Chapter 10
Instructional Affordances of Mobile Technologies for Technical Vocabulary Acquisition:
A Pedagogical Framework

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ABSTRACT

As disciplinary literacy grows across academic and professional domains, technical vocabulary acquisition presents a major challenge in foreign languages for specific purposes (FLSP) instruction. Technical vocabulary poses particular learning challenges due to its strong disciplinary specificity, and limited occurrence in natural language input. Mobile-Assisted Language Learning (MALL) offers flexible, multimodal, and personalized support, yet how to translate its potential into effective instructional design remains underexplored. This study, based on established theories, proposes a pedagogical framework that integrates five key instructional affordances: contextualization, multimodal input, repetition, learner self-regulation, and motivational support. The framework bridges technology and pedagogy, offering design pathways for FLSP instructors and platform developers to optimize technical vocabulary learning in mobile environments.

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1. INTRODUCTION

In the context of increasing globalization and professional specialization, the demand for languages for specific purposes has grown significantly, particularly in academic and occupational language learning contexts. Technical vocabulary, defied as domain-specific lexical items with high semantic density and contextual dependency, plays a crucial role in professional communication but is often underrepresented in general language instruction. Unlike general vocabulary, technical terms are not easily acquired through incidental learning and typically require focused instruction and repeated exposure. Traditional approaches in foreign languages for specific purposes (FLSP) instruction, such as rote memorization of word lists, definitional teaching, and paper-based assessments, have been criticized for their limited capacity to accommodate individual learner needs, sustain motivation, or address cognitive overload. These limitations often result in low transferability and poor long-term retention of vocabulary. Consequently, the call for more flexible, interactive, and learner-centered vocabulary instruction has gained traction in recent FLPS pedagogy.

Mobile-Assisted Language Learning (MALL) has emerged as a promising solution to the challenges of technical vocabulary instruction. Through its affordance such as accessibility at any time and in any place, multimodal content delivery and rich interactive features, mobile learning environments offer contextualized, personalized and motivating experiences that can support vocabulary development. Recent studies have demonstrated the effectiveness of MALL in general vocabulary acquisition by improving motivation, retention, and adaptability to diverse learning paces and preferences. Features such as multimodal input, immediate feedback, and the pacing controlled by learners have been widely implemented in both classroom and extracurricular vocabulary learning, demonstrating the pedagogical potential of mobile technologies. Despite growing interest in the application of MALL to FLSP, recent studies have highlighted its insufficient focus on long-term vocabulary retention and productive use. For instance, many existing studies emphasized receptive knowledge or short-term effects (Li & Hafner, 2022), while the role of MALL in supporting durable acquisition and transferability of technical terms remains underexplored (Koleini et al., 2024; Yüksel et al., 2022). These findings emphasize the urgent need for instructional frameworks that systematically address retention and contextual application of technical vocabulary in complex domains such as chemistry, engineering, etc. (Xodabande et al., 2024). Therefore, the systematic application of MALL in the teaching of technical vocabulary remains underdeveloped, especially at the level of instructional design. Given the highly specific and context-bound nature of technical terms, their acquisition requires carefully structured input, task-based learning, and efficient management of cognitive load. This highlights the need to