

A Review of the Effects of Cellphone-Assisted Language Learning on Learners' Motivation

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Abstract: This review examined the effects of cellphones as a teaching or learning tool on students' motivation, with a particular focus on the research designs, measurements, and key findings. Keller's (1984) motivation model was adopted as the analytic lens to evaluate papers and to analyze learners' motivation. The findings about motivation were mostly positive, but the research designs were overwhelmingly quantitative and were not described in detail. In most of the articles, learners' motivation increased after cellphone interventions, or students showed positive progress toward using cellphones as a learning tool because of real-context learning opportunities, interactive environments, gaming features. Most studies used either mixed-methods or quantitative approaches, with surveys and questionnaires as the dominant data collection method to measure motivation. However, only one article employed a specific measurement tool to examine learning motivation. Future research can focus on longitudinal research to control for the effects of initial exposure to cellphone learning with rigorous quantitative measures. Qualitative research is needed to investigate individuals' perceptions. There is also a need for research on language learners in English speaking countries, such as international students.

Keywords: Cellphone, Second Language, Foreign Language, Motivation, Research Design, Measurement

Introduction

Cellphone-assisted language learning, an approach that has drawn considerable attention, is attempted in language classrooms to facilitate students' language acquisition. Cellphones are used to finish real-life related tasks in the process of L2 acquisition (e.g., Aamri & Suleiman, 2011) and to examine the utilization of applications (apps) on cellphones and students' attitudes toward the approach (e.g., Nguyen et al., 2018). The mobility and portability features of cellphones not only enable the learning process to happen anytime and anywhere, but also stimulate new learning styles that are different from traditional approaches (Sung et al., 2015). The ease of communication via cellphones creates a collaborative learning environment both among language learners and between students and instructors.

Existing literature reviews have already drawn a picture of the effects of cellphones on second/foreign language acquisition. A common goal of those reviews was to contribute to language acquisition using mobile devices. However, the effects of cellphone-assisted language learning on second/foreign language learners' motivation, a cognitive aspect of learning, have not been fully addressed in any literature review (Lawrence, 2015). Motivation of learning a second language is regarded as a critical factor because it explains the reason for increased performance (Boo, Dörnyei, & Ryan, 2015). The purpose of this study, therefore, is to examine (1) the approaches adopted to measure motivation and (2) the effects of using cellphones on students' learning motivation in the process of learning second/foreign language skills.

Analytic Lens

The theory of Attention, Relevance, Confidence, and Satisfaction (ARCS) Model developed by Keller (1984) is selected as the analytic lens to analyze motivation presented in the reviewed articles. This model provides useful assistance and guidance to teachers and curriculum designers in designing activities (Huang et al., 2016). The development of the ARCS Model is for the purpose of "improving the motivational appeal of instructional materials" (Keller, 1987, p. 2). The measurement of motivation in this review study relies on the results of the existing literature. A close look at the literature for attention, relevance, confidence, and satisfaction of using cellphones for learning will demonstrate the effects of using cellphones on students' motivation in the process of learning second/foreign language skills.

Methods

Electronic databases searched included Education Source, ERIC, LLBA, Complementary Index, Academic Search Complete, Gale Academic OneFile, and Supplemental Index. The search keywords were cellphone OR mobile phone OR smartphone, L2 teaching OR L2 learning OR second language learning OR second language teaching, motivation. The criteria for searching articles were as follows: published within the last five years, from 2014 to 2019; scholarly (peer-reviewed) journal articles; literature reviews were not included; written in English; examined the use of

cellphones in second/foreign language learning contexts; English as a second or foreign language; empirical research on participants' motivation that indicates any motivational changes or perceptions on learning motivation. In order to ensure all the relevant articles were included in this review, a snowballing method to search for articles (e.g., searching articles in the reference list of a reviewed study) was also adopted. In the end, sixteen were included in this review.

Key Findings and Discussions

The findings and discussions are in-progress and thus are partially included as follow.

Research Purposes

Among the sixteen articles, four were specifically aimed at investigating participants' motivation upon cellphone-assisted English learning (Ahn & Lee, 2016; Huang et al., 2016; Kilar-Magdziarz, 2016; Liu, 2014). These researchers implemented cellphone-assisted activities as an intervention and questionnaires as a data collection method. In contacts, other articles focused on exploring the effects of cellphones on language skills (e.g., vocabulary, listening, and speaking) without mentioning motivation in their research questions. Except for the four articles that articulated a purpose of either facilitating motivation or investigating the effects of cellphones on motivation, the other twelve articles presented motivation as a component of perceptions or attitudes. For instance, Bensalem (2018) investigated the effects of an app on vocabulary learning and indicated increased motivation as a result. Although the significance of language learning motivation has been emphasized repeatedly, the exploration of motivation under the umbrella of cellphone-assisted language has not been fully addressed. Most L2 researchers examined the effects on language skills without much attention paid to evaluating L2 motivation. This investigation on motivation uncovers the argument that "motivation is still not considered a key area in MALL [mobile-assisted language learning] research" (Lawrence, 2015, p.4).

Research Design and Methods

Quantitative research designs were the most prevalent, followed by mixed methods. Most of the studies ($N = 10$) employed surveys/questionnaires to measure participants' motivation. Huang et al.'s (2016) research project was the only study that implemented a specific measurement tool in terms of participants' learning motivation. For some other studies, motivation was not emphasized in the purpose statement of studies but embedded in perceptions or attitudes as a question in the questionnaires. Though the researchers overwhelmingly used self-report resurveys/questionnaires, not all the articles clearly presented how they measured motivation. Without detailed descriptions, the reliability of the results, therefore, is compromised. In spite of the results regarding language skills, attitudes, and perceptions, these articles lack empirical evidence to support research results about motivation.

Key Findings Regarding Motivation

Most of the reviewed articles indicate that students' motivation strengthened after cellphone interventions, or they had a positive attitude towards using cellphones as a learning tool. Vocabulary learning motivation and overall language skills (including reading, writing, listening, speaking, etc.) were investigated the most in research. Cellphone tools provided novel learning approaches to satisfy the learners' expectations and increased their learning motivation. Despite the strengthened motivation in most studies, many of the studies are not with any guidance of theories or under rigorous analysis approaches.

Cellphone Features That are Motivating

In most of the articles, cellphone learning was suggested to create a joyful learning environment where students felt comfortable in the learning process. For instance, the communication features of cellphones enabled the implementation of real-context activities, such as through automatic speech recognition (Nguyen et al., 2018), and real-life tasks, such as playing a treasure-hunting game using GPS (Freiermuth, 2017). Automatic speech recognition also provided opportunities to practice speaking within a real communicative environment (Ahn & Lee, 2016; Liu, 2014), which enhanced students' interest and enjoyment of learning a language. Cellphones also supported students' learning at their own pace, lowering cognitive load, triggering activation of students' prior knowledge in complex tasks, and leaving students with "a profound and memorable experience" (Ozer & Kilic, 2018, p. 2924). Moreover, visualized knowledge through cellphones reduced mental efforts, contributed to increased motivation, and benefitted

academic achievements (Ozer & Kilic, 2018). Another key feature of cellphones is the portable characteristic, which provides seamless learning space and extends the learning to environments beyond classrooms, enabling learning anywhere and at any time (Rahimi & Miri, 2014).

Limitations and Future Research

Future research can adopt longitudinal research designs to control for the effects of initial exposure to cellphone learning. It is difficult to generalize the findings from the small number ($N = 16$) of reviewed studies that fit the selection criteria. The measurement of motivation in most of the studies was not explicitly indicated, suggesting a fruitful direction for future research to develop, share, and refine new measurement tools. Observational studies could also be used to investigate motivation, using approaches such as eye tracking (Zentall & Morris, 2012). Qualitative studies of individuals' perceptions of motivation are also needed, along with research English speaking countries, such as international students in North America.

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