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Understanding Academic E-books Through the Diffusion of Innovations Theory as a Basis for Developing Effective Marketing and Educational Strategies

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ABSTRACT

Academic libraries are choosing to purchase electronic books (e-books) rather than print more frequently for multiple reasons. Unfortunately, e-books are not being used as much as they should be. With increasing academic e-book collections, many studies have examined student and faculty use of and attitudes towards this innovation. This paper will analyze the results in this area of research and align them with the Diffusion of Innovations Theory that includes the Rogers Diffusion of Innovations Curve, innovation categories, and the factors affecting the diffusion process of an innovation. This analysis will give libraries a better understanding of who is using academic e-books, why academic e-books are being used, and how to influence the behaviour of the academic libraries' patrons to increase their use of academic e-books. An analysis of these three areas will help libraries to develop effective marketing and education strategies aimed at increasing e-book usage.

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More and more, academic libraries are choosing to purchase electronic books (e-books) rather than the print versions. Reasons for this change in collection practice include accessibility (24/7 access through the Internet), lower cost, and space (as e-books require no physical storage space libraries can theoretically keep adding books to their electronic bookshelf without having to consider the removal of older material). As well, publishers provide package deals making it easier, cheaper, and more desirable to purchase e-books. It is important to note that there is a difference between academic e-books and those personally purchased for leisure reading. Academic e-books can be in different formats (e.g. pdf, html) and can be located on different platforms with different access, printing, downloading, copying, and annotation capabilities. There is a general belief among librarians that academic e-books are not being used to their fullest extent.

With increasing academic e-book collections, many studies have examined student and faculty use of and attitudes towards this innovation. This paper will analyze the results in this area of research and align them with the Diffusion of Innovations Theory that includes the Rogers Diffusion of Innovations Curve, innovation categories, and the factors affecting the diffusion process of an innovation. This analysis will give libraries a better understanding of who is using academic e-books, why academic e-books are being used, and how to influence the behaviour of the academic libraries' patrons to increase their use of academic e-books.

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LITERATURE REVIEW

Library Information and Technology Abstracts, EbscoHost Academic Search Complete, and the University of Manitoba's integrated catalogue were searched to locate articles pertaining to the use of and attitudes towards academic e-books in a university or college setting.

E-BOOKS USAGE ALONG ROGERS DIFFUSION OF INNOVATIONS CURVE

Hawkins, Best, and Kenneth (1998) define an innovation as "an idea, practice, or product perceived to be new by the relevant individual or group" (p. 248) and explain that the Rogers Diffusion of Innovations Curve is "the manner in which innovations spread throughout the market" (p. 251). The diffusion curve is a depiction of an innovation's migration through the market over time. It is divided into five stages of adopter categories: innovators, early adopters, early majority, late majority and laggards (Hawkins et al., 1998, p255).

The innovators love innovation for the innovation itself and are among the first 2.5% to embrace any new innovation. They are curious people who love new ideas and want to understand new products that come into the market place. The early adopters, people who love to be seen with the new innovations, are the next 13.5% of adopters. They take pride in being trendsetters and the innovation itself is not as important as being seen with the innovation. The early majority, the next 34%, are cautious, fact driven and embrace innovation when they can realize personal benefit. The sceptics, the pragmatics, the

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people who like their comfort, and the people who are heavily influenced by price (the late majority) are the next 34% to adopt. The laggards are the last 16% to embrace new innovations. These people are attached to the past, do not usually like change, and are the most likely to skip versions of innovations. It is also important to note that opinion leaders are located all along this curve. Typically those who influence a category are in the preceding category (e.g. laggards are influenced by the late majority) (Hawkins et al., 1998, p.255; Bhatnagar, 2015).

How do academic e-books fall along the diffusion curve? The literature review revealed that there are various degrees of academic e-book usage:

- 39% Mount St. Joseph College in Cincinnati (Staiger, 2012)
- 57% University of Illinois (Staiger, 2012)
- 51.2% Royal Roads University (Croft and Davis, 2010)
- 38% University of Ulster (Smyth and Carlin, 2012)
- 44% of faculty and 44% of graduate students at the University of Oklahoma School of Geology and Physics (Foote and Rupp-Serrano, 2010)
- 37% of faculty and 40% of graduate students at the Sam Houston State Library (of the non e-book user group 68% of graduate students and 47% of the faculty said they would use e-books in the future) (Cassidy, Martinez, and Shen, 2012)
- <10% of students Watson School of Engineering and Applied Science; 17.6% of students from Community and Public Affairs; 37.5% of students from the Art Design and Art History, Binghamton University (Cummings, Larrivee, and Vega, 2015)
- 62.8% of the Franklin & Marshall College campus (Olney-Zide and Eiford, 2015).
- 32.5% daily or weekly academic use of e-books, University of Maryland Libraries - Undergraduates 38.6%, Graduate students 37.2%, Faculty 16.2% (Carroll, Corlett-Rivera, Hackman, and Zou, 2016)

When comparing these percentages to the diffusion curve, it appears that academic e-books have entered into the early majority of the diffusion curve. The University of Illinois and Royal Road University are the furthest along with the some of the late majority category already adopting this innovation. The statistics demonstrate that, in general, the innovators and the early adopters have embraced the academic e-book format, and the early majority are in the early stages of adopting this technology.

Who are these people who are currently using e-books? Who are these innovators, early adopters and the early majority? If we compare the e-book adopter percentages to the diffusion of innovation curve for undergraduate students (9.5% innovators, 25.9% early adopters, 51.4% early majority, 9.3% late Majority, 3.9% laggards) (Salaway and Caruso, 2008), it appears as if e-books usage is more prevalent for students than faculty. Rowlands, Nicholas, Jamali, and Huntington (2007) review of the literature found those using e-book technology are more likely younger in age (12 to 21 – 29%; 22 to 25 – 20.6%; 26 to 35 – 27.9%; 36 to 45 – 12.9%; 46 to 55 – 6.3%; 65 + – 0.3%), more likely male, more likely reliant on Google and other search engines or publisher websites, and less dependent on personal recommendations, and reference or reading lists. Gilbert and Fister's (2015) and Revelle, Messner, Shrimplin, and Hurst (2012) further corroborate a gender difference in academic e-book use. Gilbert and Fister (2015) found over one-third of the male participants would prefer to use e-books for research as compared to one in five women and Revelle et al. (2012) discovered only 35% female participants were comfortable reading online, compared to 47% of the male participants. Studies also found e-book users mainly originate from the departments of business, management (Nicholas, Rowlands, and Jamali, 2010), natural science, and social science (Gilbert and Fister, 2015). According to Ahmad, Brogan, and Johnstone (2014), only 0.5% of e-book users can be classified as "power users." Ahmad defines e-book power users as "early adopters and users with a propensity to use advanced features of hardware and software." Nicholas et al.

(2010) showed the e-book power users are more likely to be male, between the ages of 22 and 35 and have a strong preference for using and searching library e-books.

The last stage of adopter categories are the laggards, the library patrons who still rely on the print version of books and actively avoid using e-book technology. Cassidy et al. (2012) addressed this contingent in their study. They found that 22% of faculty respondents in Sam Houston State University library are members of the laggard group. Carroll et al. (2016) reported that faculty (33.1%) and staff (47.7%) were the most likely never to use e-books for academic purposes. To get a better understanding of why some innovations are not readily adopted, it is important to understand innovation categories and the factors affecting the diffusion process of an innovation.

INNOVATION CATEGORIES

Acceptance and diffusion of innovations negatively or positively depend on the nature of and the categories of innovation. Determining what constitutes an innovation is subjective and based on the perceptions of individuals and groups. In the Diffusion of Innovations (Hawkins et al., 1998), innovations can be classified into one of three categories: continuous innovation, dynamically continuous innovation, and discontinuous innovation (p. 248). Into which category an innovation falls depends on the degree of behavioural change required and the level of importance that users attach to the behavioural change. A continuous innovation adoption requires minor changes in behaviour and these behaviours are seen as unimportant to the individual. Examples of continuous innovations include purchasing running shoes and pain relievers. In these instances, the individuals do not need to do anything different to use new products. In a dynamically continuous innovation, adoption "requires a major change in an area of behaviour that is of low or moderate importance to the individual" (p. 249). Examples in this category are digital video cameras and online shopping. Even though both involve a drastic technological change, most individuals would consider this a dynamically continuous innovation. A discontinuous innovation requires individuals to make major behaviour changes that are perceived as very important to the individual. Examples of these innovations include the initial introduction of office computers and weight loss surgery. It is important to note that the categorization of an innovation is entirely subjective and is linked to the level of interest of the individual. The way in which an innovation is categorized is based on how important individuals' current habits are, the perceived disruption the new innovation will have on current habits, and the level of importance individuals attach to the behaviour change required to accept or utilize the innovation. In the case of e-books, it depends on the level of importance an individual attaches to current reading and research practices, the changes in behaviour needed to include e-books in these practices, and the perceived importance in making these behaviour changes.

After reviewing the literature, arguments can be made that the academic e-book would fall into either the dynamically continuous or the discontinuous category. The use of academic e-books requires a definite change in behaviour; e-books do not look like nor do they operate the same as a print book. However, it is the individual who decides if the use of the e-book is a dynamically continuous innovation or a discontinuous innovation.

Studies found that students and faculty prefer print books for learning or lengthy reading (Ashcroft, 2011; Corlett-Rivera and Hackman, 2014; Foasberg, 2014; Hoseth and McLure, 2012; Woody, Daniel, and Baker, 2010) but many are using the search functionality of e-books to find a few pages or paragraphs of information (Nicholas et al., 2010; Plum and Franklin, 2015; Staiger, 2012). This suggests that while students and faculty still prefer their current reading and research practices, some are willing to embrace this new innovation. While not completely changing their routine, they are adapting and adopting new behaviours to include e-books into their learning practices. Because

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