Impact of Microlearning on Mobile Platforms: Metacognition, Emotions, and Health Literacy

Introduction

Learning today differs from just being in a classroom setting; it happens online synchronously and asynchronously. Mobile microlearning is changing the landscape in the workforce and education (Lee et al., 2021; Callisen, 2016; Clark et al., 2018). Microlearning uses technology to deliver focused content in abbreviated activities in various formats, including interactive multimedia (Shail, 2019). This study explores questions about mobile microlearning intersecting with emotional engagement in the context of mobile platforms, particularly in healthcare. Furthermore, this proposal explores the relationship between metacognitive processes and comprehension of essential information regarding health-related conditions, investigates the impact of basic emotions on mobile microlearning effectiveness, and assesses the influence of microlearning on health behavior and self-reported health.

The research questions for this proposal are:

RQ1: How does emotionally engaging mobile microlearning influence individuals' metacognitive processes and emotions?

RQ2: How does mobile microlearning impact knowledge learned and understanding information with increasing health literacy?

The proposed hypotheses for this research proposal are:

1. Metacognitive processes influence individuals' comprehension of health conditions, suggesting heightened awareness and regulation of cognitive strategies lead to better understanding.

2. Basic emotions play a crucial role in the effectiveness of microlearning on mobile platforms, with specific emotions enhancing or hindering the learning experience.

3. Engagement in microlearning positively correlates with improved health behavior and self-reported health, indicating short, targeted learning experiences contribute to positive health outcomes.

The null hypothesis is mobile microlearning has no significant impact or influence on metacognitive processes, emotions, or increase in health literacy.

Literature Review

This literature review examines mobile and microlearning's design principles, use, and impact, focusing on knowledge retention, performance enhancement, and leadership perceptions. Shail (2019) argues private and public organizations struggle to keep their employees accredited and compliant. Traditionally, long training courses decrease productivity, eat into work hours, increase spending, and may not ensure full compliance or understanding. To combat this issue, using mobile devices for quick, interactive learning, known as mobile microlearning, has recently become popular for workplace training (Glahn, 2017; Callisen, 2016; Jahnke et al., 2019).

These bite-sized lessons go beyond video watching, boosting employees' learning interest (Göschlberger & Bruck, 2017; Jahnke et al. 2019). Dykes and Collins (2013) found using mobile technology to access clinical information, education, and just-in-time (JIT) practice-related resources improved nursing knowledge and evidence-based skills (Oneill et al., 2018). A health coaching service that incorporates a mobile health education system, featuring micro-learning Health Quizzes that cover various health behavior topics such as nutrition, exercise, mental well-

being, and sustainable lifestyle habits (Simons et al., 2015) and technology design influences people's learning and performance (Jahnke et al., 2019).

The selection of design principles by various professionals, such as instructional designers, and others, creates different microlearning. Examining and understanding these guiding principles to clarify technology goals is crucial for effectively evaluating and enhancing learning (Cerratto-Pargman & Jahnke, 2019).

Microlearning captures learners' attention with brief and focused learning goals, minimizing the mental strain of lengthier lessons. Design challenges include gender or race bias, information overload on small screens, compatibility issues, slow transmission speeds, limited computational power, and insufficient technical support (Carter, 2017; Lau et al., 2017). Further research is needed to ascertain the tangible benefits of microlearning (Decker et al., 2017) as misconceptions about its effectiveness persist (Clark et al., 2018; Baek & Touati, 2017).

Methods

Participants are tech-savvy and over 25 and use their electronic devices to complete a pre-assessment survey on health literacy. The diversity of participants spans gender, socioeconomic status, and cultural background. Access to working electronic devices is a prerequisite for participation, and support in written instructions and coaching will be readily available. Recruitment will be conducted through various channels, including digital flyers, support groups, online forums, and social media platforms, with ethical standards and informed consent as prerequisites through email.

A microlearning module will be tailored for mobile platforms, focusing on 1-2 healthcare topics to improve general health literacy accessible via various electronic devices. The selection of a mobile learning platform will be determined by various factors, including accessibility. The

research instruments will be detailed in the appendix, including surveys that establish the participant's baseline knowledge, emotional state, and health literacy before and after the intervention. The interview questions will be from established frameworks such as the Positive and Negative Affect Schedule (PANAS), Motivated Strategies for Learning Questionnaire (MSLQ), and a health literacy assessment.

The procedure employs qualitative and quantitative methods to measure the impact of learning about health literacy using a microlearning format. The data collection and analysis plan is structured to explore the influence of metacognitive processes and emotions using mobile platforms to understand the impact on learning about health literacy. Hypotheses will be tested through interviews and pre-and post-intervention surveys, with statistical analysis, such as correlation analysis, using Pearson's or Spearman's rho, to determine the significance of microlearning's effect. Open-ended questions will be used for this research project. The significance level of 0.05 will be used to understand the impact and the relationship between the variables.

Analyzing collected data will combine reliability assessment using Cronbach's Alpha with phenomenological methods for qualitative insights. Open-ended interviews will be conducted to explore participants' lived experiences. The study suggests using triangulation to cross-reference qualitative and quantitative data. This approach seeks to identify any correlations or relationships between emotions and microlearning effectiveness while also providing insights into metacognitive processes related to health literacy.

Concluding Remarks

The examination of mobile microlearning can be promoted by the design of learning in various professional or personal settings. Delivering successful mobile microlearning to individuals can be challenging; however, it can be successful for learners who wish to learn and gain knowledge in a flexible setting that meets their needs. Due to the overarching problem of so many individuals having varying degrees of health literacy, a research study using this proposal would provide access to individuals who want to better understand their health. This study hopes to inspire future research and address critical gaps while delving into learner experience and new knowledge, which is transferable outside the field of health literacy.

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