Lifelong learning through self-directed mobile learning: a theoretical framework

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ABSTRACT

This is an ongoing research about smartphone affordances for lifelong self-directed learning. Given the scarcity of models that guide this analysis, a theoretical framework is proposed integrating theories of experiential, transformative, and self-directed learning (SDL) structured in four dimensions: opportunities, self-direction, support, and impact. Each dimension presents a broad perspective to catalyze lifelong learning: "opportunities" represent the potential of new learning experiences; "self-direction" the potential learner's actions; "support" the external agent's actions, humans, and non-humans; and "impact" the transformative potential of learning. This framework can serve to guide new research, especially regarding the creation of opportunities and the transformative potential of learning.

Keywords: Mobile Learning, Lifelong Learning, Self-Directed Learning, Smartphone, Informal Learning, Experiential Learning, Transformative Learning, Personal Learning

INTRODUCTION

Lifelong learning has been increasingly discussed due to global transformations and unprecedented facilities provided by communication and information technologies such as smartphones. The fourth objective of sustainable development proposed by UNESCO (2015) defines that it is necessary to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Among these opportunities are the non-formal and informal situations that we experience throughout life and learning experiences beyond educational institutions. Mobile learning has been identified as a way to learn in multiple contexts, move between situations and continue learning – seamless learning (Sharples, 2015). What moves, however, is not just the technology, but the learner (Ibid). In non-formal and informal contexts, learning tends to be learner-directed, a skill considered a requirement for lifelong learning (Candy, 1990, 2004). Self-directed learning is also identified as a requirement for taking full advantage of mobile learning (Lin et al., 2016). This article proposes a conceptual framework to guide the contributions of mobile artifacts like smartphones to lifelong learning through self-directed learning.

BACKGROUND

People learn throughout their lives through the construction of cognitive, emotional, and practical meanings when experiencing natural and social situations (Jarvis, 2018). Although most of these life situations are non-formal and informal, recent systematic reviews and meta-studies confirm the predominance of mobile learning research in formal, school settings (Alsharida et al., 2021; Bano et al., 2018; Crompton & Burke, 2018; Krull & Duart, 2017; Qureshi et al., 2020; Sophonhiranrak, 2021;

Viberg et al., 2021). Regarding Self-Directed Learning - SDL, research on mobile learning is scarce and has focused on specific processes of self-regulation (Palalas; Wark, 2020), time management (Tabuenca et al. 2021), in personalized content delivery (Wang et al., 2021) and instant feedback activities like quizzes (RÜTH et al., 2021). Even in less formal contexts the contents are pre-selected and produced by specialists and the SDL is reduced to self-paced learning. To expand the potential of mobile learning over a lifetime, a better understanding of the SDL process is needed.

FRAMEWORK CONSTRUCTS

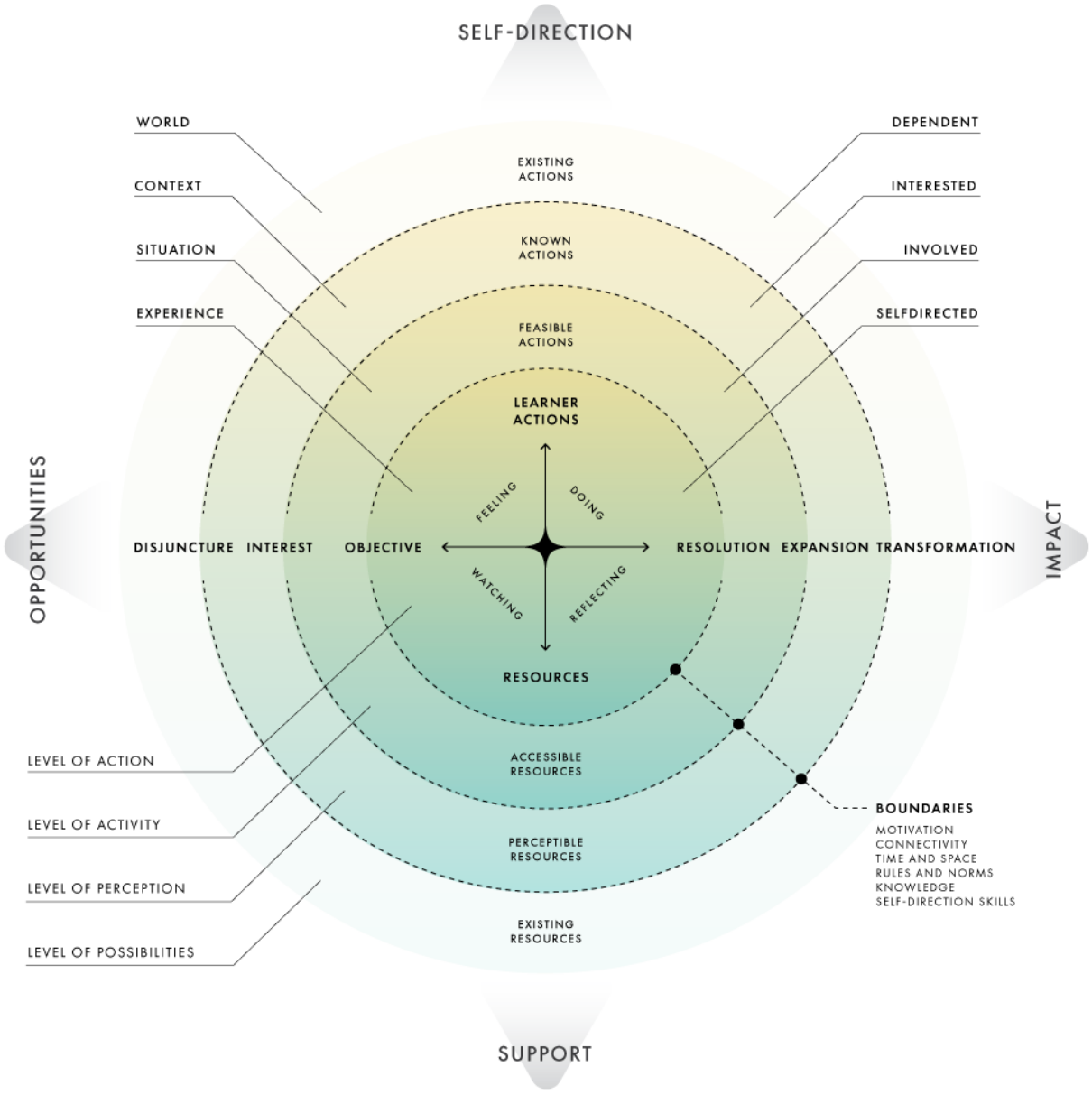
The starting point for supporting lifelong learning is to understand how it occurs. Jarvis (2018) builds on the work of Dewey and Kolb to suggest that learning depends on the person's experience in certain situations, in an active-passive transaction. Situations are experienced with the entire body-mind-self structure and involve sensations and actions that do not always find constructed meaning, causing disjunctures. For an experience to be a learning experience, cognitive processes must be activated at some level of consciousness through emotion, reflection, and action. This process is ongoing and results in a most experienced, transformed person. According to Mezirow (1997), learning processes can confirm our perspective of the world, add new information or significantly transform the perspective of self and the world. Hoogan (2016) states that the transformations caused by learning can be observed concerning depth (internal impact), amplitude (impact in the context), and relative stability (permanence). In this way, learning arises in the relationship between what the experience can offer/provoke and what the learner can perceive/do (Gibbons, 2002).

In the first phase of life, people experience a series of disjunctures – children ask questions in search of meaning for what they experience, and more experienced people offer socially constructed answers (Jarvis, 2018). In the school phase, learning experiences tend to be intentionally designed and controlled by institutions and teachers to offer a set of responses to situations, including those not yet lived. This context differs from lifelong experiences, in which the learner assumes greater autonomy over their learning. Situations can cause disjunctures, but experience may not result in learning if the learner ignores the situation (Jarvis, 2018). Roberson and Merriam (2005) observed in a group of elderly people that the initiative for learning arises when a stimulus from the situation meets personal interest. Then the person seeks resources and performs activities in search of knowledge until something is resolved or a new interest arises. In this process characterized as self-directed learning, the learner identifies learning needs and interests, searches for human and non-human resources, plans learning activities, and reflects on the process (Knowles, 1975). These initial concepts lead to two dimensions of learning in this framework: **opportunities** or possibilities that arise from situations, perceptions, and cause disjunctures; and **impact** or the possible results of learning experiences, what happens at the “end” of the process.

By involving individual skills, SDL has been confused with self-regulated learning, which is part of SDL but is not limited to it (Saks & Leijen, 2014). Hiemstra & Brockett (2012) reinforce that SDL includes three main dimensions: person, process, and context. Individual skills have been the focus of several scales that measure the personal readiness for SDL (Guglielmino, 1977, Fisher et al., 2001, Cadorin et al., 2013) and imply factors such as openness, initiative, self-motivation, self-management, self-efficacy, and self-reflection. The process concerns the learner's actions that can be goal-directed or simply curiosity, without defined goals (Clardy, 2000, Mocker, Spear, 1982). The context influences the learner's dispositions and the process in all its stages, especially in the support to the learner. The self-directed learner seeks and needs human and non-human resources throughout the process. Indeed, highly self-directed experts in their fields still seek others for knowledge (Morris, 2020). A lower degree of self-direction implies higher dependence on external agents to tell the learner what to do. Higher self-directed levels imply higher autonomy in decision-making, even when asking for help (Grow, 1991). When learning opportunities emerge, the process that follows is a balance between learner actions – the **self-direction** dimension, and external resources and agents that **support** the process.

This conceptual panorama can be synthesized as lifelong learning involves experiences promoted by situations that cause disjunctures and stimulate interests, activating processes of construction of meanings by feeling, watching, thinking, and doing, with the support of human and non-human resources, resulting in a more experienced or significantly transformed person. To identify how smartphones can facilitate this process, four potential dimensions were defined: opportunities, self-direction, support, and impact, as seen in Figure 1. **Opportunities** dimension represents the potential of the context to awaken disjunctures and interests that become learning objectives. **Self-Direction** dimension is at the top of the figure and represents the potential actions that can be taken by the learner. **Support,** at the bottom, represents the potential of human and non-human resources that can assist in the experience. At least, **Impact**, on the right, represents the potential impact of learning, from solving specific needs to transforming the self and the world.

Figure 1. Lifelong Self-Directed Learning Framework



The four concentric circles represent different levels of factors that influence the self-directed learning experience. From the outside to the inside, it is observed that the experience takes place in a world of possibilities, of which the learner does not have full knowledge. The perception level represents the perceived context of known actions and perceptible resources. However, only a part of what is perceived and known can be used in a situation, at the activity level, depending on individual dispositions (knowledge, self-direction skills, motivation) and situational dispositions (resources, norms, rules, connectivity, time, and space). Self-directed experience, the smaller circle, occurs when part of inner and outer dispositions combines into action.

Self-direction skills are represented according to the levels of Grow (1991). When individual skills, knowledge, and motivation meet the appropriate norms, rules, time, and space, self-directed action occurs – the smaller circle. Knowing how to direct themselves but encountering normative barriers or access to resources, for example, the learner can be limited in the level of involvement. With flexible resources and norms but no individual ability to act, self-direction does not occur either. The greater the barriers (internal and external) to individual thinking and action, the greater the external control over the process and the closer the learner gets to the dependent level.

The boundaries between the levels shown in Figure 1 are expandable at any time and in any direction – dotted lines. An online community [resource] can facilitate socializing [action] with others interested in the topic [resource], expanding the boundaries of Support and Self-direction. A person [resource] can assist in defining strategies [action], expanding the boundary of Self-direction. New knowledge can expand the boundary of perception, bringing new possibilities for actions and resources, new interests and goals [multi-axis expansion]. An experience can result in a transformation of the worldview and of the world itself, through the active intervention of the learner in the environment. Enhancing the lifelong self-directed learning process involves expanding the boundaries of opportunities, possibilities for self-directed actions, resources that support the process, and learning outcomes. Table 1 presents a summary of catalyst actions in each dimension.

Table 1. Catalyst Dimensions of Lifelong Self-Directed Learning

Dimension	Description	Catalyst actions
Opportunities What can wake up the process	The experience refers to what is lived, to reflection-in-action and on action, the search for meaning about what is perceived and felt in a given situation. It involves what exists in the context to be perceived/felt, the individual's ability to perceive/feel, and what this encounter awakens as embodied cognition (body-mind-emotions).	Provoking disjunctures, presenting new contexts, new roles, stimulating interests and opportunities, exploring the senses, observation and reflection, promoting personal projects.
Self-Direction What can be done by the learner	Self-direction involves individual knowledge and skills (about the context, about the process and about oneself) and favorable contextual conditions for someone to take the initiative and assume most of the responsibility for what, when and how to learn.	Developing individual skills, encouraging initiative, self-management and self-reflection, expanding knowledge about the subject, and providing flexible rules.

Support What can help	Learning is mediated by human and non-human agents – technological artifacts, spaces, people, communities, norms, and collective discourses. These agents can support the lifelong learning process from the induction of experiences to the potential for self-direction and transformation.	Expanding and facilitating access to human and non-human resources, to knowledge at different levels, which support and stimulate the process – fostering socialization with peers, communities, and specialists.
Impact What can be reinforced, expanded or transformed/created	Learning takes place at different levels, from the assimilation of information to the transformation of the world view and the world itself. The potential for transformation through learning implies the [cre]ative role of the learner, with autonomy to intervene and [re]construct his/her surroundings and him/herself.	Recording the process, explaining discoveries, provoking reflections about the content, the process, and the self, stimulating the expansion of perception, inducing new questions and discussions, presenting other points of view and contradictions, working with local problems, working collectively, intervening in context.

Source: authors

MOBILE LEARNING APPROACHES

This framework serves as the basis for an ongoing research on smartphone affordances for SDL. To understand the relationship between smartphones and SDL, 396 unique articles were extracted from the Scopus and Web of Science databases using the terms ("mobile" OR "smartphone") AND ("self-direct* learning" OR "self-r* learning"). To be included in the survey, the study needed to address aspects of smartphones that influence SDL. After screening, 84 studies were included for full reading and thematic analysis in Maxqda. Early findings are that 40% of them focus on the SUPPORT dimension by delivering accessible or personalized content, mainly for language learning. About 30% are in the SELF-DIRECTION dimension by supporting the planning and monitoring of learning activities, such as time management and learning journals. A deeper analysis is in progress, but preliminary readings show fewer studies that approach opportunities perspective, like how smartphones could stimulate new experiences. The impact of learning in terms of mind schemes and perspective expansion or transformation is also little explored. Some studies focus on smartphone use results in certification exams or school grades. Little has been discussed about smartphones' affordances to broaden perspectives of the world.

FUTURE WORK AND CONCLUSION

This paper presents a conceptual framework for Lifelong Self-Directed Learning to stimulate some reflections. By integrating experiential, transformative, and self-directed learning theories, the framework broadens the perspective on smartphones' contributions to LLL through SDL. This proposal is distinguished by highlighting four dimensions: Opportunities, Self-direction, Support, and Impact. Opportunities aim to highlight the elements that initiate the learning process, which cause disjunctures and stimulate interests. Is the potential of smartphones to promote and facilitate opportunities being explored? Self-direction involves the learner's actions to pursue knowledge and are supported by human and non-human resources from the Support dimension. How can smartphones provide more access to open resources, expand knowledge sources, and provide less predefined paths? Is the smartphone potential being explored to support learners' actions on personal projects, but also to learn by scanning and curiosity? Finally, the Impact dimension addresses the learning outcomes, ranging from reinforcement to transformation. Are we exploring m-learning as a way to broaden perspectives?

ACKNOWLEDGMENT

Conflict of Interest

The authors of this publication declare there is no conflict of interest.

Funding Agency

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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