



## Effectiveness of Self-determination Skills Training on Academic Participation and Help-seeking Behavior among Students Addicted to Smartphones

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### Abstract

**Introduction:** Excessive smartphone use among students has become a significant concern, potentially compromising academic performance and overall well-being. The research aims to investigate the effectiveness of self-determination skills training on academic participation and help-seeking behavior among students addicted to smartphones.

**Methods:** A pre-test-post-test, follow-up, quasi-experimental design was applied in this study. The study population comprised female high school students in Dezful City who were referred to the school counseling center during the 2022-2023 academic year due to their tendency toward smartphone addiction. A convenience sample of 30 students was randomly assigned to experimental and control groups (n=15). The experimental group received 10 weekly 60-minute sessions of self-determination skills training. Statistical methods employed in this study included descriptive statistics (mean, standard deviation) and inferential statistics (repeated measures analysis of variance). Additionally, the Kolmogorov-Smirnov test was used to assess normality, and Levene's test was used to examine homogeneity of variances. All statistical analyses were conducted using SPSS version 22, with a significance level of 0.05

**Results:** Results indicated significant differences between the experimental and control groups regarding academic participation and help-seeking behavior ( $P < 0.001$ ). Self-determination skills training effectively increased academic participation and adaptive help-seeking behavior among female students with smartphone addiction ( $P < 0.001$ ).

**Conclusion:** The findings of this study demonstrate the effectiveness of self-determination skills training in mitigating the detrimental effects of smartphone addiction on academic participation and help-seeking behavior among female students. This study's findings can benefit school counselors, psychologists, and educators who work with adolescents.

**Keywords:** Self-determination, Help-seeking, Participation, Smartphone addiction, Students



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### Introduction

In recent decades, the Internet has rapidly become an indispensable tool in daily life (1). While the Internet offers numerous benefits, it has also introduced new challenges. One significant issue is internet addiction. Dependence on cyberspace is a prevalent problem affecting many societies today. Over the past two decades, children and adolescents have exhibited high levels of internet addiction (2). Consequently, internet access is a growing phenomenon, with an increasing number of people becoming users, and addiction to it has dangerous consequences that are rising at an alarming rate worldwide, especially among children and adolescents

(3). Iran has also witnessed a significant surge in mobile phone usage, with the number of smartphone users escalating from 2 million in 2014 to approximately 48 million in 2017. This trend positions Iran as the seventh country globally regarding smartphone penetration, with a rate of 74.4%. Moreover, studies indicate a concerning prevalence of smartphone addiction among Iranian schoolchildren, with a reported rate of 29.8% (4). A significant form of internet addiction is social media addiction. The popularity of social media is increasing daily, and studies show that internet addiction and excessive use of social media is prevalent among adolescents and young adults (5). Social media

addiction can contribute to a decline in students' academic performance (6).

Excessive use of social media reduces students' motivation and academic participation (7). Academic participation occurs when students are deeply immersed in learning activities and mentally and emotionally invested in the material, which is often observed when interacting with peers (8). Student participation in academic matters is a crucial factor for progress and success. The desire to progress and improve learning increases students' interest in academic participation. Academic participation clearly shows students' academic progress and failure and is considered a primary model for academic success and failure (9). Academic participation is a positive state of vigor, dedication, and absorption in learning. It refers to the psychological investment and direct effort to learn, understand, and master the knowledge, skills, or things that academic activities aim to promote (10).

Students with high levels of academic participation are intrinsically motivated to learn, attend classes regularly, are curious about school activities, are eager to learn, and have more challenges and energy for studying (11). Learners with high academic participation invest all their interest and energy in completing a task, engage more focused in challenging activities, pursue intrinsically rewarding goals, experience more positive emotions, engage in extracurricular activities, and feel a greater sense of belonging to learning and the school environment. These characteristics, in turn, encourage students to complete their schoolwork and make them more engaged and fascinated by the task (12). Momeni and Radmehr's findings (13) showed that academic participation and self-efficacy have a significant positive correlation with academic achievement, and academic self-efficacy and participation can predict academic achievement in students.

One of the variables that can affect students' academic participation is academic help-seeking. Students often encounter challenges in educational settings that require help or academic help-seeking behavior, which has been identified as a critical strategy in student learning (14). Using this strategy, students can identify their learning and academic problems and seek help from others to address them. They can use this strategy to develop their skills and learn better (15).

Help-seeking behavior has two dimensions: avoidance of help and seeking help. Avoidance of help refers to the behavior where individuals in need of help avoid seeking it while seeking help refers to the behavior where individuals in need of help ask others for explanations about the subject, which leads to a better understanding of the issue (16).

Help-seeking is a mechanism for preventing academic failure. This mechanism involves behaviors such as asking questions of teachers, parents, or classmates, requesting further explanations about exercises, understanding solutions, and seeking other academic support; therefore, academic help-seeking behavior is defined as a constructive self-regulated learning strategy, meaning that learners strive to seek help in a proactive situation to solve academic problems or complete an academic task (17). Academic help-seeking is an important self-regulated learning strategy, and students who use this strategy can significantly control academic stress and, as a result, have high achievement motivation, self-efficacy, and academic performance (18, 19).

Self-determination theory is another theory that can help us understand students' motivational, cognitive, and affective processes. Self-determination refers to abilities, knowledge, and beliefs that enable an individual to engage in goal orientation, self-regulation, and independent behavior (20). Consequently, disruptive and harmful behaviors in the teaching and learning process during education in academic environments will decrease (21). Self-determination is associated with increased enjoyment of academic activities, a sense of competition, focus, and time spent on homework. Therefore, students with self-determined motivation have less procrastination (22). Moreover, teaching self-determination skills will likely increase students' participation in the learning process. In other words, it will improve the amount of time spent on homework and completing homework, as well as students' voluntary participation in class and extracurricular activities (23).

Teaching self-determination skills begins with two dimensions: self-awareness and self-worth. Self-awareness involves recognizing one's strengths and weaknesses, needs, and important preferences and deciding what matters to them. Self-worth involves appreciating one's strengths,

recognizing rights and responsibilities, and caring for oneself. By better understanding and appreciating their self-worth, students develop a greater awareness of their behavior and form positive interpretations of themselves and their environment (24). Jalili et al. (25) showed that teaching self-determination skills effectively increased academic motivation and enthusiasm among students with low academic achievement. Additionally, the research of Cavusoglu and Karatas (26) indicated the impact of self-determination on reducing procrastination.

Many educational experts acknowledge that disruptive and maladaptive behaviors in educational settings are increasing, leading to decreased student participation in the learning process (27). Given that a significant portion of the Iranian population consists of students and that there are numerous challenges in education and the use of diverse teaching strategies, it is crucial to research the impact of employing various learning strategies in education and the factors influencing their use to improve the quality of education. Although numerous intervention studies have been conducted on social media addiction, there has been no direct intervention regarding the effectiveness of teaching self-determination skills on social media use in students, particularly on the variables of academic participation and help-seeking. Therefore, this research aimed to investigate the effectiveness of self-determination skills training on academic participation and help-seeking behavior among students addicted to smartphones.

## Methods

A pre-test-post-test, follow-up, quasi-experimental design was employed in this study. The study population consisted of female high school students in Dezful City during the 2023-2022 academic year referred to the school counseling center due to their tendency to be addicted to smartphones. Among these students, 30 were selected using a convenience sampling method and randomly assigned to two groups (15 in the experimental group and 15 in the control group). To identify these students, an internet addiction questionnaire was distributed among students. After collecting the questionnaires, students who scored above a certain threshold (61 students in total) were selected. Based on the inclusion criteria, 30 students were finally

selected as the sample. The inclusion criteria were an age range of 15-18 years, scores above the mean on the internet addiction questionnaire, no participation in other educational interventions, and informed consent from parents and students. The exclusion criteria included absence from more than two intervention sessions and incomplete questionnaires.

## Instruments

### *The Academic Participation Scale (APS)*

The Academic Participation Scale (APS) is a 17-item self-report questionnaire that assesses students' academic participation. The APS comprises four components: behavioral, cognitive, emotional, and agency. Items are rated on a 7-point Likert scale from completely disagree to agree. The APS has demonstrated good internal consistency reliability, with Cronbach's alpha coefficients ranging from 0.84 to 0.90 for the individual components and 0.86 for the overall scale (28). These findings suggest that the APS is a reliable and valid instrument for measuring academic participation (29).

### *The Help-Seeking Academic Questionnaire (HSAQ)*

The Help-Seeking Academic Questionnaire (HSAQ) is a 14-item self-report measure that assesses students' help-seeking behavior. The HSAQ measures two dimensions, acceptance and avoidance, and items are rated on a 5-point Likert scale (30). Ryan and Pintrich (30) found that the HSAQ has good reliability, with Cronbach's alpha coefficients of 0.79 for help-seeking acceptance and 0.68 for help-seeking avoidance. The HSAQ demonstrated acceptable internal consistency, with a Cronbach's alpha coefficient of 0.85 (31). Additionally, the HSAQ has demonstrated good construct validity, correlating significantly with other measures of help-seeking behavior and academic performance (30).

## Procedure

After obtaining the necessary approvals from the university research committee and arranging a suitable location, the purpose and significance of the study were explained to the participants. Participants were assured of ethical considerations and provided informed consent to participate in the study. Subsequently, the academic participation and help-seeking

scales were administered as a pre-test to all students who met the inclusion criteria. After selecting the experimental and control groups, the experimental group participated in a 10-week, 10-session, 60-minute training program conducted by the researcher at the educational counseling center. The control group received no intervention during this period. A summary of the self-determination skills training sessions is presented in Table 1. Upon completion of the sessions, the academic participation and help-seeking scales were administered as a post-test to all participants. To ensure ethical considerations, the control group also received treatment after the completion of the study. All participant-related information was kept confidential. The study was approved by the Ethical Committee of Islamic Azad University, Ahvaz branch (approval code: IR.IAU.AHVAZ.REC.1403.059).

### Statistical Analyses

Descriptive statistics (mean and standard deviation) and inferential statistics, such as repeated measures analysis of variance, were employed to analyze the data. The Kolmogorov-

Smirnov test was used to assess the normality of the data. It is worth noting that Levene's test was used to examine the assumption of homogeneity of variances between the two groups in the pre-test. All statistical analyses in this study were conducted using SPSS version 22. Furthermore, a significance level of 0.05 was considered for all hypotheses.

### Results

Thirty female high school students with a mean age of  $16.75 \pm 2.16$  years participated in this study. Demographic variables of students are reported in Table 2. The means and standard deviations of academic participation and help-seeking in the pre-test, post-test, and follow-up phases are presented in Table 3. The results showed that the two research groups did not differ significantly in any of the study variables at the pre-test stage. However, at the post-test stage, the means and standard deviations of the experimental group showed significant changes in the variables of academic participation and help-seeking.

Based on the results of the Kolmogorov-Smirnov test, the assumption of normality of the distribution of variables was met.

**Table 1:** A summary of the self-determination skills training sessions

Sessions	Objectives	Content
1	Introduction and Overview	Participants' introduction, review of rules, number, and duration of sessions, definition of self-determination, description of training programs including homework assignments, creation of a participatory environment for individuals to engage in discussion, identification of two strengths and weaknesses of each individual in physical, psychological, emotional, social, and belief domains, and identification of strengths that can help address weaknesses.
2	What Matters to Me?	Recognizing how imagination can help individuals think about their desires, writing sentences about what matters to them.
3	Self-Awareness: Knowing Yourself Better	Identifying emotions, feelings, strengths, and weaknesses, recognizing preferences and needs, increasing self-awareness of strengths, preferences, and needs, identifying future choices based on individuals' strengths and weaknesses, and writing about them.
4	Understanding Rights and Responsibilities	Identify preferences and needs, recognize expectations, support, responsibilities, and life rules, and become familiar with roles and responsibilities as a member of society.
5	Self-Worth	Developing skills related to self-worth, self-acceptance, and building positive relationships.
6	Creating Options for Long-Term Goals	Identifying personal goals, using brainstorming techniques, creating a list of options for long-term goals, being creative, anticipating potential outcomes, selecting a long-term goal.
7	Goal Setting and Choosing Short-Term Goals	Writing three observable and achievable short-term goals, selecting one of the three short-term goals related to the long-term goal, identifying steps that will help achieve short-term goals, developing active listening skills, and identifying tasks that will help achieve short-term goals and need to be done.
8	Taking the First Step (Risk-Taking)	Applying the self-determination model to one's experiences, identifying the first step towards working towards short-term goals, recognizing the process of mentally reviewing plans, identifying potential outcomes of implementing planned actions, and developing skills related to taking action.
9	Taking Action, Experiencing Consequences, and Learning	Awareness of the social energy factor, developing social and family goals for a week, identifying the consequences of implementing one's plan, evaluating the level of success in achieving goals, having a win-win negotiation, and differentiating between passive, assertive, and aggressive communication.
10	Where Did We Get Here?	Recalling key self-determination concepts learned, writing down ideas for sustainable self-determination.

**Table 2:** Demographic variables of students in experimental and control groups

Groups	Mean±SD age (years)	Grade			Socioeconomic level		
		10 <sup>th</sup> grade	11 <sup>th</sup> grade	12 <sup>th</sup> grade	Low	Medium	High
Experimental group	16.62±2.11	3 (20.00%)	5 (33.33%)	7 (46.67%)	2 (13.33%)	8 (53.34%)	5 (33.33%)
Control group	16.88±2.21	4 (26.67%)	4 (26.67%)	7 (46.66%)	3 (20.00%)	8 (53.33%)	4 (26.67%)

**Table 3:** Means and standard deviations (SD) of academic participation and help-seeking

Variables	Phase	Experimental group	Control group
		Mean±SD	Mean±SD
Academic participation	Pre-test	53.93±5.29	52.93±4.60
	Post-test	66.33±5.57	54.07±5.44
	Follow-up	66.13±5.50	54.40±5.18
Help-seeking (acceptance)	Pre-test	16.73±2.84	16.93±2.84
	Post-test	21.60±3.69	17.53±3.04
	Follow-up	21.20±3.48	17.67±3.22
Help-seeking (avoidance)	Pre-test	24.27±3.12	24.33±3.08
	Post-test	18.67±2.94	24.07±2.84
	Follow-up	18.87±2.90	23.93±2.65

**Table 4:** Results of the repeated-measures ANOVA

Variables	Source	SS	df	MS	F	P	$\eta_p^2$
Academic participation	Phase	924.86	1.27	724.39	297.43	0.001	0.91
	Group × Phase	606.06	1.27	474.69	194.90	0.001	0.78
	Group	1562.50	1	1562.50	19.24	0.001	0.41
Help-seeking (acceptance)	Phase	142.48	1.58	90.16	264.02	0.001	0.90
	Group × Phase	81.06	1.58	51.29	150.214	0.001	0.84
	Group	136.90	1	136.90	4.52	0.040	0.13
Help-seeking (avoidance)	Phase	170.15	2	85.07	146.04	0.001	0.83
	Group × Phase	133.88	2	66.94	114.91	0.001	0.80
	Group	277.37	1	277.37	11.27	0.001	0.28

Additionally, Levene's test indicated homogeneity of variances. Based on the results of Mauchly's test of sphericity, the assumption of sphericity was violated for the variables of academic participation and help-seeking; therefore, Greenhouse-Geisser correction was applied.

Results of the repeated measures ANOVA revealed significant differences over time (pre-test, post-test, and follow-up) for academic participation ( $F=297.43$ ,  $P<0.001$ ,  $\eta^2=0.91$ ), acceptance help-seeking ( $F=264.02$ ,  $P<0.001$ ,  $\eta^2=0.90$ ), and avoidance of help ( $F=146.04$ ,  $P<0.001$ ,  $\eta^2=0.83$ ). These findings indicated significant differences in the dependent variables (academic participation and help-seeking) across the pre-test, post-test, and follow-up stages. Additionally, there was a significant interaction between group and time for academic participation ( $F=194.09$ ,  $P<0.001$ ,  $\eta^2=0.87$ ), acceptance help-seeking ( $F=150.21$ ,  $P<0.001$ ,  $\eta^2=0.84$ ), and avoidance of help ( $F=114.91$ ,  $P<0.001$ ,  $\eta^2=0.80$ ). This indicates that the effect

of the intervention differed across time for the two groups. Furthermore, significant differences were found between the self-determination skills training group and the control group for academic participation ( $F=19.24$ ,  $P<0.001$ ,  $\eta^2=0.41$ ), acceptance help-seeking ( $F=4.52$ ,  $P=0.040$ ,  $\eta^2=0.13$ ), and avoidance of help ( $F=11.27$ ,  $P<0.001$ ,  $\eta^2=0.28$ ). These findings indicated that the self-determination skills training group demonstrated significantly more significant increases in academic participation and acceptance of help-seeking and significantly decreased avoidance of help compared to the control group (Table 4).

A Bonferroni posthoc test was conducted to compare the experimental group's three time points (pre-test, post-test, and follow-up). The results revealed that for the self-determination skills training group, there were significant differences in academic participation and help-seeking between the post-test and pre-test, as well as between the follow-up and pre-test ( $P<0.001$ ).

**Table 5:** Bonferroni posthoc test for paired comparison of the academic participation and help-seeking across time series

Variables	Phase A	Phase B	Mean difference (A-B)	P
Academic participation	Pre-test	Post-test	12.40	0.001
		Follow-up	12.20	0.001
	Post-test	Follow-up	0.20	0.998
Help-seeking (acceptance)	Pre-test	Post-test	4.86	0.001
		Follow-up	4.46	0.001
	Post-test	Follow-up	0.40	0.882
Help-seeking (avoidance)	Pre-test	Post-test	5.60	0.001
		Follow-up	5.40	0.001
	Post-test	Follow-up	0.20	0.999

However, no significant differences were found in academic participation or help-seeking between the post-test and follow-up stages within the self-determination skills training group (Table 5).

### Discussion

This study aimed to investigate the potential benefits of teaching self-determination skills to students addicted to smartphones. Specifically, the research focused on how these skills might improve academic participation and help-seeking behavior. The results indicated that self-determination skills training effectively enhanced academic engagement among smartphone addiction students. These findings are consistent with previous research by Shirzadi et al. (32), who demonstrated the positive impact of self-determination skills training on academic engagement and incivility. Similarly, Naseri et al. (33) found that self-determination skills training can improve students' academic emotions, self-concept, and responsibility, which are essential components of academic engagement. While no studies directly contradicting the findings of this research were identified, it is important to acknowledge that the effectiveness of interventions may vary depending on factors such as participant characteristics, cultural context, and specific implementation strategies. This outcome can be attributed to incorporating self-determination elements, including self-regulation strategies such as self-reflection, self-evaluation, self-reinforcement, and self-instruction, which contribute to developing students' competence, relatedness, and autonomy. Consequently, these strategies positively impact the fulfillment of students' basic psychological needs. In essence, students require opportunities to make their own decisions (autonomy), receive encouragement and reinforcement for their successes and efforts (competence), and

cultivate positive and supportive relationships with others (relatedness). When these three needs are met, intrinsic motivation is fostered. Indeed, according to Self-Determination Theory, autonomy, competence, and relatedness are considered the cornerstone of psychological well-being (32). These three psychological needs serve as experiential nutrients for growth and optimal functioning.

Through self-determination skills training, students learn to use goal-setting, planning, and action-oriented techniques to develop solutions to their problems and navigate their environments effectively. Students with social media addiction often struggle with planning, a skill that can be taught (5). Engaging in goal-setting, planning, and taking action can enhance students' academic participation. Moreover, self-determination skills training empowers students to understand better their cognitive abilities, strengths, weaknesses, and goals. This increased self-awareness can foster a greater sense of responsibility among students (33). Therefore, self-determination skills training contributes to increased academic participation among students.

Furthermore, the results of this study demonstrated that self-determination skills training was effective in enhancing academic help-seeking among students with smartphone addiction. These findings align with the results of Dashti Daryan et al. (34), who found that self-determination training can increase school engagement in female students, often involving seeking help from teachers and peers. Similarly, Malekzadeh et al. (35) demonstrated the positive impact of self-determination training on students' academic performance and beliefs, which may also facilitate help-seeking behavior. To explain this finding, self-determination skills training can be characterized as a learner-centered approach. In this approach, students are divided

into small groups and given a problem to solve collaboratively. This process analyzes issues using hypothesis generation, discussion, and evaluation. The outcomes of these activities include increased academic participation and interest in classroom activities. Self-determination skills training helps individuals better understand their cognitive abilities, strengths, weaknesses, and goals. This increased self-awareness can lead to improved learning of the taught content.

Moreover, the need for relatedness is another fundamental human need. When students can establish positive and effective relationships with their classmates, teachers, and other school staff and express their needs and wants while understanding and responding to the needs and wants of others, they develop a sense of belonging and connection. This enables them to manage their emotions and behaviors effectively, leading to improved academic performance. Consequently, the support and satisfaction derived from fulfilling this need provide the anticipated psychological energy to motivate individuals to initiate and sustain healthy behaviors (35) and foster adaptive help-seeking. Additionally, according to Cognitive Evaluation Theory, a sub-theory of Self-Determination Theory, individuals cannot solely rely on perceived competence to achieve intrinsic motivation; the experience of self-determination (autonomy) is crucial for maintaining and enhancing intrinsic motivation. In other words, to attain higher levels of intrinsic motivation, individuals must experience satisfaction in both competence and autonomy needs (36). Therefore, perceiving autonomy empowers students to take the initiative and pursue their interests, leading to increased intrinsic motivation, improved performance, and enhanced academic help-seeking.

The study focused on well-defined and quantifiable outcomes, such as academic participation and help-seeking behavior, allowing for precise evaluation of the intervention's impact. The findings have significant practical implications for educators, counselors, and policymakers, providing a concrete strategy for addressing the growing issue of smartphone addiction among young people. The implications of this study are far-reaching. It highlights the potential of self-determination skills training as a promising intervention for addressing smartphone addiction among young people. By

empowering students to take control of their behavior and make informed choices, educators and policymakers can work towards creating a more supportive learning environment that promotes both academic success and well-being.

This study encountered several limitations, including the inability to control extraneous and confounding variables such as intelligence quotient, level of interest, motivation, diversity, learning strategies, fatigue, and other variables outside the educational environment that may have influenced participants. Additionally, the use of a convenience sampling method, self-report measures, and the restriction of the research population to female students with smartphone addiction in Dezful City were limitations of this study.

### Conclusion

The findings of this study demonstrate the effectiveness of self-determination skills training in mitigating the detrimental effects of smartphone addiction on academic participation and help-seeking behavior among female students. The experimental group, which received targeted training in self-determination skills, exhibited significantly higher levels of academic participation and adaptive help-seeking than the control group. These results suggest that equipping students with the tools to enhance their autonomy, intrinsic motivation, and goal-setting can not only improve their academic performance but also foster healthier coping mechanisms for managing smartphone addiction. Future studies could investigate the long-term effects of self-determination skills training on smartphone addiction and related outcomes. It would be beneficial to examine the generalizability of these findings to diverse populations, including male students and students from different cultural backgrounds. Future research could also explore the effectiveness of combining self-determination skills training with other interventions, such as cognitive-behavioral therapy or mindfulness-based stress reduction. Investigating the underlying neurobiological mechanisms through which self-determination skills training exerts its effects could provide further insights into the intervention's efficacy.

### Ethical Approval

The study was approved by the Ethical Committee

of Islamic Azad University, Ahvaz branch (approval code: IR.IAU.AHVAZ.REC.1403.059).

### Conflict of Interest

There are no conflicts of interest.

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