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بررسی عوامل موثر بر مینیمالیسم دیجیتال دانشجومعلمان در فضای دیجیتال از منظر متخصصان به روش نظریه داده‌بنیاد

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چکیده

با گسترش فناوری‌های دیجیتال و افزایش تبعات نامطلوب استفاده نامتعارف از فضای دیجیتال، مینیمالیسم دیجیتال به عنوان یکی از مهارت‌های حیاتی برای دانشجومعلمان مطرح شده است. پژوهش حاضر با هدف بررسی عوامل مؤثر بر مینیمالیسم دیجیتال دانشجومعلمان از منظر متخصصان انجام شده است. این مطالعه با رویکرد کیفی و روش نظریه داده‌بنیاد صورت گرفت. جامعه آماری شامل کلیه خبرگان دانشگاهی (متخصصان تکنولوژی آموزشی و روانشناسی) استان البرز در سال تحصیلی ۱۴۰۵-۱۴۰۴بود. نمونه‌گیری به‌صورت هدفمند ملاکی و بر اساس اصل اشباع نظری انجام شد و در نهایت ۲۰ نفر از خبرگان دانشگاهی (متخصصان تکنولوژی آموزشی و روانشناسی) در مصاحبه‌های نیمه‌ساختاریافته مشارکت داشتند. داده‌ها با استفاده از روش کدگذاری سه‌مرحله‌ای استراس و کوربین(۲۰۰۸) شامل کدگذاری باز، محوری و گزینشی تحلیل شدند. برای اعتبارسنجی پژوهش از چهار معیار لینکلن و کوبا (۱۹۸۵) شامل قابلیت اعتبار، قابلیت انتقال‌پذیری، قابلیت ثبات و تأییدپذیری استفاده شد. نتایج نشان داد که از دیدگاه خبرگان دانشگاهی (متخصصان تکنولوژی آموزشی و روانشناسی)، عواملی چون عوامل فردی و درونی، عوامل خانوادگی، عوامل اجتماعی و دوستان، طراحی اعتیادآور برنامه‌ها و ضعف آموزش و فرهنگ استفاده، زمینه‌ساز اعتیاد دیجیتال به عنوان امری در نقطه مقابل مینیمالیسم دیجیتال موثر هستند. همچنین راهکارهایی نظیر خودآگاهی و مدیریت فردی، ساماندهی و پاکسازی محیط دیجیتال، تقویت روابط و فعالیت‌های غیر دیجیتال و آموزش و فرهنگ‌سازی می‌تواند در گسترش مینیمالیسم دیجیتال تاثیر گذار باشند. بنابراین نیز نتایج نشان می‌دهد این یافته‌ها می‌تواند مبنایی برای گسترش مینیمالیسم دیجیتال برای استفاده متعارف و هدفمند از فناوری قرار گیرند.

واژه‌های کلیدی

نظریه داده‌بنیاد، مینیمالیسم دیجیتال، دانشجومعلمان، متخصصان، فضای دیجیتال.

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ORIGINAL ARTICLE

Exploring Factors Influencing the Digital Minimalism of Student-Teachers in the Digital Space: A Grounded Theory Study from the Perspective of Experts[1]

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ABSTRACT

With the rapid expansion of digital technologies and the rising adverse consequences of unconventional digital space usage, digital minimalism has emerged as a vital skill for student-teachers. The present study was conducted to investigate the factors influencing digital minimalism among student-teachers from the perspective of experts. This study utilized a qualitative approach and the grounded theory method. The statistical population consisted of all academic experts (specialists in educational technology and psychology) in Alborz Province during the 2025–2026 academic year. Sampling was performed using a purposive criterion-based method and guided by the principle of theoretical saturation; ultimately, 20 academic experts participated in semi-structured interviews. Data were analyzed using Strauss and Corbin's (2008) three-stage coding process, which includes open, axial, and selective coding. To validate the research, Lincoln and Guba's (1985) four criteria—credibility, transferability, dependability, and confirmability—were applied. The results indicated that, from the perspective of academic experts, several factors serve as drivers of digital addiction (the antithesis of digital minimalism), including personal/internal factors, family factors, social/peer factors, the addictive design of applications, and a lack of proper education and cultural cultivation. Furthermore, strategies such as self-awareness and personal management, organizing and decluttering the digital environment, strengthening non-digital relationships and activities, and education/cultural cultivation can foster digital minimalism. These findings can serve as a foundation for expanding digital minimalism to promote the balanced, purposeful, and healthy use of technology.

KEYWORDS

Grounded Theory, Digital Minimalism, Student-Teachers, Experts, Digital Space.

1. This article is derived from a research project titled "Exploring Factors Influencing the Digital Minimalism of Student-Teachers in the Digital Space: A Grounded Theory Study from the Perspective of Experts" conducted with financial support from the Alborz Province General Department of Education.

Introduction

Digital environments currently provide an expansive platform for information access, collaborative learning, and personal development. Research highlights that these technologies can expand learning opportunities by enhancing personal empowerment, open interactions, and shared knowledge construction (Dalsgaard & Ryberg, 2023). Moreover, the development of virtual reality has redefined communication boundaries and established new patterns of human interaction (Xia & Pan, 2022). The expansion of such capabilities has allowed technology to gradually assume a more prominent role in educational systems, transitioning from a mere tool to a primary medium for achieving learning objectives. This integration of technology into education is estimated to have progressed from the late nineteenth century to the early twenty-first century, with various technologies being adapted for diverse educational purposes (Chiu, 2025). Consequently, the introduction of these tools into educational systems has transformed learning goals and 21st-century skills, enabling learners to engage in collaboration, critical thinking, and problem-solving (Kalyani, 2024).

Despite these extensive capacities and opportunities, the rapid growth of digital technologies has also introduced significant challenges, particularly when technology use ceases to be purposeful and controlled. Unconventional and excessive use of technology has led to undesirable consequences; for instance, internet addiction can result in anxiety, depression, loneliness, physical ailments, and even the loss of jobs and family relationships (Vercillo, 2020). The consequences of technology overuse are not limited to psychological difficulties but also severely affect cognitive and social dimensions of life. Within the cognitive and social domains, excessive technology use is associated with declines in social skills, self-motivation, emotional intelligence, and empathy, alongside increases in interpersonal conflicts, attention-deficit/hyperactivity disorder (ADHD), and depression among younger generations (Scott et al., 2017). Academic studies also indicate that digital addiction is linked to increased loneliness, anxiety, depression, poor posture, and inefficient multitasking (Peper & Harvey, 2018). Furthermore, the negative impacts of technology dependency extend beyond individual spheres to compromise performance in educational, occupational, and social settings, with sedentary lifestyles compounding these issues (Yılmaz et al., 2025).

Recent research also reveals that these consequences can manifest at the structural and functional levels of the brain. The negative impacts of technology addiction are not merely behavioral or emotional; evidence suggests that addiction to internet gaming and social media can cause brain changes, executive dysfunction, memory impairment, and poor emotional regulation (Eskandar, 2025). In the educational domain, internet addiction is associated with increased anxiety, depression, and diminished academic performance, directly affecting learning quality and student success (Khadka, 2025). Collectively, this evidence suggests that enjoying the benefits of technology requires conscious, balanced, and purposeful usage.

Consequently, in recent years, approaches aimed at managing technology consumption and reducing digital dependency have attracted considerable attention. Research into this area underscores the adverse effects of excessive and unconventional technology use and emphasizes the need for balanced and goal-directed engagement—a concept referred to as digital

minimalism. The proliferation of psychological, cognitive, social, and educational issues stemming from unconventional technology use has directed researchers toward frameworks that preserve the benefits of technology while mitigating its negative effects. Among these emerging frameworks, digital minimalism has been highlighted as an effective approach to the conscious management of technology use.

Digital minimalism is increasingly recognized as a modern philosophy of technology. This approach encourages individuals to focus their digital interactions on a small number of carefully selected, highly valuable, and purposeful activities while avoiding low-value digital distractions (Nurhakim & Asbari, 2023). According to Kumar and Nath (2024), this philosophy not only mitigates the adverse outcomes of overuse but also enhances the overall quality of digital experiences and individual productivity. Given these capacities, applying digital minimalism within education and learning has become highly important. However, implementing this approach in educational settings requires a deeper understanding of its underlying mechanisms.

From an ontological perspective, digital minimalism helps learners manage their online time intelligently and purposefully, allowing them to dedicate their cognitive energy to deep learning, career planning, and personal skill development (Kakad & Dhage, 2022). From this viewpoint, digital minimalism is not merely about reducing technology use but rather emphasizes the conscious, purposeful, and value-based utilization of digital tools. Therefore, digital minimalism, through its focus on intentional technology use, appears to act as a protective barrier against many of the negative outcomes of the digital age.

Investigating the factors that influence digital minimalism in society—especially among student-teachers, who serve as future builders of society—is highly necessary. To foster digital minimalism among student-teachers, it is essential to examine their current technology use patterns. This allows researchers to form a comprehensive view of their circumstances and identify the factors that support purposeful digital engagement. The importance of investigating digital minimalism becomes even more apparent when considering the current unfavorable state of digital technology use among learners and student-teachers, where research indicates that digital dependency has reached levels that threaten their health, learning, and overall performance.

Numerous studies have highlighted the problematic nature of digital technology use. Some of these studies have focused on the physiological and academic consequences of excessive technology and internet use. For instance, Bahrami et al. (2024) demonstrated that internet addiction is significantly related to musculoskeletal disorders and can play a role in their development. Researchers have also explored the prevalence of this phenomenon among various academic groups. Gilasi et al. (2023) reported that 16.1% of student-teachers exhibited addiction to social networks, with prevalence rates of 18.4% and 12.7% among female and male student-teachers, respectively. Other studies have reported similar findings regarding internet dependency among learners. For example, Khatib-Zanjani and Agah-Heris (2014) indicated that approximately 23.8% of students had moderate internet addiction, while 1.8% suffered from severe addiction, with male student-teachers reporting higher usage of both online and offline computer games compared to their female counterparts. These patterns are also

corroborated by other studies; Ahmadi (2014) reported a significant prevalence of internet addiction among Iranian adolescents, noting that gender, maternal employment, family economic status, and level of religiosity play role in its development. Similarly, Hamedi et al. (2023) reported that 31% of Iranian adolescents engage in problematic internet use, suggesting that culturally tailored interventions must be designed and implemented to address this issue. Collectively, this evidence demonstrates that unconventional digital technology use and various forms of internet dependency are remarkably prevalent among learners, students, student-teachers, and adolescents, resulting in physical, psychological, and educational difficulties. Therefore, identifying strategies and factors that facilitate the purposeful use of digital technologies is increasingly critical.

In this regard, several studies have explored different dimensions of digital minimalism and related variables. Bushell (2024), in a study titled "Navigating Digital Minimalism: Leveraging Smartphones as the Sole Device for Everyday Tasks," found that while relying on smartphones as a single device provides portability and real-time interaction, it simultaneously introduces challenges such as distraction, privacy concerns, and ergonomic issues. Arif (2024), in a study titled "Digital Minimalism: What Does It Imply for Language Instruction?" demonstrated that reducing digital clutter and practicing mindful technology use can improve mental health and academic performance, particularly in language education. Nurhakim and Asbari (2023), in their study "Digital Minimalism: A Philosophy of Efficiency in Using Digital Technology," reported that digital minimalism is a philosophy that encourages individuals to focus on a few selected online activities, thereby enhancing productivity and minimizing distractions.

In related research on digital dependency, Altıntaş et al. (2025), in a study titled "Digital Game Addiction in Adolescents: Perceived Parental Attitudes and Other Affecting Factors," found that adolescent digital game addiction is significantly influenced by parental attitudes, play duration, school absenteeism, and the gaming habits of siblings. Oktay and Ozturk (2024), in their study "Digital Addiction in Children and Affecting Factors," showed that digital addiction levels in middle school students are related to factors such as gender, economic status, age, reasons for using the internet, owning a personal mobile phone, and maternal education level. Chung et al. (2019), in a study titled "Personal Factors, Internet Characteristics, and Environmental Factors Contributing to Adolescent Internet Addiction," reported that adolescent internet addiction is more heavily influenced by environmental factors than by family or school factors, with variables such as internet accessibility, game advertisements, and depression playing significant roles. Krishnamurthy et al. (2025), in their study "Navigating the Digital Dilemma: Internet and Smartphone Addiction among Children and Adolescents," found that internet and smartphone addiction are associated with technology access, parental guidance, cultural background, emotional regulation, and mental health challenges.

While the evident necessity of digital minimalism has prompted various studies in this domain, existing research has not sufficiently explored the specific components of digital minimalism, its implementation strategies, and the predisposing factors of digital addiction within the unique demographic of student-teachers.

The emergence and spread of digital technology have brought notable benefits alongside substantial drawbacks when used unconventionally. Digital minimalism appears

to be an essential response to these challenges. Furthermore, the problematic patterns of digital use among student-teachers emphasize the need to examine the components of digital minimalism, the predisposing factors of digital addiction, and strategies for implementing digital minimalism. Accordingly, the present study was conducted to investigate the factors affecting the digital minimalism of student-teachers in the digital space from the perspective of experts using a grounded theory approach. To achieve this objective, the study addressed the following research questions:

1. What are the predisposing factors and drivers of excessive digital use (digital addiction) among student-teachers?

2. What are the appropriate strategies and solutions for implementing digital minimalism (such as time management, digital decluttering, etc.) among student-teachers?

Methodology

The present study is an applied qualitative research utilizing the grounded theory method. Grounded theory is an inductive qualitative research methodology that systematic procedures to generate a theory about a specific phenomenon directly from empirical data (Strauss & Corbin, 2008). This qualitative approach allows researchers to extract and explain theoretical foundations based on the general and specific characteristics of a phenomenon, ensuring that the findings remain grounded in empirical observations.

The statistical population of the study comprised academic experts (specialists in educational technology and psychology) in Alborz Province. The sample consisted of 20 academic experts selected using a purposive criterion-based sampling method and guided by the principle of theoretical saturation. In qualitative research of this nature, the required sample size typically ranges from 6 to 50 participants; in the present study, data collection was concluded at 20 interviews as no new information emerged, indicating that theoretical saturation had been achieved. The inclusion criteria for the sample were: (1) willingness to participate in the study, and (2) possessing a minimum of two years of academic teaching experience.

Interviews with the academic experts were conducted both in-person and virtually through messaging platforms including Shad, Rubika, Eitaa, and Telegram. Following the interviews, the audio recordings and written responses were transcribed verbatim and compiled into a single data set. Ethical considerations were carefully observed: participants received detailed explanations regarding the importance and objectives of the study; participation was entirely voluntary; no personal identification details were collected; confidentiality was maintained; participants were assured that audio files would be deleted after transcription; and they were informed that the results would be used solely for academic purposes to improve educational quality.

Data analysis followed Strauss and Corbin's (2008) systematic coding approach. The analysis proceeded through three main stages:

1. **Open Coding:** The written interview transcriptions were read carefully and broken down into smaller, meaningful conceptual units (codes). These units were constantly compared, conceptualized, and categorized.

2. **Axial Coding:** The concepts identified in the previous stage were organized into broader categories and linked to one another in new ways, establishing relationships between categories and subcategories.

3. **Selective Coding:** A core category was selected, and the findings were integrated into a systematic narrative representing the final conceptual model of the study.

To ensure the accuracy of the researchers' interpretations, follow-up contacts were made with participants when necessary to clarify or modify the extracted codes based on their feedback.

To establish the trustworthiness and rigor of the qualitative findings, Lincoln and Guba's (1985) evaluative framework was employed, which includes four criteria:

- **Credibility:** To ensure credibility (internal validity), member-checking was utilized. The extracted codes and interview summaries were shared with the participants to verify whether the findings accurately reflected their perspectives. Any discrepancies were resolved through discussion. Ambiguous points were clarified via telephone follow-ups.
- **Transferability:** To facilitate transferability (external validity), the researcher provided a thick and detailed description of the research context, the participant selection process, participant characteristics, data collection procedures, and the analysis process, allowing future readers to assess the applicability of the findings to other contexts.
- **Dependability:** To achieve dependability (reliability), peer debriefing and external audits were conducted. An external observer reviewed the research process and data analysis decisions to ensure consistency and logical coherence.
- **Confirmability:** To ensure confirmability (objectivity), the research process was documented systematically to maintain an audit trail. This ensured that the findings and interpretations emerged directly from the data and were not biased by the researchers' personal presuppositions. The process was also shared with and approved by several research colleagues.

Findings

Question 1: What are the predisposing factors of digital addiction among student-teachers in the lived experiences of educational technology and psychology experts?

To answer this question, the experts' lived experiences regarding the predisposing factors of digital addiction among student-teachers were analyzed. The results are presented in Table 1.

Table 1: Predisposing factors of digital addiction among student-teachers from the perspective of educational technology and psychology experts

Open Codes	Axial Codes	Selective Code
Feeling lonely; academic stress and anxiety; severe depression; boredom and lethargy; low self-esteem; seeking attention from others; fear of missing out (FOMO) or falling behind; weak self-control and self-regulation; lack of clear life or academic goals; lack of healthy hobbies; comparing oneself with others; feelings of futility; getting tired quickly; avoiding responsibility; high sensitivity to others' opinions; need for excitement; inability to say "no"; addiction to phone notifications; lack of concentration; low tolerance for problems; feeling worthless.	**Personal and Internal Factors**	Predisposing factors of digital addiction among student-teachers from the perspective of educational technology and psychology experts
Lack of parental supervision; lack of clear family rules; parental screen overuse; lack of parental affection; lack of family interaction and dialogue; family conflicts; excessive home internet access; giving devices to children at a young age; lack of healthy family recreation; lack of set bedtimes; lack of monitoring of children's behavior; lack of early childhood media education; cold family atmosphere; lack of parental control over media content; neglecting physical activities like sports; comparing and humiliating children; neglecting life skills training.	**Family Factors**	

Peer pressure; competing for followers; competing for likes and comments; normalization of heavy phone/technology use; excessive advertising of device usage; lack of community recreational facilities; unrestricted/unlimited internet access; competition in online games; feeling the need to reply instantly to friends; lack of face-to-face communication; high volume of online content creation; competing for online fame; excessive online academic tasks; numerous chat groups (Telegram, WhatsApp, etc.); sensitivity to virtual news channels; online academic competition; modeling famous online figures.	**Social and Peer Factors**	
High frequency of notifications; autoplay videos; design features that encourage likes and rapid reactions; prioritization of video view counts; engaging Instagram stories; distinctive notification sounds; algorithm-driven friend/content suggestions; live broadcasts; constant application updates (Instagram, Telegram, etc.).	**Addictive Design of Applications**	
Lack of media literacy; lack of time management cultivation; lack of digital addiction prevention programs; lack of self-control training; deeply rooted culture of heavy virtual use in society; lack of family educational workshops; normalization of late-night screen use (leading to sleep deprivation); lack of life skills training in society; weak promotion of physical activity; neglecting digital ethics; neglecting mental health education; weak public awareness; lack of coping skills for digital addiction.	**Weakness in Education and Cultural Cultivation**	

The experts provided diverse and comprehensive insights regarding the predisposing factors of digital addiction among student-teachers. Their responses were organized into five major categories: Personal and Internal Factors, Family Factors, Social and Peer Factors, Addictive Design of Applications, and Weakness in Education and Cultural Cultivation.

Some illustrative quotes from the interviewed experts are presented below:

Interviewee 7: *"Student-teachers who experience loneliness often turn to their phones to fill an emotional void, which gradually fosters dependency on this medium."*

Interviewee 1: *"A lack of genuine affection in real life drives individuals to seek validation and attention in virtual spaces. Likes and messages provide them with a temporary sense of being valued."*

Interviewee 3: *"High levels of anxiety prompt individuals to seek temporary relief online because it distracts them from the source of their stress. This temporary relief continually draws them back to their phones."*

Interviewee 15: *"Depression can lead individuals to use the internet as an escape from negative emotions. Additionally, boredom makes mobile devices the quickest and most accessible source of entertainment."*

Interviewee 8: *"Individuals with low self-esteem constantly seek external validation. This need for attention drives them to pursue likes and comments to feel recognized."*

Interviewee 6: *"The fear of missing out (FOMO) causes student-teachers to constantly check social networks to stay updated. This habitual checking easily leads to digital dependency."*

Question 2: What are the strategies to promote digital minimalism among student-teachers in the lived experiences of educational technology and psychology experts?

To answer this question, the experts' lived experiences regarding strategies to promote digital minimalism among student-teachers were analyzed. The results are presented in Table 2.

Table 2. Strategies for promoting digital minimalism among student-teachers from the perspective of educational technology and psychology experts

Open Codes	Axial Codes	Selective Code
Setting clear goals for internet and social media use; defining specific time limits for daily device usage; turning off non-essential notifications; planning a daily schedule for digital engagement; logging and monitoring screen time; deleting non-essential applications; identifying clear priorities; practicing saying "no" to peer digital demands; creating a buffer time between receiving a message and replying; establishing personal rules for device use; engaging in healthy offline hobbies; quitting unnecessary virtual platforms; limiting message-checking frequency; avoiding digital multitasking; avoiding passive scrolling of videos.	**Self-Awareness and Personal Management**	Strategies for promoting digital minimalism among student-teachers from the perspective of educational technology and psychology experts
Deleting redundant files and applications; organizing phone folders and virtual workspaces; reducing social media accounts; leaving unnecessary channels and groups; deleting duplicate and unnecessary gallery photos; deleting harmful online games; clearing old chat histories; deleting secondary social media accounts; utilizing cloud storage to clear device space; using a single unified messenger where possible; muting non-essential group chats; choosing a simple, distraction-free phone wallpaper; reducing news consumption sources.	**Organizing and Decluttering the Digital Environment**	
Establishing clear family guidelines for device use; participating in family sports and exercise; prioritizing face-to-face gatherings with friends; promoting reading habits at home; engaging in cultural, religious, and healthy community activities; organizing phone-free family nature trips; pursuing artistic hobbies and hands-on crafts at home; enhancing face-to-face interpersonal dialogue within the family; turning off phones during family gatherings and dinners; learning new physical skills as a family; returning to traditional family games; parents dedicating quality undivided time to children; maintaining device-free sleep hygiene; increasing physical exercise (such as going to the gym); fostering constructive debate and verbal exchange; strengthening spiritual and moral practices; attending community events; playing board games.	**Strengthening Relationships and Non-Digital Activities**	
Improving public media literacy; conducting digital wellness workshops for students and parents; teaching self-regulation and self-control skills; cultivating healthy sleep hygiene habits; promoting purposeful technology use; teaching critical thinking; providing digital counseling services; raising public awareness through media; teaching the skill of saying "no"; encouraging artistic expressions; providing training in emotional regulation; cultivating a balance between online and offline life; formulating governmental supportive policies; training parents in positive role modeling; introducing successful low-tech role models; promoting reading in physical formats; integrating digital health courses into curriculum.	**Education and Cultural Cultivation**	

The experts suggested various solutions to foster digital minimalism, which were organized into four major categories: Self-Awareness and Personal Management, Organizing and Decluttering the Digital Environment, Strengthening Relationships and Non-Digital Activities, and Education and Cultural Cultivation.

Some illustrative quotes from the interviewed experts are presented below:

Interviewee 25: *"We believe that the main key is setting clear goals for internet use. The student-teacher must know exactly why and for what purpose they are entering the online space. This goal-oriented approach prevents aimless browsing and wasted time, leading to a highly functional use of technology."*

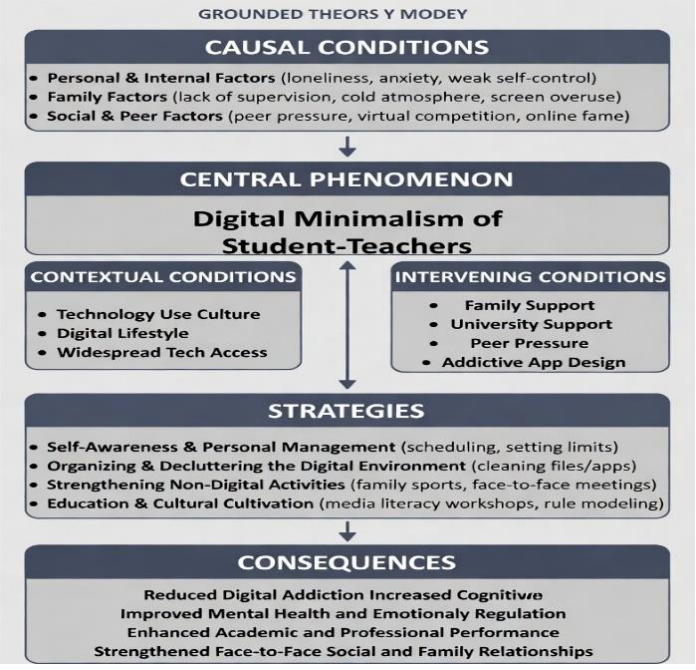
Interviewee 22: *"From a psychological standpoint, establishing a daily time limit for digital devices is not just a restriction, but a powerful tool for self-management and preventing dependency. Furthermore, turning off non-essential notifications is one of the most effective ways to reduce cognitive load and constant distraction."*

Interviewee 17: *"A clean and organized digital environment is a reflection of an organized mind. Deleting unnecessary files and organizing folders ensures quick and efficient access to information, reducing time wasted on searching. This order naturally increases a sense of control and peace."*

Interviewee 13: *"We strongly recommend reducing the number of social networks used and unsubscribing from non-essential channels and groups. This action prevents cognitive fragmentation and shields the mind from redundant and stressful information. It is like cleaning a cluttered room—it creates space to focus on what truly matters."*

Figure 1: The Paradigm Model of the Study

Based on the qualitative analysis of the data through open, axial, and selective coding, a paradigm model was developed to illustrate the factors influencing digital minimalism among student-teachers. This model comprises six core components in a systematic relationship:



Causal Conditions: These represent the predisposing factors that generate the issue and create the need for digital minimalism. These include *personal/internal factors*, *family factors*, and *social/peer factors*.

Central Phenomenon: The core category of this model is *digital minimalism among student-teachers*, representing the primary concept under investigation.

Contextual Conditions: These represent the structural background against which the phenomenon occurs. They include the *culture of technology use*, *digital lifestyle*, and *widespread access to technology*.

Intervening Conditions: These represent the facilitating or constraining factors that influence the implementation of strategies. They include *family support*, *university support*, *peer pressure*, and the *addictive design of applications*.

Strategies: These represent the actions and plans executed to foster digital minimalism. They are categorized as *self-awareness and personal management*, *decluttering the digital environment*, *strengthening non-digital activities*, and *education and cultural cultivation*.

Consequences: These represent the outcomes of successfully implementing the strategies, which include *reduced digital addiction, increased focus, improved mental health, enhanced academic performance,* and *strengthened social relationships*.

Discussion and Conclusion

The qualitative analysis reveals that individuals typically turn to digital minimalism as a conscious response to the negative consequences of technology overuse. When individuals realize that technology has transitioned from a helpful tool into a source of distraction, stress, and weakened social ties, they begin to seek ways to regain control over their digital consumption. In this sense, digital minimalism is an active attempt to reclaim control over one's life from technology. It should be noted, however, that studies such as Yang et al. (2021) and Pacheco (2023) offer a counter-perspective, highlighting that digital technology use also yields significant benefits and advantages when properly balanced. The paradigm model developed in this study illustrates that digital minimalism is shaped by causal, contextual, and intervening conditions, and that implementing specific strategies leads to positive outcomes.

Regarding the causal conditions, the findings demonstrate that personal and internal factors are among the primary drivers of digital behaviors. The experts emphasized that individuals do not respond to technology uniformly; individual differences heavily dictate usage patterns. While some possess high self-regulation and can distinguish between necessary and unnecessary use, others are vulnerable to digital dependency due to lower self-control. Part of the attraction of digital platforms lies in their ability to satisfy immediate psychological needs. Virtual spaces offer rapid access to information, entertainment, social connection, and validation. Consequently, individuals experiencing loneliness, anxiety, or stress may lean heavily on these platforms to compensate for emotional or psychological challenges.

Furthermore, poor time management contributes to excessive technology use. Many individuals browse social networks aimlessly, which gradually establishes an unconscious habit, causing them to spend excessive hours online. Over time, this leads to a perceived loss

of control over one's life, which often serves as a primary motivator for adopting digital minimalism. Family factors also play a critical causal role, as the family is the primary environment where habits and attitudes are formed. The experts noted that parental technology use patterns directly influence children. In homes where device overuse is common, such behavior is normalized. Additionally, families with low emotional interaction or dialogue are more likely to have members who turn to virtual spaces for emotional compensation.

Similarly, social and peer factors are key causal drivers. In the digital age, social interactions are deeply intertwined with technology. Social networks offer fast connection but also create expectations of constant availability. These societal pressures can force individuals to remain online continuously. Furthermore, social comparison—exacerbated by viewing others' curated online lives—can increase dependency as users seek validation and social integration.

In terms of contextual conditions, the findings indicate that digital minimalism occurs within specific cultural and structural contexts. A primary factor is the prevailing technology culture, where continuous connectivity is often treated as a social norm. This culture causes individuals to feel obligated to stay online even when there is no practical necessity. Such environments often equate digital busyness with active engagement, although constant online presence can fragment attention and reduce actual productivity.

Another contextual factor is the modern digital lifestyle, where daily activities—such as education, shopping, entertainment, and work—are structurally dependent on digital platforms. Therefore, the solution is not to eliminate technology entirely, but to manage it purposefully. Furthermore, widespread access to high-speed internet and smartphones makes constant connectivity effortless, increasing the likelihood of developing habitual digital behaviors and making self-regulation more challenging.

Regarding intervening conditions, the implementation of digital minimalism is highly dependent on environmental supports and barriers. Family support is a critical intervening factor, a finding that aligns with studies by Khosravi and Alizadeh-Sahraei (2011), Fallah Hasanarudi (2024), and Farnam and Qanbarpour Ganjari (2020), which emphasize the influence of family relationships on internet dependency. When families practice balanced technology use and prioritize real-life interactions, they create an environment that supports digital wellness. Conversely, if excessive use is normalized at home, individual efforts to reduce screen time face greater resistance.

University support is another key intervening factor. As a primary social and educational environment for student-teachers, the university can shape digital habits through media literacy workshops, time-management training, and awareness campaigns regarding digital health.

Peer pressure also acts as an intervening condition; since individuals often adapt to peer norms to maintain social ties, distancing oneself from virtual spaces can sometimes be perceived as social withdrawal, making digital moderation difficult.

Finally, the addictive design of applications presents a major barrier. This finding indicates that digital dependency is not solely an issue of individual willpower, but is actively driven by technology design. Features such as push

notifications, infinite scroll, continuous autoplay, and algorithm-driven suggestions are engineered to capture and retain attention, making it difficult for users to disconnect.

Regarding strategies, the study identified several individual, environmental, social, and educational actions. The primary strategy is self-awareness and personal management, which serves as the foundation for other strategies. Behavioral change requires an objective understanding of one's current digital habits. Once individuals become aware of their usage patterns, they can set specific limits and plan their digital engagement.

Another key strategy is organizing and decluttering the digital environment. Because human behavior is heavily influenced by environmental cues, minimizing digital triggers—such as disabling notifications, organizing folders, and deleting unnecessary applications—helps reduce involuntary attention capture.

Strengthening relationships and non-digital activities is also crucial. Because digital platforms are often used to satisfy social and recreational needs, reducing screen time requires replacement with meaningful offline activities, such as sports, arts, reading, and face-to-face gatherings.

Finally, education and cultural cultivation serve as essential strategies, as many users are unaware of the attention-capturing mechanisms of digital platforms. Educational programs can provide individuals with self-regulation skills, while cultural cultivation can help shift societal values toward valuing purposeful, balanced technology use.

Regarding consequences, implementing these strategies yields positive outcomes across personal, psychological, educational, and social dimensions. A key consequence is the reduction of digital addiction, giving individuals a greater sense of agency. This finding aligns with studies by Akbari and Farget (2019) and Savari and Manshedavi (2016), which demonstrate that self-awareness training can significantly reduce internet dependency.

Increased focus is another outcome; digital minimalism reduces external distractions, allowing for the deep attention required for academic study and professional training.

Improved mental health is also a critical outcome. Overuse of technology is often linked to anxiety, mental fatigue, and stress. Managing technology use provides cognitive rest and improves emotional regulation. This finding differs slightly from the work of Orben and Przybylski (2019), who suggested that the negative impact of digital technology on adolescent well-being is statistically very small.

Similarly, Tafesse et al. (2024) argued that total digital disconnection is not the primary solution, emphasizing that adaptation and strategic management are more valuable than extreme digital abstinence—a perspective that aligns with a moderate, balanced approach to digital minimalism rather than strict digital deprivation.

Additionally, digital minimalism supports academic improvement by reducing digital distractions, allowing students to dedicate high-quality time to learning.

Finally, it strengthens social relationships by shifting time from virtual platforms to face-to-face interactions, fostering deeper human connections and social support.

In summary, digital addiction is driven by a complex interplay of personal, familial, social, educational, and design factors, while digital minimalism can be cultivated through targeted personal, environmental, and educational strategies. Because this study was limited to

academic experts in Alborz Province, future researchers are encouraged to explore these dynamics among university faculty and student-teachers in other regions and academic disciplines.

Based on the findings, the following practical recommendations are proposed:

1. Parents should establish clear and collaborative guidelines for balanced device usage within the home.
2. Universities should introduce digital decluttering challenges (e.g., a 30-day digital detox program) with positive incentives for student-teachers.
3. Libraries and study areas within universities should designate device-free spaces to support focused, deep study.
4. Educational institutions should conduct practical "Digital Life Skills" workshops focusing on cognitive focus and time-management tools.
5. Future research should conduct comparative analyses of digital addiction and minimalism across different academic majors.
6. Qualitative studies should be conducted to explore the lived experiences of student-teachers as they transition to digital minimalism.

References

Akbari, B., & Farget, A. (2019). The relationship of self-awareness and personality traits with internet addiction in adolescents. *Rooyesh-e-Ravanshenasi*, 8(9), 157-164. [In Persian].

Bahrami, M., Ghalichi, F., Rahimzadeh, V., Talebi, S. S., Mousavi Shakib, A. S., & Biganeh, J. (2024). The impact of internet addiction on academic performance and musculoskeletal disorders in student-teachers. *Journal of Shahid Sadoughi University of Medical Sciences*, 32(1), 7428-7442. [In Persian].

Fallah Hasanarudi, Z. (2024). The relationship between conflict with parents and internet addiction in adolescents: The moderating role of coping styles and gender. *Journal of New Ideas in Psychology*, 22(26), 1-13. [In Persian].

Farnam, A., & Qanbarpour Ganjari, M. (2020). The role of family communication patterns and social-psychological climate of the classroom on mobile-phone-based social network addiction among students. *Journal of Educational Psychology Studies*, 17(37), 121-144. [In Persian].

Gilasi, H. R., Talaei, S. A., Hadavand, M., Bigham, H., Arbab, H., Kordi Ardestani, P., et al. (2023). Investigating the status of internet and social network use by student-teachers at Kashan University of Medical Sciences. *Feyz Journal of Medical Sciences*, 27(2), 218-224. [In Persian].

Khatib-Zanjani, N., & Agah-Heris, M. (2014). Prevalence of internet addiction among student-teachers of Payame Noor University in Semnan Province. *Journal of Medical Education and Development (E-learning in Medical Sciences)*, 5(2), 1-7. [In Persian].

Khosravi, Z., & Alizadeh-Sahraei, O. H. (2011). The relationship of internet addiction with family functioning and mental health in students. *Journal of Educational Psychology Studies*, 8(14), 59-80. [In Persian].

Savari, K., & Manshedavi, S. (2016). The effectiveness of self-awareness skill training on reducing internet addiction, loneliness, and increasing self-efficacy. *Clinical Psychology Studies*, 7(22), 1-17. [In Persian].

Ahmadi, K. (2014). Internet addiction among Iranian adolescents: a nationwide study. *Acta Medica Iranica*, 467–472.

Altıntaş, H. K., Sürücü, E., & Topaloğlu, M. M. (2025). Digital game addiction in adolescents: Perceived parental attitudes and other affecting factors. *Global Nursing Insights*, 12(2), 159–168.

Arif, B. (2024). Digital minimalism: What does it imply for language instruction? *Uluslararası Dil,*

Edebiyat ve Kültür Araştırmaları Dergisi, 7(3), 746–758.

Bushell, C. (2024). Navigating digital minimalism: Leveraging smartphones as the sole device for everyday tasks. *Available at SSRN 4816488*.

Chiu, S. K. (2025). Transformation of technology into educational technology from the late nineteenth to early twenty-first century. *Review of Education*, 13(1), e70049. https://doi.org/10.1002/rev3.70049

Chung, S., Lee, J., & Lee, H. K. (2019). Personal factors, internet characteristics, and environmental factors contributing to adolescent internet addiction: A public health perspective. *International Journal of Environmental Research and Public Health*, 16(23), 4635.

Dalsgaard, C., & Ryberg, T. (2023). A theoretical framework for digital learning spaces: Learning in individual spaces, working groups, communities of interest, and open connections. *Research in Learning Technology*, 31, 3084.

Eskandar, K. (2025). The digital trap: unraveling the neuropsychological impact of technology addiction. *Neuropsychological Trends*, (37), 7–23.

Hamedi, F., Shaabani, N., Mahdavi, F., Nezamdoust, S., Arshian, S., & Mohammadi, A. Z. (2023). Prevalence of problematic internet use (PIU) after the COVID-19 pandemic in Iranian adolescents: A systematic review. *Journal of Archives in Military Medicine*, 13(1).

Kakad, S., & Dhage, S. (2022, May). Semantic web: Knowledge graph of digital minimalism ontology. *In 2022 3rd International Conference for Emerging Technology (INCET)* (pp. 1–6). IEEE.

Kalyani, L. K. (2024). The role of technology in education: Enhancing learning outcomes and 21st century skills. *International Journal of Scientific Research in Modern Science and Technology*, 3(4), 05-10. DOI: https://doi.org/10.59828/ijsrmst.v3i4.199

Khadka, C. (2025). Internet addiction and its impact on student mental health. *Dristikon: A Multidisciplinary Journal*, 15(1), 41–58.

Krishnamurthy, K., Bharatha, A., Mehta, S., Mohammed, K., Sa, B., Rahman, S., ... & Majumder, M. A. A. (2025). Navigating the digital dilemma: Internet and smartphone addiction among children and adolescents. *Advances in Human Biology*, 10, 4103.

Kumar, S., & Nath, L. (2024). *Of digital technologies and minimise its ill-effects*.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. CA: Sage.

Nurhakim, M. I., & Asbari, M. (2023). Digital minimalism: Filosofi efisiensi penggunaan teknologi digital. *Literaksi: Jurnal Manajemen Pendidikan*, 1(02), 49–54.

Oktay, D., & Ozturk, C. (2024). Digital addiction in children and affecting factors. *Children*, 11(4), 417.

Orben, A., & Przybylski, A. K. (2019). The association between adolescent well-being and digital technology use. *Nature Human Behaviour*, 3(2), 173-182.

Pacheco, E. (2023). Digital technologies in the context of university transition and disability: Theoretical and empirical advances. *arXiv preprint arXiv:2304.13262*.

Peper, E., & Harvey, R. (2018). Digital addiction: Increased loneliness, anxiety, and depression. *NeuroRegulation*, 5(1), 3–3.

Scott, D. A., Valley, B., & Simecka, B. A. (2017). Mental health concerns in the digital age. *International Journal of Mental Health and Addiction*, 15(3), 604–613.

Strauss, A. L., & Corbin, J. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, CA: Sage.

Tafesse, W., Aguilar, M. P., Sayed, S., & Tariq, U. (2024). Digital overload, coping mechanisms, and student engagement: An empirical investigation based on the SOR framework. *Sage Open*, 14(1), 21582440241236087.

Vercillo, K. (2020). *Internet addiction*. https://doi.org/10.1002/9781118013991

Xia, X., & Pan, Y. (2022, June). Interactive relationships in the future of virtual reality. *In International Conference on Human-Computer Interaction* (pp. 222–230). Cham: Springer Nature Switzerland.

Yang, Z., Asbury, K., & Griffiths, M. D. (2021). "A cancer in the minds of youth?" A qualitative study of problematic smartphone use among undergraduate students. *International Journal of Mental Health and Addiction*, 19(4), 934-946.

Yılmaz, R. C., Karaoba, D. D., & Candiri, B. (2025). Digital addiction and sedentary life pandemic. *TOGÜ Sağlık Bilimleri Dergisi*, 5(2), 227–230.