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PERSONALITY FACTORS OF THE INTENSITY OF IMMERSION AND PRESENCE EXPERIENCE IN VR ENVIRONMENTS

ОСОБИСТІСНІ ЧИННИКИ ІНТЕНСИВНОСТІ ПЕРЕЖИВАННЯ ІМЕРСІЇ ТА ПРИСУТНОСТІ У VR-СЕРЕДОВИЩІ

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In contemporary research in psychology and cognitive sciences, the concepts of «presence» and «immersion» hold a central place in the study of interaction with virtual reality (VR). Presence is typically defined as the subjective experience of «being there» meaning the perception of the virtual space as real and natural. In contrast, immersion is associated with the objective characteristics of the environment, such as the quality of visualization, sound, and level of interactivity. These factors enable users to explore and manipulate objects within the VR environment, while the entirety of their experiences and reactions is referred to as the VR experience. This study analyzes the personal factors that determine the intensity of immersion and the sense of presence, particularly cognitive flexibility, working memory, perceptual styles, emotional sensitivity, anxiety, self-control, extraversion, and locus of control. The primary focus is on how individual characteristics influence the depth of user engagement.

Cognitive factors are among the most significant. The ability to quickly switch between different thinking strategies (cognitive flexibility) facilitates easier adaptation to the VR environment [6, p. 55]. A systematic review established that well-developed flexibility positively correlates with problem-solving success, and the ability to change cognitive strategies simplifies the processing of complex spatial tasks [2, p. 26]. Working memory, responsible for the temporary retention and updating of information, also plays a critical role: in an object-copying study, less than 3% of actions led to errors in lower-complexity environments, whereas with increasing complexity, reliance on working memory rose to 50% [1, p. 869]. Perceptual styles, which determine how sensory signals are processed, significantly impact discomfort levels and immersion. Users with a field-independent approach to perception navigate VR environments more effectively and experience fewer conflicting visual signals [5, p. 8].

Emotional sensitivity and affective engagement also influence the depth of immersion. For example, in a study involving 16 volunteers, F. Tian et al. (2022) found that VR stimuli induced a higher level of emotional arousal, particularly in the frontal and parietal regions of the brain, compared to 2D stimuli [10, p. 3]. Social factors can be considered a component of emotional regulation: in a study by L. Stallmann et al. (2023) on simulating social exclusion in VR, participants who received virtual social support recovered emotional balance more quickly and reported a greater sense of «presence» [8, p. 20].

Anxiety and openness to new experiences also play a crucial role. According to M. Tennant et al. (2020), who examined the effects of VR interventions on 90 oncology patients, psychological factors significantly influenced the perceived positive effects of VR, although physiological indicators (e.g., heart rate) showed no significant differences compared to the control group [9, p. 3]. Previous findings highlight the potential of VR combined with self-regulation techniques for reducing stress and enhancing psychological resilience [7].

Social extraversion also plays a significant role. A survey of 79 users revealed that over 60% identified interaction with other avatars as the most engaging element of VR, and their level of «intrinsic motivation» was significantly higher in VR (4.50±0.59) than in 2D (3.12±0.79). Additionally, user motivation for VR environments exceeded that of traditional platforms by 35–40% [4, p. 211].

Locus of control also affects how users subjectively perceive the impact of the environment. Individuals with an internal locus of control tend to follow recommendations more effectively and experience greater autonomy, whereas those with an external or «chance» locus of control do not perceive a significant impact of their own actions [3, p. 618].

Thus, personal factors such as cognitive flexibility, working memory, perceptual styles, emotional sensitivity, anxiety, self-regulation ability, extraversion, and locus of control determine the effectiveness of the VR experience and the sense of presence. Considering these factors during environment design allows for optimizing cognitive load, enhancing engagement, and reducing the risk of discomfort.

Future research should focus on a detailed analysis of emotional regulation mechanisms during VR interaction, as well as the development of rapid assessment methods for individual characteristics to enable dynamic personalization of the virtual experience.

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KEY ASPECTS OF THE IMPORTANCE OF PSYCHOLOGICAL ENDURANCE FOR FUTURE RECONNAISSANCE OFFICERS

ОСНОВНІ АСПЕКТИ ЗНАЧУЩОСТІ ПСИХОЛОГІЧНОЇ ВИТРИВАЛОСТІ МАЙБУТНІХ ОФІЦЕРІВ-РОЗВІДНИКІВ

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Сучасні військові конфлікти та динаміка бойових дій висувають підвищені вимоги до психологічної витривалості офіцерів-розвідників, чия професійна діяльність супроводжується значними стресорами. Серед чинників, які впливають на психологічну витривалість офіцерів-розвідників, виділяють високий рівень відповідальності, необхідність ухвалювати рішення в критичних ситуаціях, загроза здоров'ю та життю.