2. Literature Review

2.1 Introduction

Will Stokely reasons that a mobile application will enable coachees stay properly engaged with their programmes resulting in improved completion rates, which will lead to higher incomes by Coach in a Box – completion rates of coachees enrolled in a programme is proportional to the money paid by the coachees’ employer, who are the clients of Coach in a Box.

The basis of the literature review is to:

* review the effects of mobile applications on learning (mobile learning) i.e. do mobile users engage with mobile learning apps than with e-learning apps?
* review current mobile learning applications
* review native and hybrid applications
* review web services
* review data storage of mobile applications
* review data synchronisation of data in embedded mobile databases and the central database

2.2 Mobile Learning

2.2.1 What is Mobile Learning

In it’s simplest form, mobile learning can be defined as a type of learning delivered using mobile technologies. A comprehensive definition given by Gikas and Grant (2013, p. 19) describes mobile learning as:

* learning that’s more than that delivered and supported by mobile devices: Learners are able to access information and knowledge ubiquitously on devices that are portable and especially personal -- owned by the user
* learning that’s both formal and informal: Formal learning is structured and designed, i.e. learning delivered in universities. Whilst informal learning is often defined as learning that results from daily work-related or leisurely activities: informal learning is unstructured but intentional.
* learning that is context aware and authentic for the learner: Learners can personalise their interactions with the content. Mobile learning allows for learning to take place in environments that are conducive to the learner i.e. your learning is not restricted to a particular environment e.g. lecture halls and you can learn at your own pace and time.

2.2.2 Existing studies that support the effectiveness of mobile learning

(i) Alexander (2004, p. 61) contends that students prefer to work, and work differently, with mobile learning devices than with desktop computers. He states that public computers will still be seen as impersonal regardless of the emotional investment of the student. Also, according to Alexander (2004) personal desktops retain an external, semi-public face -- their screens readable by passers-by or, worse yet, room-mates. But he notes that mobile devices are personally intimate; they are held close to the body -- in a purse, on the lap, in a pocket, and on the floor next to the user. Their screens are easily hidden from prying eyes (Alexander, 2004). An example is given of Michele Forman, the 2001 National Teacher of the Year in the United States, who notes that her high school students became very attached to their wireless laptops. Michele concluded that the students increased their personal writing and composition after the introduction of wireless laptops. (Alexander, 2004).

(ii) Smartphones are increasingly popular in the practice of nursing and education of nurses (Garrett & Klein, 2008, cited by Pimmer, Brysiewicz, Linxen, Walters, Chipps & Gröhbiel, 2014, p. 1398). Smartphones support a broad range of practices in formal educational settings as well as in clinical environments (George, Davidson, Serapiglia, Barla & Thotakura, 2010, cited by Pimmer et al., 2014, p. 1398). For example, Taiwanese nursing students used smartphones as clinical examination tools in simulations and this resulted in higher learning outcomes compared to a control group who used pen and paper to record and evaluate patients’ symptoms (Wu, Hwang, Tsai, Chen & Huang, 2011, cited by Pimmer et al., 2014, p. 1398).

(iii) In a British study, midwives used multimedia podcasts on iPods at bedsides to support the learning of the Newborn Infant Physical Examination (Clay, 2011, cited by Pimmer et al., 2014). The analysis of the small-scale pilot scheme revealed that the tool was well received and the participants specifically appreciated the “just-in-time” learning facilitated by these devices.

(iv) Similarly, studies from the USA (United States of America) and Canada came to the conclusion that nurses and nursing students view mobile devices as effective means to support their learning in the workplace by enabling access to several sources of expertise in decision-making processes. Reference tools such as drug and diagnostic/laboratory applications were found to be particularly popular and valued (Garrett & Klein, 2008; George et al., 2010; Kenny, Park, Van Neste-Kenny, Burton & Meiers, 2009, cited by Pimmer et al., 2014).

(v) In addition to the provision of information and communication features, a mobile e-portfolio allowed Canadian students to document their clinical experiences using different modes including text, audio and image. The students greatly valued the reference functions, but also appreciated the opportunity to capture clinical events in the form of photographs (Garrett & Jackson, 2006, cited by Pimmer et al., 2014, p. 1398).

(vi) Similarly, in a UK (United Kingdom) study reported by Morley (2013), cited by Primmer et al. (2014, p. 1399), a range of Web 2.0 tools was piloted to support peer-to-peer and learner–to-tutor interactions of nursing students working in isolated placements settings using digital technology to support learning in clinical placements and to address professional isolation.

(vii) Whilst these studies mentioned so far were conducted predominantly in high-income countries, the investigation carried by Pimmer et al. (2014, p. 1403) showed that even nursing students in low-income countries also used mobile technology as educational tools. These learning practices involved socio-cognitive processes, which are, learning in the form of joint problem-solving and reflection, and showed the effectiveness of mobile learning in remote and resource-poor areas in informal learning contexts in low and middle-income countries (Pimmer et al., 2014).

Due to the pervasiveness of mobile devices and ability to ubiquitously access resources and information on the web via the Internet, mobile learning knows no boundary, is effective, keeps users engaged and results in higher learning outcomes.

Disadvantages of mobile learning are usually associated with the size of mobile devices used. For instance the size of the mobile device used may be an issue if the device has a small screen. But recent smartphones from iPhone 6, iPhone 6 Plus, Nexus 5 and Android Phablets have reasonable large screen sizes. Alternatively tablets and iPads can be used instead of smartphones for a better learning experience.

Distractions from other applications like Facebook, twitter, is another disadvantage. Lots of distractions exist when using smartphones and tablets but the same can also be said of e-learning and yet e-learning has been found to be very effective – it all boils down to the focus and determination of the user not to be distracted.

2.2.3 Existing leadership development and management mobile applications

Several leadership development and management applications exist in Android’s Google Play Store and iPhone’s App Store, the two leading mobile operating systems. Whilst most of these leadership development and management applications are standalone applications, the “My Page” application compliments an existing website.

A Google search of “business coaching UK” listed many companies offering business or executive coaching as a service but I will be looking at a couple, namely: Notion’s BusinessCoaching, Shirlaws, Vistage and CoachDirectors.

1. Notion Coaching (UK): There’s no application by the name of Norton Business Coaching in Google’s Play Store or iPhone’s App Store.
2. Shirlaws (Australia): This is an interactive conference tool application. You can obtain the conference’s agenda and biography of the speaker. It’s has only one review implying it’s not used by lots of people.
3. Vistage International Events (UK): This application enables you to find and chat with other attendees through the in-app event messaging; be up-to-date during events; obtain the conference’s agenda and biography of the speaker. It has three reviews. Whilst better than having one review, it still implies it’s not used by lots of people.
4. My Vistage (UK) – With My Visatage, you can add meetings to your calendar, locate venue of meeting, mark meeting attendance and update your profile. It has two reviews with one review stating: “Used to work, (sic) now just hangs up …”. This review indicates the importance of the performance and maintenance of the app.
5. CoachDirectors (UK): There’s no application by the name of CoachDirectors in Google’s Play Store or iPhone’s App Store.

These companies are direct competitors of Coach in a Box and operate in similar domains (leadership development, business coaching, executive coaching etc.), albeit with a slight nuance – Coach in a Box caters to the many -- executives and other employees, rather than the few (only executives). Strangely, especially for companies that should know better, there isn’t a major investment in mobile learning by companies offering business and executive coaching services. Some companies like CoachDirectors don’t have a mobile application and even companies with mobile applications have few or poor reviews.

2.2.4 Native or Cross-platform application

(1) Native Applications

Native applications refer to applications that are developed to target a specific mobile platform (Jobe, 2013 p. 28). Kohan (2015) defines native application development as the use of native programming languages of the platform to build an application. The two main major mobile platforms are iOS and Android. Vendors of these platforms support specific programming languages and tools to develop native applications. For example to develop iOS applications, you can either use Objective C or Swift programming language with the Xcode IDE, whilst Java programming language and Android Studio IDE is used to develop Android native applications. Native applications have direct access to hardware devices and support all, simple and complex, user interfaces and interactions available in their respective platforms (Jobe, 2013 p. 28).

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