# Literature Review

The literature reviewed in this chapter is done so in the context of how it relates to tools that can aid self-directed learning.

## Introduction – Mobile Technology

In recent years, the booming self-education sector has been revolutionised by disruptive new technologies (Mac Callum, Jeffrey and Kinshuk 2014). Mobile technologies (encompassing mobile phones, tablets and other ultra-portable computers) have long been earmarked as a useful tool for learning (Dawabi, Wessner and Neuhold 2004). Mobile technology has been very rapidly adopted across the world, and it is now increasingly common for people to have their phone on or near them at all times. Recent statistics show that Smartphone ownership in the UK across all demographics ranges from 95% to 99%, with the sole exception of the 55+ bracket at 70% (Statista 2020). It is fair to say that mobile technology is now ubiquitous in our society.

The efficacy of integrating mobile technology with education has been backed up by research. A 2014 study concluded that the use of technology enhanced student engagement with the material, which in turn improved overall achievement (Fonseca et al.). This conclusion supports the earlier findings of Trimmel & Bachmann (2004), which suggested that students who included technology in their learning reported more interest in learning, higher participation rates in learning and a stronger motivation to do well than those who didn’t use such technology. Additionally, the same 2014 study found a significant correlation between technology use and academic achievement, confirming the same findings from earlier works (Gulek and Demirtas 2005).

Due to the rapid global adoption and increasingly apparent usefulness of mobile technologies, it is no wonder that the technology has been exploited by many companies who have made attempts at self-directed learning applications and tools.

A major strength of these technologies is their versatility. As these technologies have advanced in power, they are increasingly assuming tasks that were traditionally the exclusive domain of PC’s and laptops. The potential for flexibility offered by mobile technology helps to accommodate different ability levels and learning methods (Kebritchi 2008). Students looking to support their learning at university prize tools such as emails, YouTube and podcasts (Gosper et al. 2011) – all of which are easily and readily accessible on even the most basic of today’s smartphones.

It would seem, then, that today’s smartphones and tablets are an effective foundation on which can be built a tool to support self-directed learning.

## Self-Directed Learning

*Research has shown that SDL is positively related to many education-related constructs: academic performance, aspiration, creativity, curiosity, and life satisfaction (Boyer et al. 2014)*

*“SDL is a process by which learners manage their own learning process from beginning to end”*

*(Knowles 1975)*

*Benefits of sdl:*

*“College students who are taught how to be proactive and self-directed learners will be better prepared as employees to anticipate their organisations needs, tailor their learning to meet their own unique learning styles, and acquire the necessary skills, knowledge, and abilities to create value for their customers, employers, and organisations" (Tobin 2000)*

## What is andragogy?

BRIEFLY Introduce Malcolm Knowles. “Father of adult education [REPHRASE]” The first attempt to develop a comprehensive theory of the education of adults.

## Views on andragogy

In the 1970s Malcolm Knowles, an American adult educator, introduced his theory of ‘Andragogy’ — the theory that children and adults learn differently (Knowles, Holton and Swanson 2012).

Critiques : <https://infed.org/mobi/malcolm-knowles-informal-adult-education-self-direction-and-andragogy/> author lists sources.

## Knowles’ 5 Assumptions

Knowles published “The modern practice of adult education: from pedagogy to andragogy” (1980) in which he detailed 4 assumptions about the way in which adults learn (as opposed to children). These assumptions address personal characteristics that, Knowles argues, are common among adult learners. The 5th assumption was added in a later work (1984).

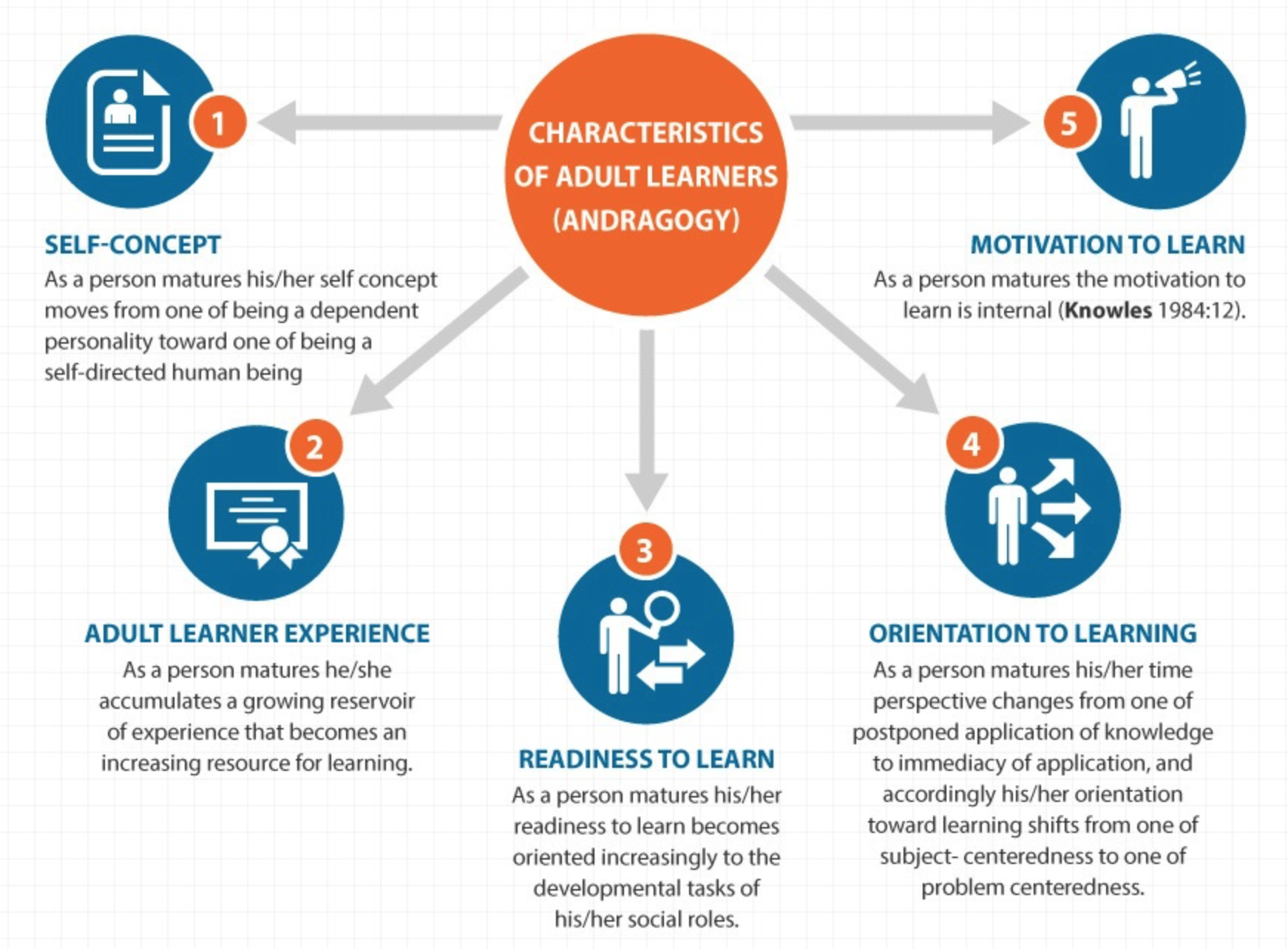


Figure 1 - Knowles' 5 assumptions of adult learners. Credit: https://elearninginfographics.com/adult-learning-theory-andragogy-infographic

From these assumptions can be extracted useful methods and guidelines to give more meaning and impact to learning experiences for adults. In a more immediate context, these assumptions

To satisfy the first assumption, it is important that learning consists of minimum instruction and maximum autonomy. Adults acquire new information more effectively if done so autonomously [CITATION NEEDED], therefore it is important that self-directed learning tools can accommodate an autonomous learning process. [SUGGEST WHAT THAT MIGHT LOOK LIKE?]

Knowles’ second assumption proposes that since adult learners naturally have more life experience, it stands to reason that they typically have a wider knowledge base and are more likely to have different backgrounds, skills and experience levels in any particular subject of study. Not only that, but as age increases, the experience they have plays an increasingly important role in learning new things. Pragmatically, this means that tools to support adult learning should support a wide variety of learning methods, models and subjects to appeal to the broader user-base -- an idea which is upheld in later research (Kebritchi 2008).

With his third assumption, Knowles asserts that adults tend to engage with learning that will benefit their social development; often we are more willing to engage with learning that can enhance skills that pertain to our social roles, of which one’s job is such an example. Application of this assumption could include features of a self-directed learning tool that emphasise networking and collaboration. Such inter-student interaction is shown to have a positive effect on learning outcomes such as course engagement, critical thinking, and individual development (Pike, Kuh and McCormick 2011). Furthermore, the ability to support learning material from institutions that offer official certifications etc. could be a way to exploit this characteristic.

The fourth assumption contends that adults seek practical, problem-centred learning approaches. It suggests that adults learn new skills for specific practical reasons – such as encountering a problem or working in a new industry. Real-world application of characteristic could mean that lessons come in the form of real-life examples or could include some way of facilitating the application of the knowledge gained.

The fifth and final assumption says that as learners mature, their drive to gain new knowledge becomes internal. This contrasts with child learners whose motivations are often driven by external factors such as punishment for poor academic performance. This suggests that learners require a valid reason behind learning. Personal motivation could be aided with a way to track and measure progress towards personal goals.

Due to the deep user-centric insight into how adults engage with learning material, it is important that Knowles’ assumptions are kept in mind when moving to the research and design stages of this project. They will help shape the potential range of features that will be included in the requirements elicitation survey and will also contribute to the overall philosophy for the design process.

*Knowles’ Principles of Andragogy*

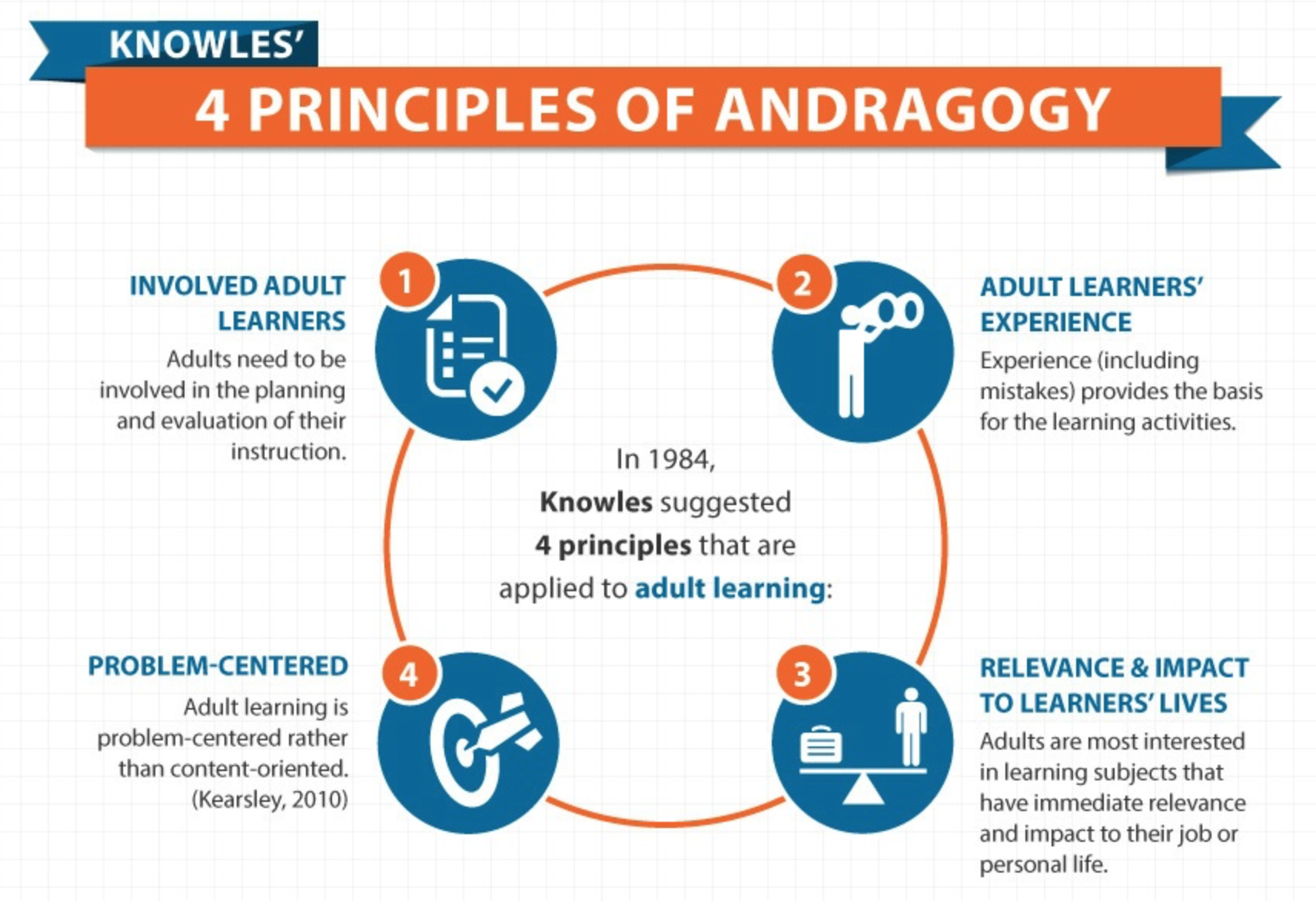


Figure 2 - Knowles' 4 Principles of Andragogy. Credit https://elearninginfographics.com/adult-learning-theory-andragogy-infographic/

## sum up knowledge in this chapter & explain how it can inform the research process

**Citations**

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