

Theoretical approaches to e-book research

Tom D. Wilson, wilsontd@gmail.com

University of Borås, Sweden

Libellarium, IX, 1 (2016): 159 - 174.

UDK: 002:004:005.3=111

DOI: <http://dx.doi.org/10.15291/libellarium.v9i1.277>

Conceptual paper

Abstract

The adoption and continued use of innovations by societies, organisations and individuals has been a subject of research since before the 1930s. A variety of different theories have been developed to account for the different speeds at which innovations are adopted and the factors that affect the adoption process. This paper reviews theories of the adoption of innovations with particular reference to the recent phenomenon of the e-book as a cultural innovation that is having an impact on individuals, organizations and national policy makers. The paper will suggest which theories are most appropriate for the different levels at which the innovation is employed.

KEYWORDS: e-book, theories of the adoption of innovations

Introduction

The e-book involves a complex set of technologies including not only the format of the files that allows the text to be read on different devices by "flowing" to the appropriate dimensions, but also the technology of the devices themselves, their screens, their battery life, and their portability. Consequently, when we decide to read an e-book we are also taking decisions on the presentation of the text (e.g., the font size) as well as on the nature of the device we choose to adopt. We are also involved in other decisions, such as whether or not to use library e-book services, or a subscription service such as Scribd or Skoobe, and whether to use a multi-purpose device such as the iPad, or to use an e-reader and, if the latter, which online retailer to favour, by choosing a Kindle or a Kobo.

These sets of decisions apply to us as individuals, but some of the same decisions apply to organizations that may wish to employ e-books as part of their marketing strategy, or to libraries deciding whether or not to offer e-book services, or to other

organizations deciding how to employ e-books internally, for functions such as staff training, maintenance manual design, and so on. Organizations will have to make some of the same decisions as individuals but other decisions will also be involved. For example, a public library will need to decide which e-book service provider to use and an academic library will have a similar decision to make about the provision of academic texts. Publishers, too, must make a whole set of decisions about e-books from deciding which books to convert, which formats to employ, whether and how to involve retailers in selling, whether or not to 'enhance' the original text, and whether and how to sell directly to readers.

We might also consider the notion of societal adoption of e-books, which may come about when policy decisions are made at governmental level about the terms under which public libraries may seek to use e-books, or about the use of e-textbooks in schools. We can describe these situations as societal adoption because their impact will be felt throughout the society, rather than in some specific organization or in the life of an individual reader.

These decisions relate to the field of technology adoption and the aim of this paper is to identify the theoretical frameworks for technology adoption and consider their usefulness in exploring the adoption process at the three levels identified above.

Technology adoption

It takes time for new technologies to become accepted. An invention does not immediately become an acceptable, widely diffused technology: a lot may depend upon the practicality of the invention in terms of its application requiring changes in associated technologies. Or, the invention may never find the right combination of circumstances that make it economically feasible to employ. Or an invention may simply fail to find commercial support to make it available in the market.

Examples of innovations that either took many years to come to the market and be successful, or failed to come to the market at all, abound. For example, the transistor was invented in 1925 by J.E. Lilienfeld (Biography... n.d.), but its practical application had to wait almost three decades before its best known application, the transistor radio, could actually be manufactured. Another example, the fuel cell, was invented in 1838 (Grove 1838), but its application had to wait more than 100 years before its application in NASA's space programme, it still only has niche applications and we continue to await the fuel-cell powered car. Of course, we could also point to the computer, the principles of which were evolved by Charles Babbage and his difference engine, with the first 'program' being written by his correspondent, Ada Lovelace, in the early 19th century. The practical realisation of the ideas of Babbage and Lovelace

only came about during the Second World War, after other technologies had been developed that made Babbage's mechanical devices irrelevant (Montaqim 2012).

By comparison, the e-book has had a very short period of time in which to move from invention to widespread application although, again, application of the idea has depended upon the invention of associated technologies for the full realisation of potential to be achieved. Ignoring the rather idiosyncratic and never practicable ideas of Brown (1930), the e-book (necessarily) had to await the arrival of the computer and then the development of portable computing devices such as tablet computers and smartphones. In fact, e-books as they are now generally perceived depend absolutely upon such devices and, while they may still be read on desktop machines and laptops, it is portability that has driven adoption.

Given the general nature of technology, it is not surprising that the study of adoption processes has a fairly long history, although the study of contemporary developments has been mainly a feature of research in the second half of the 20th century. In the 19th century the steam engine was probably the most significant technological development, indeed Ashton (1948, 70) described it as '*the pivot on which industry swung into the modern age*', a statement which, today, we might ascribe to the computer. But, although reports were made of the number of steam engines employed and the industry sectors in which they were used, the study of the adoption process was carried out later in the 20th century and mainly by historians (e.g., Dickinson 1938, Lord 1923, Musson 1976).

A search of Web of Science for "technology adoption" OR "technology diffusion" reveals a paper by C. Berenson (1968) as the earliest to use the phrase technology diffusion; however, earlier work by Beal and Bohlen (1957) has evaded the Web of Science net, presumably because it was published as a technical report from the Extension Service of Iowa State University. The report used the findings of thirty-five research studies, carried out over a twenty year period, on the adoption of innovations by farmers and their wives, in various states of the USA. This alone suggests that the interest in technology adoption must extend back to at least 1937 and that the reports have not been captured by the online databases.

Beal and Bohlen's report sets out two adoption frameworks: the first presents the stages in the adoption process as awareness, interest, evaluation, trial and adoption, while the second presents the diffusion curve showing the proportion of innovators, early adopters, early majority, majority and non-adopters, with the demographic and other characteristics of persons at these different stages of the process.

The second of these frameworks is generally associated with the name of Everett M. Rogers who joined Beal and Bohlen in a paper on the validity of the diffusion stage

theory (1957) and went on to write the highly influential Diffusion of innovations which reached its fifth edition in 2003, shortly before his death in 2004. Rogers's adaptation of the ideas of Beal and Bohlen will be discussed in the next section.

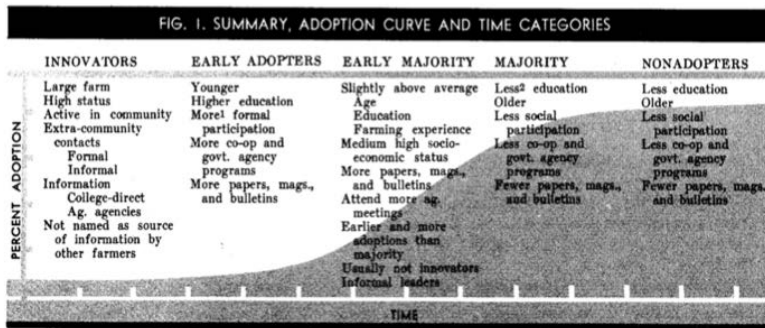


Figure 1. The adoption curve (Source: Beal and Bohlen 1957)

Theoretical frameworks for technology adoption and diffusion

Rogers and the diffusion of innovation

As noted in the previous section, the work of Rogers has been highly influential in research on the diffusion of innovations. Rogers took the framework of Beal and Bohlen (whom he worked with as a doctoral student) and modified it slightly but, most importantly, perceived that the diffusion process was a general social phenomenon, not restricted to a particular field of application such as agriculture. The Beal and Bohlen categories were, as noted above, innovators, early adopters, early majority, majority and non-adopters, and Rogers changed the last two categories to late majority and laggards. The term laggards is probably better than non-adopters because it allows for the idea that the laggards may ultimately adopt an innovation.

Rogers also developed a model of the characteristics of an innovation that may affect its adoption, suggesting that '*innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations*' (Rogers 2003, 16).

In its original form, the theoretical framework was applied to individuals (farmers and their wives) and, therefore, it fits the decision making by individuals referred to in the Introduction to this paper. However, it is obviously possible to conceive of organizations and communities being the innovators, early adopters, etc. For example, when electric lighting was made possible from the 1880s onwards, not all towns adopted it at the same time, and until after the end of the Second World War,

paraffin lamps would still be used as the main source of light in country districts in the UK.

Gas lamps would still be found in many places well into the 1950s and, indeed, there is an ongoing dispute in Berlin about their replacement (Wonderful..., 2014).

The e-book is a recent phenomenon, with its initial growth the result of the development of successful mobile computing devices and, consequently, there is only a relatively small number of research papers on the adoption process. One of these (Jung, Chan-Olmsted, Park and Kim 2012) used Rogers's framework in a study of e-book adoption in South Korea, concluding that:

The findings of the current study generally support the innovations-adoption literature, in regard to demographic variables (age, education, and income), digital media technology ownership, personal innovativeness (self-efficacy and novelty-seeking), and Rogers's (2003) five perceived innovation attributes. Almost all variables significantly related to e-book reader awareness, interest, and intention to use (Ibid, 14).

Walton (2014), in a study of undergraduate students in a small, liberal arts college in the USA, employed Rogers's theory in his analysis of the data, noting that e-books have the relative advantage of convenience and, because academic libraries make e-books available, they offer the possibility of trialability to students. However, Walton added another concept, that of *forced adoption*, which occurs when the academic library does not offer the choice of a printed version of a book and the students must use the e-book alternative.

In another study, in Latvia, Grenina (2012), employed diffusion of innovation theory in the design of an investigation, focusing on relative advantage, compatibility, complexity and trialability. Relative advantage was reported in terms of the search capabilities offered by e-books but printed books offered greater advantage for long-term reading, a finding supported by other research on the subject.

Martin and Quan-Haase (2013) used the first two stages in Rogers's adoption process model, i.e., knowledge and persuasion, in their study of academic historians. They found that, because of uncertainty about the nature of the e-book, some of their subjects were using e-books without understanding what they were using. In other words, they had been persuaded to use the technology without having any knowledge of it. The authors note that the two phases may be cyclical and iterative to a degree not explored by Rogers.

While research into the adoption of e-books is at an early stage of development, it is evident that Rogers's theory is recognized as a useful framework for such research. As

far as we can discover, however, its use in this way has been restricted to the study of adoption by individuals

The technology acceptance models

The technology acceptance models of Davis, Venkatash and their co-workers (Davis, Bagozzi and Warshaw 1989, Venkatesh and Davis 2000, Venkatesh and Bala 2008, and Venkatesh, Morris, Davis and Davis 2003) have been widely used in organizational research on technology adoption: a search on Google Scholar for the topic results in more than 40,000 hits, more modestly Scopus revealed 3,441 research papers. Given their extensive use as research models, it is not surprising to find that they are well used in research on the adoption of e-books. Usually the research has an organizational context, but, inevitably, because decisions to use new technologies are taken by people, the actual data collection is done at the personal level, rather than the organizational.

The original technology acceptance model was quite simple, as shown in Figure 2: it proposed that the two key variables affecting the person's attitude towards using information systems were *perceived usefulness* and *perceived ease of use*, both of which were influenced by external variables. Attitude towards using directly influenced *behavioural intention to use* the technology, which was further influenced by *perceived usefulness*, and *behavioural intention* directly determined *actual system use*.

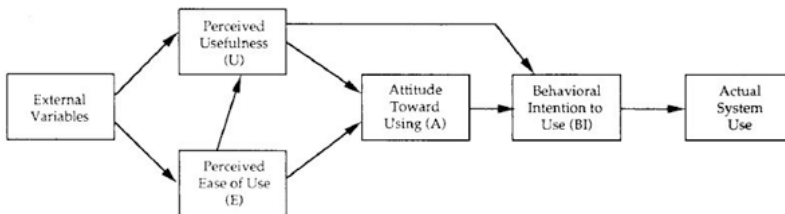


Figure 2. The original technology acceptance model

When the 3,441 items revealed by the search referred to earlier were filtered by searching for those dealing with e-books, 162 items were retrieved and, of these 37 were found to be useful in actually dealing with e-books or e-reading devices. The most common subjects of research were students and only one of the papers dealt with a business organization (Yu, Yu and Cheng 2012).

Hsiao, Tang and Lin (2015) used a simplified version of this first model and added *perceived enjoyment* as an additional variable in their study of the adoption of e-textbooks by Taiwanese undergraduate, business studies students. They found that both models explained 43% of the variance in behavioural intention, but that their amended model explained 71% of the variance in attitudes towards e-textbooks compared with the 68% of variance explained by the original model. *Perceived*

enjoyment had previously been used by Teo and Noyes (2011) in a study of technology acceptance by trainee teachers in Singapore.

The third version of the model (Venkatesh, Morris, Davis and Davis 2003) is referred to as the unified theory of acceptance and use of technology and is rather more complex. In this version, behavioural intention is affected by performance expectancy, effort expectancy, social influence and facilitating conditions and the influence of these factors is affected by the sex, age and experience of the person, with social influence being affected by voluntariness of use.

Given the complexity of the third version of the model (Figure 3), it is perhaps not surprising that researchers have adopted simplified versions (as in the case of Hsiao et al., above), or have chosen to use the earliest version of the model. At the same time, however, there is a tendency to include additional variables (again, see Hsiao et al.) partly in search of variables that will increase the percentage of variance explained by the model.

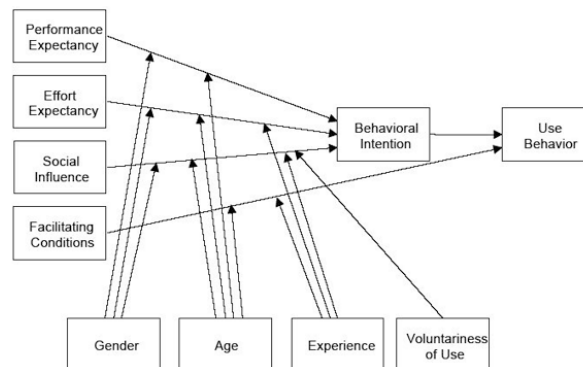


Figure 3. The unified theory of acceptance and use of technology (Source: Venkatesh et al. 2003)

In a study of e-book use in China, Gao and Deng (2008) modified the model by introducing the variable of *perceived cost*, but found that this had no effect on use behaviour; however, performance expectancy and effort expectancy had a significant positive impact on behavioural intention and use behaviour, while social influence had a positive effect on performance expectation. In other words, if friends and family had positive experience of e-books or if social media encouraged e-book use, the person's expectation that using e-books would prove useful, would be increased.

Quan-Haase, Martin and Schreurs (2014) also used the unified theory in a study of e-book acceptance by senior citizens (persons aged 60 years and over). They modified the model by using specific instances of the main predictive variables, i.e., *convenience of reading for performance expectancy; comfort with technology for effort expectancy;*

friends and family e-reading for social influence; and established reading habits for facilitating conditions. Their paper reports only preliminary findings, the principal of which is that familiarity with digital technologies (or the lack of such familiarity) is a barrier to e-book use and that senior citizens need information on how they might benefit from the technology.

Szulanski's 'stickiness' theory

Clearly, the technology acceptance models of Venkatesh and his colleagues are concerned with the individual's acceptance of technology, and Rogers's diffusion theory was also developed with reference to individual farmers and their wives. Both are applicable to organizations in that Rogers's theory could be explored with organizations as the units of analysis, and the technology acceptance models could also be used across organizations, showing how staff in the different organizations varied in their acceptance of technology. However, Szulanski's (1996, 2000) theory of *stickiness* was developed in the context of *organizational* implementation of innovation (although he refers to *knowledge transfer*).

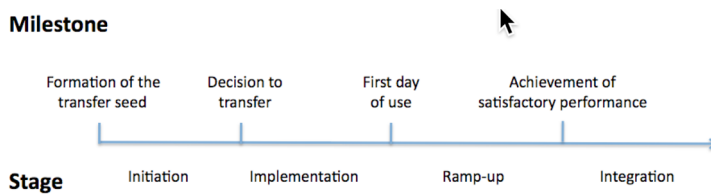


Figure 4. Szulanski's stages model of the implementation of innovations (Source: Szulanski 2000; redrawn)

As shown in Figure 4, Szulanski proposes a four-stage process of innovation, from *initiation* of the idea, through *implementation*, *ramp-up* (or rolling out the innovation throughout the organization), and *integration*, where the innovation becomes fully embedded in organizational practice. For each stage, Szulanski suggests a *milestone* or key event that signals movement from one stage to another and suggests, further, that difficulties may arise in each stage that inhibit, retard or prevent progress to the next stage, which he refers to as *stickiness*.

Szulanski's theory does not appear to have been applied to the adoption of e-books for any purpose in organizations, but we can envisage the kind of problems that might arise in, for example, the adoption of e-textbooks in a university. For a case in point we can refer to the adoption of e-textbooks by the University of Plymouth (Gee, 2014). Although the existing accounts of the project tend to be solely descriptive we can infer some points of *stickiness* as the project developed. For example, Gee (2014, 122) refers to some negative responses from students unwilling to read from computer screens, and such resistance is likely to be found in most such initiatives. Although Gee does not give details of the financing of the project, which initially supplied first-

year undergraduate students in five departments with twelve e-textbooks, we can assume that negotiation within the Department on the use of its resources must, at least, have taken some time.

Originally, Gee had intended to work with publishers to provide paper copies of the texts, but, later, commissioned Cengage Learning to provide the e-textbooks. Thus, another point of *stickiness* was finding the right mode of provision, and in the same direction, difficulties were experienced in determining how to provide the students with access. The university library's e-book contract did not allow the kind of use envisaged and an alternative platform from Vital Source was adopted. Thus, simply at the initiation stage, we can identify *individual preferences, financing, supplier negotiation, and choice of technology platform*, as potential sources of *stickiness* in such projects. Further analysis of the accounts would no doubt enable us to determine the difficulties experienced during other stages. It seems, however, that, whatever the problems, the pilot was successful, since the project has since been expanded to more departments, as Gee notes:

We launched ebook schemes in marine biology, environmental science, earth science, geography, and computer science in September 2012. In 2013, the scheme expanded even further to biology, biomedical sciences, maths and statistics, and accountancy. I now lead a project exploring the possibility of extending it across all undergraduate programmes at Plymouth, and am seeking funding to share our experiences with other universities. (Gee 2014, 123)

In terms of Szulanski's stages, Plymouth University is obviously now into the *ramp-up* stage and there is evidently every intention of achieving *integration*.

Winston's theory of technology adoption in society

When we come to the societal level of technology application, it would be possible to use Rogers's diffusion theory to investigate the different rates at which countries can be said to *adopt* a technology. For example, in the case of e-books, the USA, the United Kingdom, and Australia might be characterised as *early adopters*, while Sweden, on the basis of current evidence could be considered a *laggard*, at least if we judge the situation with reference to e-book sales to the general public. When it comes to the characteristics of an innovation that assist adoption, however, i.e., *relative advantage, compatibility, trialability, and observability*, it is rather more difficult to imagine how these variables might be operationalised for application across a society. In other words, a societal analysis requires societal variables.

Winston's (1998) historical analysis of the adoption of technology from the telegraph to the Internet is based on a theoretical framework which provides not only a structure for the adoption process (see Figure 5), but also two theoretical concepts that are of

particular interest for research into the e-book phenomenon. The two concepts are the *supervening social necessity* and the *suppression of radical potential*.

The *supervening social necessity* is that concatenation of social factors that encourage *invention*, that is, a prototype sufficiently developed to be used effectively to satisfy the social necessity. Winston notes, for example, that the prototype telegraph was not particularly successful until the need arose to control the traffic on the newly established railways which, originally, had only one line of track. The need for one station to communicate with another to avoid accidents by reporting the location and direction of trains led to the adoption of the telegraph by the railway companies.

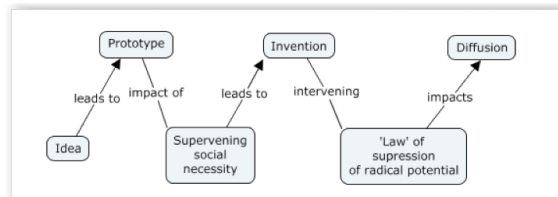


Figure 5. Model of Winston's theory of innovation (Based on: Winston,1998)

In the case of e-books, our work in Sweden suggests that the *supervening social necessity* will vary with the interest group, e.g., academic libraries are influenced by the need to keep abreast of technological developments and to use new technologies to satisfy user demands, and by the potential e-books offer for ready accessibility of study materials. Public librarians perceive a similar *technology push* in wishing to provide readers with access to literature and study materials in whatever form they may exist (and, indeed, by the latest version of the Public Libraries Act, are required to do so).

In other places, the *supervening social necessity* may take different forms: for example, in a number of developing countries governments are taking action to implement a policy of e-textbook provision in the country's schools and colleges. The pressure towards this is clearly economic: the relevant ministries of education identify the cost savings in providing e-textbooks instead of paper books and, thus, the *supervening social necessity* derives from the need to manage the national budget.

In both the UK and North America there is pressure from students, concerned about the high cost of textbooks for their courses. In the UK the National Union of Students launched a "Come clean with costs" campaign for the inclusion of textbook costs in their £9,000 a year course fees and this has prompted a number of universities to either include printed textbooks within the course fees (e.g., Coventry University (see, Southern..., n.d.)), or to provide e-textbooks, as in the case of the University of Plymouth referred to earlier (see, Williams 2014). Again, because of the rising cost of textbooks in Canada, the University of Manitoba launched an Open Textbooks

initiative, initially making use of textbooks created under a similar initiative at the University of British Columbia (Hoffelder 2015, Lalonde 2015). The same economic issue has led to the adoption of e-textbooks, often open access, in states in the USA (see, for example, Nay 2015, Turner 2015, Meyer 2015).

Whatever the trends in the consumer sector of the publishing business, it seems inevitable that this economic imperative will continue to drive the adoption of e-textbooks in schools and universities.

Conclusion

We have aimed in this paper to review the theoretical frameworks that may be of help in undertaking research of various kinds in relation to the production, distribution and use of e-books. Figure 5 summarises the analysis by showing the relationship between the level at which we undertake the research, i.e., the personal, the organizational and the societal, and the different theories or models appropriate to those levels.

There are, of course, other factors in the situation that affect the adoption of e-books within the entire production, distribution and use chain. For example, the established patterns of power relationships are shifting: with the rise of online bookselling, and of direct online selling by publishers, the role of the bookshop is diminishing and they no longer are central to the success of a particular author. Similarly, relations between authors and publishers are changing, as the potential of the technology to aid self-publishing is recognized. Through the use of social media authors are now also able to interact more directly with their readers and, thereby, the readers obtain more influence over the direction of the author's work. We also see a shift in the relations between libraries and publishers, with e-books being licensed, instead of being purchased by libraries, and, in order to access the licensed material, being dependent upon the systems used by the publisher. It is possible, therefore, that other theories, such as Emerson's power-dependency theory (1962) may be applicable in this context.

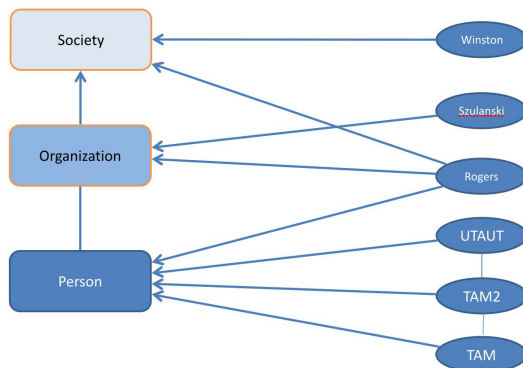


Figure 6. Theories and application areas

All technologies have a life-span, during which they move from innovation to the generally applied means of achieving some end, to, ultimately, obsolescence. The e-book is still in the innovation phase of its existence and we do not know whether or not it will come to be the dominant form of the “book”, nor what form it will ultimately take. An exploration of the issues of adoption of the technology, however, within the framework of the theories explored in this paper, is justified because of the significant impact it has already made in the publishing process.

References

- Ashton, T.S. 1948. *The industrial revolution 1760-1830*. Oxford: Oxford University Press.
- Beal, G., E. Rogers, and J. Bohlen. 1957. „Validity of the concept of stages in the adoption process.” *Rural Sociology* 22, 2: 166-168.
- Beal, G. M., and J. M. Bohlen. 1957. *The diffusion process*. Ames, IA: Iowa State University of Science and Technology, Cooperative Extension Service. (Special report no. 18). <http://www.soc.iastate.edu/extension/pub/comm/SP18.pdf> (Archived by WebCite® at <http://www.webcitation.org/6cQDGyLGL>).
- Berenson, C. 1968. „The R&D:marketing interface Ð a general analogue model for technology diffusion. „*Journal of Marketing* 32, 2: 8-15.
- Biography of Julius Edgar Lilienfeld. n.d.. In *Incredible people: biographies of famous people*. <http://incredible-people.com/biographies/julius-edgar-lilienfeld/> (Archived by WebCite® at <http://www.webcitation.org/6cQGLx3Ja>).
- Brown, R. 1930. *The readies*. Bad Ems, Germany: Roving Eye Press. <http://bit.ly/SWybjc> (Archived by WebCite® at <http://www.webcitation.org/6Nnu45uKV>).
- Davis, F. D., R. P. Bagozzi, and P. R. Warshaw. 1989. „User acceptance of computer technology: a comparison of two theoretical models.” *Management Science* 35, 8: 982-1003.
- Dickinson, H. W. 1938. *A short history of the steam engine*. Cambridge: Cambridge University Press.
- Emerson, R. M. 1962. „Power-dependence relations.” *American Sociological Review* 27, 1: 31-41.
- Gao, T., and Y. Deng. 2012. „A study on users’ acceptance behavior to mobile e-books application based on UTAUT model.” In *IEEE 3rd International Conference on Software Engineering and Service Science (ICSESS)*, 376-379. New York, NY: IEEE.

- Gee, P. 2014. „The Plymouth ebook project.” In *Ebooks in education: realising the vision*, ed. by Hazel Woodward, 119Ð124. London: Ubiquity Press.
- Grenina, A. 2012. „Electronic books: content provision and adoption possibilities among users in Latvia.” *Information Research* 17, 1, paper 512. <http://InformationR.net/ir/17-1/paper512.html> (Archived by WebCite® at <http://www.webcitation.org/6bjbvaxHp>)
- Grove, W.R. 1838. „On a new voltaic combination.” *Philosophical Magazine (Series 3)* 13, 84: 430-431.
- Hoffelder, N. 2015. Why the textbook market is dying, part googol. September 22 [Web log post]. <http://the-digital-reader.com/2015/09/22/why-the-textbook-market-is-dying-part-googol/> (Archived by WebCite® at <http://www.webcitation.org/6cQFk5IWW>)
- Hsiao, C-H., K-Y. Tang, and C-H. Lin. 2015. “Exploring college students’ intention to adopt e-textbooks: a modified technology acceptance model.” *Libri* 65, 2: 119-128.
- Jung, J., S. Chan-Olmsted, B. Park, and Y. Kim. 2012. „Factors affecting e-book reader awareness, interest, and intention to use.” *New Media & Society* 14, 2: 204-224. <http://bit.ly/1DrXQLa> (Archived by WebCite® at <http://www.webcitation.org/6cQFw4wWS>)
- Lalonde, C. 2015. Manitoba launches open textbook project. September 30. Retrieved from <http://open.bccampus.ca/2015/09/30/manitoba-launches-open-textbook-project/> (Archived by WebCite® at <http://www.webcitation.org/6cQF7gqGh>)
- Lord, J. 1923. *Capital and steam power 1750-1800*. London: P. S. King and Son.
- Martin, A., and A. Quan-Haase. „Are e-books replacing print books? Tradition, serendipity, and opportunity in the adoption and use of e-books for historical research and teaching.” *Journal of the American Society for Information Science and Technology* 64, 6: 1016Ð1028.
- Meyer, L. 2015. „Developing a \$10 digital textbook.” *Campus Technology*, July 15. <https://campustechnology.com/articles/2015/07/15/developing-a-10-digital-textbook.aspx> (Archived by WebCite® at <http://www.webcitation.org/6cQM8lhLN>).
- Montaqim, A. 2012. *Pioneers of the computer age: from Charles Babbage to Steve Jobs*. London: Monsoon Media.

- Musson, A.E. 1976. Industrial motive power in the United Kingdom, 1800–70. *Economic History Review* 29, 3: 415–439.
- Nay, R. 2015. „USF course to pilot first open access e-textbook.” *The Oracle*, August 25. <http://www.usforacle.com/news/view.php/1010271/USF-course-to-pilot-first-open-access-e-> (Archived by WebCite® at <http://www.webcitation.org/6cQGpNGM7>).
- Quan-Haase, A., K. Martin, and K. Schreurs. 2014. „Interviews with lifelong readers: preliminary findings from the EDITS (Effects of Digital Information Technology on Seniors) project.” In *Culture, context, computing: proceedings of the iConference, Berlin, March 4–7*, 980–987. Urban, IL: iSchools.
- Rogers, E.M. 2003. *Diffusion of innovations*. 5th ed. New York, NY: Free Press.
- Southern Universities Purchasing Consortium. (n.d.). SUPC case study: Coventry University textbook campaign. <http://www.encyclopedia.ac.uk/wp-content/uploads/201411-Coventry-Case-Study.pdf> (Archived by WebCite® at <http://www.webcitation.org/6cQG6ZRFo>).
- Szulanski, G. 1996. “Exploring internal stickiness: impediments to the transfer of best practice within the firm.” *Strategic Management Journal* 17(Special Winter issue): 27–43.
- Szulanski, G. 2000. “The process of knowledge transfer: a diachronic analysis of stickiness.” *Organizational Behavior and Human Decision Processes* 82, 1: 9–27.
- Teo, T., and J. Noyes. 2011. „An assessment of the influence of perceived enjoyment and attitude on the intention to use technology among pre-service teachers: a structural equation modeling approach.” *Computers & Education* 57, 2: 1645–1653.
- The wonderful gas lamps of Berlin-the world’s largest gas lighting network. [Web log entry.] *urban75 blog*. <http://www.urban75.org/blog/the-wonderful-gas-lamps-of-berlin-the-worlds-largest-gas-lighting-network/> (Archived by WebCite® at <http://www.webcitation.org/6dFucEmJ1>)
- Turner, K. 2015. „IU saves students about \$8 million with electronic textbooks.” *IndyStar*. September 28. <http://www.indystar.com/story/news/education/2015/09/28/iu-saves-students-8-million-electronic-textbooks/72982272/> (Archived by WebCite® at <http://www.webcitation.org/6cQLjsDAZ>).

- Venkatesh, V, and H. Bala. 2008. „Technology acceptance model 3 and a research agenda on interventions.” *Decision Sciences* 39, 2: 273-315.
- Venkatesh, V., and F. D. Davis. 2000. „A theoretical extension of the technology acceptance model: four longitudinal field studies.” *Management Science* 46, 2: 186-204.
- Venkatesh, V., M. G. Morris, F. D. Davis, and G. B. Davis. 2003. „User acceptance of information technology: toward a unified view.” *MIS Quarterly* 27, 3: 425-478.
- Walton, E.W. 2014. „Why undergraduate students choose to use e-books.” *Journal of Librarianship and Information Science* 46, 4: 263-270.
- Williams, A. 2014. „UK’s largest e-textbook programme launches.” Plymouth, UK: University of Plymouth. <https://www.plymouth.ac.uk/news/uks-largest-etextbook-programme-launched> (Archived by WebCite® at <http://www.webcitation.org/6cQEHcH54>)
- Winston, B. 1998. *Media, technology and society. A history: from the telegraph to the Internet*. London: Routledge.
- Yu, C., T-F Yu, and Y-S Cheng. 2012. „The investigation under technology acceptance model for the factors of using e-book among employees of a Taiwanese financial and insurance company.” *International Journal of Digital Content Technology and its Applications* 6, 3: 244-253.

Sažetak

Teorijski pristupi istraživanju e-knjige

Usvajanje i kontinuirana upotreba inovacija od strane društva, organizacija i pojedinaca predmetom je istraživanja još od 1930-ih. Niz različitih teorija oblikovano je kako bi odgovorilo na različitu brzinu kojom se inovacije usvajaju i čimbenike koji utječu na taj proces. Ovaj rad razmatra teorije usvajanja inovacija s posebnim osvrtom na fenomen e-knjige kao kulturalnu inovaciju koja utječe na pojedince, organizacije te one koji stvaraju nacionalne politike. U radu će se predložiti teorije koje su najprikladnije za različite razine usvajanja inovacije.

KLJUČNE RIJEČI: e-knjiga, teorija usvajanja inovacija