safe offline environment, which contributes to reducing smartphone addiction (Ihm, 2021).

Conclusion

The results of the study partially confirmed the hypothesis about the positive impact of theatrical activity on reducing smartphone addiction in adolescents. The most stable and statistically significant effect is the decrease in smartphone usage tolerance (the need for increasing usage time), which was recorded in the experimental group EG2. In addition, statistical trends were identified towards a decrease in the integral indicator of addiction and the indicator of overuse in EG1, as well as the indicator of disruption of daily life

in EG2. An important outcome of the work was the identification of a statistically significant decrease in the level of addiction among adolescents from high-risk groups (with initially high scores of the integral indicator of addiction). Thus, the obtained results are preliminary, they indicate the potential effectiveness of the tested program based on the “Digital Storytelling Theater” technology. Furthermore, further work is needed to refine the conceptual model in the context of preventing adolescent addictions.

The observed statistical trends were compared with a qualitative analysis of interview data. Adolescents and teachers-facilitators noted significant changes in the development of social interaction skills (ability to work in a team, to listen actively each other), expansion of social connections and strengthening of interpersonal relationships, formation of alternative ways of self-presentation and gaining social recognition through public speaking, deepening emotional involvement as the basis for personal transformations. The educators managed to create a supportive environment for work in the zone of proximal development by the support of co-authorship principles, as well as by forming the awareness in smartphone use and preference for real communication over virtual communication, which suggests a comprehensive impact of theatrical activity on reducing smartphone addiction in adolescents.

The specific influence of project participation on each of the experimental groups can be noted. For adolescents from EG1 with strained interpersonal relationships and compensatory smartphone usage patterns theatrical activity created a fundamentally new experience of successful offline interaction, which was reflected in the trend towards a decrease in the integral indicator of addiction. Qualitative data confirm the substitution of virtual communication with real social con-

nections: the teachers-facilitators noted that phones receded into the background, and participants learned to make friends.

For socially active adolescents in EG2 with competitive motivation and active use of social networks for self-presentation purposes, theater provided a more intense and authentic alternative to digital self-presentation. The decrease in the indicator of tolerance in this group demonstrates the development of adolescents' ability to regulate smartphone use and control impulsive behavior. A possible mechanism for this effect is related to the shift in the source of emotional stimulation. Theatrical activity provided adolescents with alternative, more enriching forms of obtaining positive emotions — deep experiences from public performance and recognition based on real achievements. This reduced the need for emotional reward from the smartphone.

Thus, the “Digital Storytelling Theatre” program contributed to shifting adolescents’

focus of activity from the online environment to the offline space by creating a more relevant and emotionally rich context for meeting age-specific needs.

The obtained results are of interest for further study and development of comprehensive preventive programs for reducing smartphone addiction through theatrical activities. This approach is particularly relevant in the context of the globally observed trend of placing increasing responsibility on educators for preventing the non-purposeful and excessive use of smartphones by students at school, as well as the growing social demand for effective tools to overcome related new educational challenges (Armakolas et al., 2024; Koçak et al., 2025; Łuczynski et al., 2025).

Limitations. Some of the results have a trend character ($p < 0,09$), which may be due to the small sample size and requires further verification on a more representative sample.

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Margarita R. Khusnutdinova — statistical data analysis, database development and empirical data process; visualization of research results, and writing the “Results of empirical study” section.

Olga V. Salomatova — literature review on the topic; general edit of the article text.

All authors participated in the discussion of the results and approved the final text of the manuscript.

Вклад авторов

Посакалова Т.А. — идеи исследования; проведение эксперимента; сбор эмпирических данных, аннотирование, написание и оформление рукописи; планирование исследования; контроль за проведением исследования.

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Conflict of interest

The authors declare no conflict of interest.

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