Chapter 77
Analyzing Online Reviews to Measure Augmented Reality Acceptance at the Point of Sale:
The Case of IKEA

Daniel Baier
BTU Cottbus-Senftenberg, Germany

Alexandra Rese
BTU Cottbus-Senftenberg, Germany

Stefanie Schreiber
BTU Cottbus-Senftenberg, Germany

ABSTRACT

Increasingly, brick and mortar retailers compete with their counterparts by enriching the point of sale through technological innovations that make use of customer-owned mobile devices. So, for example, IKEA, the world's largest furniture retailer, has introduced an interactive mobile app that provides the customer with additional insights in a personalized and convenient way: by scanning quick response codes in the printed catalogue, 3D objects, pictures, text, or videos are provided on the customer's smartphone or tablet. They inform about a furniture's interior or its potential usage, give planning aids, or visualize the furniture in alternative surroundings. In this chapter, the perceived usefulness, ease of use, and attitude towards such new technology-based innovations are discussed. Customers' perceptions are measured by applying a modified technology acceptance model. Traditional customer surveys as well as online customer reviews are analyzed. The results are encouraging: the mobile app is seen as an enrichment of the shopping experience but can be improved. Both data collection formats lead to similar results.

INTRODUCTION

For some years, augmented reality (AR) is used by retailers (see, e.g., Pantano and Servidio, 2012, Poncin and Mimoun 2014) to enrich the store atmospherics and shopping experience. Retailer-owned, stationary devices with scanning, planning, visualization, and recommendation features assist customers, e.g. to find the right hairstyle, jacket, suit, or to plan a new kitchen or cupboard.

However, today, the younger generation expects these AR services not only on a stationary device but on their personal device via a mobile app (short for application software): Surveys found out that the younger generation spends more time with their mobile devices (smartphone, tablet) than with stationary ones (PC, TV, McKinsey&Company, 2012) and that the online sales even for costly products (e.g. furniture) increase (McKinsey&Company, 2013).

So, it is not surprising that bricks and mortar retailers – especially when targeting at the younger generation – introduce mobile apps with AR features to make their offline and online buying situation more attractive. Market observers assume that – with the increasing availability of smartphones and tablets – an era of new "Retail 3.0" (Duncan et al., 2013, p.6.) is to come and that this revolution has the "potential to transform the shopping experience (both in-store and online)" completely.

Nevertheless, the use of (stationary and mobile) AR is discussed controversially in the literature in terms of its benefits for customers since, e.g., many problems are still unsolved (e.g. speed, presentation quality, ease of use). This is especially true when focusing on mobile AR with – typically – limited connectivity and additional handling problems than in the stationary case. Studies on AR acceptance are available, but they are often criticized for their small samples and their experimental setting (see, e.g. Bulearca and Tamarjan, 2010; Olsson et al., 2013). Also, the usage of student samples and the employment of self-reported item scales have been addressed (Legris et al., 2003).

This chapter aims to close this gap by investigating the acceptance of mobile AR at the point of sale using IKEA's mobile app – an AR extension of their online product catalogue – as a case. A technology acceptance model (TAM) analysis and a detailed likes/dislikes analysis (with closed and open-ended questioning) are performed. In addition to the traditional TAM analysis, the open-ended questions and the likes/dislikes are analyzed using text mining. The results are also compared to a text mining analysis of comments on the mobile app in online customer reviews. In summary, it is found out that the TAM analysis can – with some reservations – be replaced by the automated data analysis using comments gathered in the shop or in online blogs. In addition, the results point to an overestimation of the TAM constructs in the experimental setting.

The chapter is structured as follows: the next section provides background for AR at the point of sale and for TAM. In further sections a modified TAM for AR applications as well as text mining methods for analyzing customer reviews are developed and tested using IKEA's mobile app as an example. After presenting the results, the paper closes with theoretical implications, limitations, and avenues for further research. The chapter extends a discussion of the mobile app IKEA case in Rese et al. (2014). It differs insofar, that the practical aspects of AR for retailing and acceptance measurement are discussed more deeply. In Rese et al. (2014) the focus was more on technical and theoretical aspects of analyzing the word-of-mouth in online customer reviews.

Background

Augmented Reality (AR) to Improve the Shopping Experience

AR has been defined by Olsson et al. (2013, p.288) as a technique "to combine real and computer-generated digital information into the user's view of the physical real world in such a way that they appear as one environment". Digital content (e.g. 3D objects) can be tied for example to a QR (quick response) code (Yuen et al., 2011). In addition to 3D objects avatars, pictures, videos, audios or text can also be included (Güven et al., 2009). AR has been described as "enabling technology for innovative mobile applications" (Välkkynen, et al., 2011, p.1). Olssen et al. (2013) use the

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