

Chapter 23

Wearable Technology Spending: A Strategic Approach to Decision-Making

Jason Ribeiro
University of Calgary, Canada

ABSTRACT

Very little research has examined the applications wearable technologies can have in education despite industry experts forecasting major growth in the global market for these innovative devices (Futuresource Consulting, 2015). Notwithstanding this profound challenge, in the next 3 to 5 years school districts will need to make multimillion-dollar investments into supporting these technologies as they begin to enter the learning environment. Given this gap in the research literature, this chapter explores the potential decision-making challenges school districts and their leaders will have to face when wearables become more commonplace in education. Using the Strategic Model for Technology Acquisition (Ribeiro, 2015), the author outlines both the innovative opportunities and potential problems wearables pose for both school leaders and stakeholders in the near future. Moreover, this chapter is meant to serve as an informative resource for education leaders and presents strategic and research-validated approaches for procuring and supporting wearable technologies.

INTRODUCTION

What we are experiencing today, I truly don't believe we've ever had anything quite like it. There aren't that many people who really understand the individual technologies; to manage to have them integrated is extremely complicated – Jerry Luftman (Lebeaux, 2013, para. 6).

Since this book showcases research on both *wearable* and *mobile* technologies, it is important to acknowledge the difference between the two categories of devices. The Educause Learning Initiative (2013) makes the distinction clear: “an Internet-connected smart watch or pair of running shoes with sensors in them are ‘wearable technology,’ whereas a smartphone or a tablet is simply ‘mobile’” (para. 5). Despite the current fervor surrounding innovations in wearable technologies, a number of wearable electronic devices have been produced during the last three decades (albeit with limited applications).

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Expensive, bulky, and most often associated with experimental and research-based tasks, these devices lacked an aesthetic appeal and ubiquitous purpose for consumers (Sultan, 2015). However since 2010, the rapid advancement of emerging wearable technologies and their subsequent consumerization has left educational stakeholders wondering if this will lead to yet another shift in the K–12 education landscape. After all, districts are currently being enveloped by new educational technologies (or ed-tech) significantly impacting today's classrooms (Bebell, O'Dwyer, Russell, & Hoffmann, 2010; Brooks, 2008; Hsu, Hung, & Ching, 2013; Jenkinson, 2009). These unique teaching and learning tools have provided school districts with the opportunity to modernize their classrooms and equip their students with critical 21st century skills (Brooks, 2008; Culp, Honey, & Mandinach, 2005; Kim et al., 2010). The Partnership for 21st Century Skills (P21; 2011) often refers to these proficiencies as the "4Cs" (p. 1) and outlines critical thinking, creativity, communication, and collaboration as essential for today's students. However, with districts struggling to gain a firm grasp over educational technology's impact on the classroom and with Smart Glasses, FitBits, and the Apple Watch looming, there is a critical need for effective technology management and leadership in education (Bellamy, 2007; Morrison, Ross, Corcoran, & Reid, 2014).

The responsibilities of educational leaders and practitioners are further problematized by the collective weakness of educational technology research and its inability to provide substantial empirical evidence to support technology integration as a means of improving student learning (Bebell et al., 2010; Jenkinson, 2009; Johnson & Maddux, 2008). Notwithstanding these profound challenges, publicly funded school districts have made multibillion-dollar investments in educational technology, with spending showing no signs of slowing (Futuresource Consulting, 2014). As investments from government and venture capital steadily increase, industry experts believe wearable technology is indeed on the horizon of the classroom. Technology research firm, Gartner, has even predicted wearable technology will be a leading electronic device category in 2015 (Pulley, 2014). According to research firm, Futuresource Consulting (2015), the global market for wearable technology was worth over US \$8.9 billion in 2014 (with 56 million devices shipped) and is expected to continue growing. This figure does not even include spending on applications (*apps*) or information technology (IT) support needed to deploy, manage, and secure these purchased devices. With public and private decision-makers having long been interested in a sustained inquiry into technology acquisition (Heinecke & Blasi, 2004), this chapter is quite timely as senior leaders prepare for the burgeoning market's impact on their school districts. The key areas of investigation surrounding wearable technology acquisition involve the protocols and policies influencing spending by senior-level leaders, the academic impact of these devices on student learning, and their ability to generate data to drive decision-making.

The purpose of this chapter is to explore potential applications of wearable technologies in education, as well as the impending impact on school districts, and to draw upon relevant research surrounding technology acquisition and spending to determine if school leaders are ready to usher in a new era of educational practice. Using the Strategic Model for Technology Acquisition (Ribeiro, 2015), the author outlines both the innovative opportunities and potential problems wearable technologies pose for both school leaders and stakeholders in the near future. The chapter begins with a background of technology spending and leadership in education and a description of the strategic model, followed by three sections. The first section reviews wearable technology as a tool for improving student learning. The second section explores wearables and their role in producing data used to inform decisions (data-driven decision-making or DDDM). The third section examines technology procurement and spending in the wearables context. Finally, recommendations and considerations for future research surrounding wearable technologies are discussed.

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