If I Upload it, will They Come? using Lazy User Theory to Explain Student Use of Optional Online Learning Resources

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Abstract
Instructors are encouraged to provide a rich array of complementary learning resources to students to cater to their different learning styles. More and more of these resources are being made available online. The way students choose amongst different optional learning resources is poorly understood. The paper reports the findings of a study that examined differences in student perceptions of different web-based learning support services such as groupware and online courses. Based on a sample of 55 undergraduate business school students in an e-commerce major, the findings indicate that effort minimization strongly influences student use of administrative services but less so more learning related services. The results have important implications for trainers and teachers involved in the design and implementation of web based learning resources and services.
Keywords: Learning resources, learning management system, lazy user theory, technology acceptance model

1. Introduction

Today's learning management systems offer a vast array of possibilities. Educators must choose amongst a number of functionalities to activate and provide to students in modern learning management systems. For example, Moodle, a popular open source learning management system, lists over 100 additional activities, such as forums, assignments and quizzes that instructors can use to extend basic functionality of a class website. How should instructors select which functionalities to activate and which to ignore? How do students choose between available online resources that are on offer?

This paper was motivated by a desire to answer these questions. One explanation for differences in student use of optional learning resources maybe the way they allocate effort to learning activities. The first part of this paper reviews the existing literature and leads to the development of a research hypothesis. The methodology is then outlined followed by a presentation and discussion of results.

2. Previous research

2.1 Optional resources and class web sites

Web technologies are widely used today to provide students with 24/7 online resources and services as support for face-to-face classes. While the use of innovative technologies and pedagogies such as e-learning platforms and various social media has been widely reported, the role of the class web site has been neglected.

A class web site is an online platform that can provide a variety of learner-teacher (FAQs, contact forms), learner-learner (groupware and discussion forums) and learner-content (online class preparation and lecture notes) interactions (Miller & Miller, 1999). Instructors are encouraged to provide a diversity of resources to "offer students opportunities to receive learning through methods and models that best support their needs, interests, and personal situations" (Richardson, 2002, p. 48). Students are often expected to decide for themselves how to use the available resources and "integrate them into their own context of use that make sense to them." (Looi, 2001, p. 15).

A growing number of studies have examined student use of resources in a "blended" or "hybrid" pedagogy. Little attention has been paid however to the use of online resources to support 100% face-to-face instruction.

2.2 Student use of online resources

Several difficulties with using class web sites have been highlighted in the literature. Students may be overwhelmed with the amount of resources and have difficulty prioritizing them (Armatas, Holt, & Rice, 2003), they may be unaware that they exist or how they can be used (Donovan & Nakhleh, 2007) or they may simply underuse the available resources and tools (Lust, Vandewaetere, Ceulemans, Elen, & Clarebout, 2011).

Differences in student learning preferences may account for some of the variance in student use of online resources. Kazlauskas & Robinson (2011) found that some students prefer to learn in face-to-face environments and by reading and listening in set study environments rather than using more recent podcast technology. Dillard-Eggers et al. (2008) studied the use of optional and required on-line homework by 233 students in 8 accounting classes. Only half of all students believed the system improved their learning and 31% preferred "pencil and paper" homework. Only 16% of students believed the system saved them time studying. The authors conclude that different perceptions and uses can be explained by the "diverse student population, with different experiences, skills and abilities, and also different learning styles" (p.13).

Grabe & Christopherson (2008) studied the use of online lecture resources by students. They found that students made very little use of the audio recordings compared to text-based lecture summaries. They suggest that students may consider audio recordings as less efficient and less useful than other resources. Some students substituted online lecture resources for physical attendance. This result was confirmed by Larkin (2010) who found that the minority of students that downloaded online recordings of lectures used them to improve their understanding of face-to-face lectures or replace a lecture that they could not attend.

Lust et al (2011) studied online tool use by first year Educational Science undergraduates in a blended learning course at the Katholieke Universiteit Leuven. The authors found large differences in student use of CMS tools like the discussion board, practice quizzes, scaffold tool and web links. Three tool-use patterns emerged: the first group was students who did not use the available tools; the second pattern was the "incoherent users" who only used online tools with a clear link to the face-to-face context; the third pattern was the intensive users that used all available tools. Not all students profit from the learning affordances that online tools provide. Learners seek to control their learning in different ways and learning environments need to be adapted accordingly.

Inglis et al. (2011) also found that students did not "blend" the different learning resources at their disposal but instead made heavy use of only one learning resource or none at all. The authors concluded that students adopt different study strategies for using optional learning resources. They highlight the need for further research "to determine how students decide on which strategies to adopt in blended learning environments"

One explanation for differences in use of online resources is the time allocation behaviors of students. Studies have shown that students allocate time so as to improve their overall academic achievement (McFadden & Dart, 1992). To explain student choice of online resources in a learning context we draw on, adapt and test the "lazy user theory", a theory of online service use developed in the information systems literature.

2.3 Student allocation of effort

Lazy user theory (LUT) purports that an individual will most often choose the solution that will fulfil his or her needs with the least effort. Solution selection depends on the attributes of the need itself and the user's situation or state at the time of the need. The user's state limits the set of available solutions to fulfil his or her need.

The theory was developed by Tetard & Collan (2009) based on previous work on the path of least resistance in physics and the theory of least effort in informatics. They studied the use of mobile phone services and used the theory to draw a number of recommendations on how mobile devices and services should be designed.
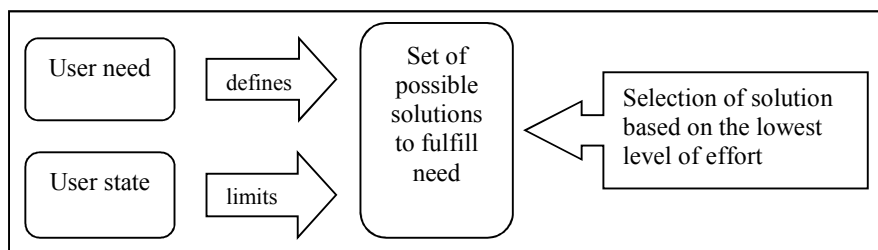

Figure 1. Lazy user theory of solution selection
(adapted from Tetard & Collan, 2009)

The user need can be qualified by a number of characteristics such as its type and its urgency. The need defines the universal set of possible solutions available to fulfil it. The possible solutions include both material and immaterial objects and can be delivered by different products, devices, or services, depending on the need. The user state is the circumstances that surround the user at the moment when the user need arises, including his or her location and available time and resources. The user state limits the set of possible solutions available.

LUT assumes that the user will select the solution to fulfil the need that demands the least effort given the user's state. Effort can be in the form of "time used, money used, energy used (physical work, mental work), or a combination of these" (Tetard & Collan, 2009, p. 3). Different solutions require different levels of effort and individuals may need to exert different levels of effort for the same solution.

We believe that LUT can be applied to a learning environment. Learners have both needs and states and the available learning resources can be considered a portfolio of choices. A growing body of research on student use of time and substitution of learning resources supports the view that students are driven by efficiency considerations in their allocation of time to different activities.

McFadden & Dart (1992) examined how 143 business school students allocated their time between different subjects taken in the learning institution. They found that students optimized the allocation of their time on different courses in order to maximize their overall grade average. They spend more time on courses where they consider their grades too low, and spread their time equally across other classes. They also found that students do not read unassigned materials purely out of interest.

Student time allocation is also influenced by the time they wish to spend on extracurricular activities. Students effectuate time trade-offs by comparing the investment benefits of studying with the consumption benefits of other activities such as paid work and leisure (Stevens & Weale, 2004). Students may even resent the "intrusion" of coursework on their personal time (Trout, 1997). In a study of time use by 209 Lithuanian University students, Bagdonas, Ramanauskiene and Skvernys (2009) found that students limit study time to obligatory classes, lectures, and homework and spend two to three times more time on various forms of entertainment.

Students also have an accurate idea of the amount of effort necessary to succeed in an academic environment. Lammers et al. (2005) asked 387 business school students and 52 faculty at California State University Lammers how much time they thought was necessary to spend on a number of different learning activities to achieve A, B, C and D grades. They found that students and faculty members share perceptions regarding how hard students have to work to achieve different grade levels.

Students pick and choose the learning resources and services to optimize their use of time. They learn in response to a need and select resources to meet that need. "When people cannot see the need for what's being taught, they ignore it, reject it, or fail to assimilate it in any meaningful way. Conversely, when they have a need, then, if the resources for learning are available, people learn effectively and quickly" (Brown & Duguid, 2000).

Lilje & Peat (2006) studied the use of an online learning resource for advanced first year human biology students in a blended learning class at the University of Sydney. They observed marked differences in usage patterns between students and across resources. They concluded that this "indicates many students are *at least* using a strategic approach to learning by using components when they perceive the need."

Guthrie (2010) found a similar result in his study of the use of online resources by business school students in a project-based pedagogy. Students largely focused on online classes that developed theoretical concepts such as definitions, methods and vocabulary. Students focused on the resources that they found the most efficient to complete the project. When asked about their preferred instruction method, they preferred in class instruction as it was seen as less time consuming and more productive as it afforded greater interactivity than online instruction. Previous research indicates that students seek learning efficiencies. This involves spending time on learning activities and resources that provide the highest potential gain in terms of learning outcomes.

3. Conceptual model and hypotheses

To study online resource selection and use, we draw on a theoretical model that has been developed and empirically tested in the information systems literature; the Technology Acceptance Model (TAM) (Davis, 1989). The TAM theorizes that information system use is determined by an individual's perceptions of its potential to enhance job performance ("perceived usefulness") and its facility of use ("perceived ease of use") (Davis, 1989). Perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (p.320). As effort is a finite resource, an individual is likely to accept a technology when he or she perceives it as easier to use than another (Rander & Rothchild, 1975). Perceived ease of use should also positively influence user perceptions of system usefulness. The effects of external factors on system use such as training and motivation, are mediated by perceived usefulness and perceived ease of use (Davis, 1989).

In an educational context it would seem reasonable to assume that students choose the means to attain their scholastic objectives in a rational manner, preferring to use systems that they perceive as relatively useful and easy to use. The TAM has previously been shown to be a satisfactory tool to explain the acceptance of educational technologies (ex. Martins & Kellermanns, 2004; Park, 2009; Selim, 2003). For the purposes of this paper, the TAM is adopted as an appropriate explicative model of online learning resource use.

In light of the previous discussion on LUT, the level of effort required to use a resource may determine the perceived usefulness of this resource. In the TAM, effort is measured by the ease of use construct. We argue that the perceived ease of use of a learning resource will affect the perceived usefulness of a resource and, in turn a student's intention to use it.
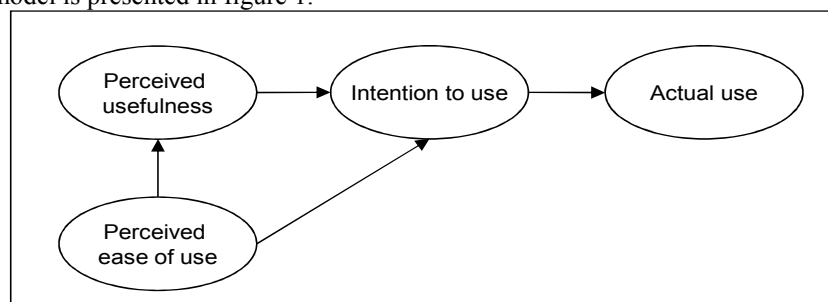
The conceptual model is presented in figure 1.

Figure 2. The conceptual model (based on Davis, 1989)

When online resources and services have no direct learning benefit it is expected that their use by students will depend on effort minimization. If website services have an offline equivalent then students will choose the solution that minimizes their effort. When online resources and services are important to learning activities and have no real offline alternative, the influence of perceived ease of use on perceived usefulness will be low. The hypothesis to be tested is stated below.

Perceived ease of use will have a higher positive direct effect on the perceived usefulness of administrative resources and services than on learning resources and services.

4. Methodology

4.1 The sample

The sample consisted of 55 undergraduate French business school students pursuing a two-month course in e-business and information technology management ("e-business"). The two month course involved 150 hours of classroom instruction. The teaching approach involved theoretical classes, case studies and project work.

The sample consisted only of students in this specialisation and, therefore, was non-random. Questionnaires were distributed and completed in class following a short presentation of the project's objectives. To ensure confidentiality of responses, personal information was not required. All 55 students completed and returned useable questionnaires.

The course was supported by a web site comprising a total of 12 resources or services: course news, syllabus download, FAQ, lecture notes download, bulletin boards, course programme, groupware, e-learning, curriculum vitae, student evaluations, and the possibility to modify personal information such as password. Use of the web site was optional and students could follow the course without using the web site although two services specifically targeted improved learning outcomes: the groupware service was offered to help improve group project productivity; the e-learning service was provided so that students could best prepare two instructor led session. The different services are summarized in table 1.

Table 1. List of services available on-line

Service	Description
Home page: course news	News and announcements concerning course administration and internship opportunities.
Syllabus download	Download the detailed course syllabus
Frequently asked questions	Ask the course administrator and lecturers questions
Electronic library	Download lecture notes, other documents and student reports from previous years
Discussion forum	A free access bulletin board for students
Course program	List of sessions with pre-reading and links to class preparation material and quizzes
Groupware	File and message exchange to support student's work in groups
Networking	List of previous internships undertaken by the 100 or so alumni
Online coursework	Online self-learning modules on web site creation and the use of a project management tool. Both modules were prerequisites for a face-to-face class.
Curriculum vitae	Publish and update a CV that is visible to the course administrator and all lecturers
Session evaluations	Student evaluations of each session
Personal profile	Possibility to modify personal information such as password

Each student was assigned a password that was used at each connection to reach the main page of the web site.

4.2 Measures

Eight variables were measured in the questionnaire: four learning styles, perceived ease of use (PEU), perceived usefulness (PU), intention to use (INTENT) and actual use (USE) of the target learning support service. PEU, PU, INTENT and USE were measured separately for groupware, e-learning and administrative (the remaining 10) web services. Table 2 provides descriptive statistics for the variables measured.

Table 2. Descriptive statistics of the variables at test

Variable	Range	Min	Max	Mean	S.D.
Administrative services					
PU	6-42	21	42	34.25	5.34
PEU	4-28	14	28	25.58	2.48
INTENT	1-7	1	7	6.09	1.51
USE	1-6	2	6	3.87	1.04
Variable	Range	Min	Max	Mean	S.D.
Groupware service					
PU	6-42	12	42	28.36	8.56
PEU	4-28	16	28	23.33	4.27
INTENT	1-7	2	7	5.33	1.44
USE	1-6	1	6	1.87	1.09
E-learning service					
PU	6-42	17	42	33.91	7.18
PEU	4-28	6	28	22.66	5.43
INTENT	1-7	3	7	6.13	1.06
USE	1-6	1	5	1.84	0.83

4.2.1 Perceived usefulness

Perceived usefulness was measured based on Davis' (1989) original instrument requiring students to appreciate the difficulty of using the website for their course work on a 7 point likert-type scale. Students were asked six questions pertaining to the usefulness of the online service (or services). Responses for each of the six items were aggregated to calculate an aggregate score for perceived usefulness of each target service.

The Cronbach alpha statistics of 0.85, 0.96 and 0.93 for standard web services, groupware and e-learning services respectively, were all satisfactory.

4.2.2 Perceived ease of use

Students were asked five questions pertaining to the ease of use of all administrative web services and the two learning oriented web services. The measurement of perceived ease of use was adapted from Adams, Nelson & Todd (1992) with the wording being changed to fit the specific technologies under study.

The first item "Learning to operate [the target service] would be easy for me" was deleted from the ease-of-use scale as it did not correlate well with the other items. The Cronbach alpha statistic improved from 0.55 to 0.74. It was 0.85 and 0.92 for the ease-of-use measures of groupware and e-learning services respectively. The responses on the remaining four items were used to calculate a cumulative score for perceived ease of use of each target technology.

4.2.3 Intention to use

Students self-rated their intention to use the target technology on a 7-point likert-type scale based on Adams, Nelson & Todd's (1992) measure. Students were asked to rate their level of agreement with the statement "If the [target technology] was available in a future class, I would use it often".

4.2.4 Actual use

Actual use was reported by students along a 6-point likert-type scale ranging from "I never used the [target technology]" to "I used the [target technology] several times per day".

5. Results

The data were analysed using SmartPLS (Ringle, Wende, & Will, 2005). SmartPLS is a software program that implements structural equation or causal modelling according to Partial Least Squares ("PLS").

The PLS method is particularly suitable for small sample sizes (Chin, Marcolin, & Newsted, 2003). Chin (1999) recommends that the sample size be greater than (1) ten times the scale with the largest number of formative indicators, or (2) ten times the largest number of structural paths directed at a particular construct in the model. As there are a no formative indicators in our model and a maximum of two structural paths directed at any one construct, the sample size of 55 individuals easily exceeds these sample size recommendations.

Reliability and validity tests were conducted to evaluate the quality of measures used. The results are presented in table 4. The Chronbach alpha statistics are above the recommended acceptable level of 0.70 (Nunnally, 1978) indicating adequate internal consistency. The average variance extracted levels are above the 0.5 threshold (Fornell & Larcker, 1981) indicating the convergent validity of the instrument items. The uni-dimensionality of blocks of variables is confirmed by Dillon-Goldstein's rho ("composite reliability") that is higher than 0.7 (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005).

Table 3. Reliability and validity statistics for the structural model

Statistic	Administrative services	Groupware	E-learning
Perceived Usefulness			
Average variance extracted	0.59	0.83	0.73
Composite reliability	0.89	0.97	0.94
Cronbach alpha	0.85	0.96	0.93
Perceived Ease of Use			
Average variance extracted	0.65	0.69	0.80
Composite reliability	0.85	0.90	0.94
Cronbach alpha	0.74	0.85	0.92

We tested the discriminant validity of each construct by comparing square root of the AVE with its correlations with other constructs. Our constructs demonstrate adequate discriminant validity.

A model was estimated for each of the three online resource types. The results are presented below. The quality of each model was evaluated based on its predictive power (Chin, 1998). The loadings on all significant structural paths were above the 0.20 threshold indicating that they were all meaningful.

5.1 Administrative services

The perceived ease of use of standard website services explained 43% of the variance in student perceptions of usefulness of these services. Perceived usefulness in turn explains intention to use and actual use. The results for our model are presented in figure 3. The significant paths are shown by the bold arrows.
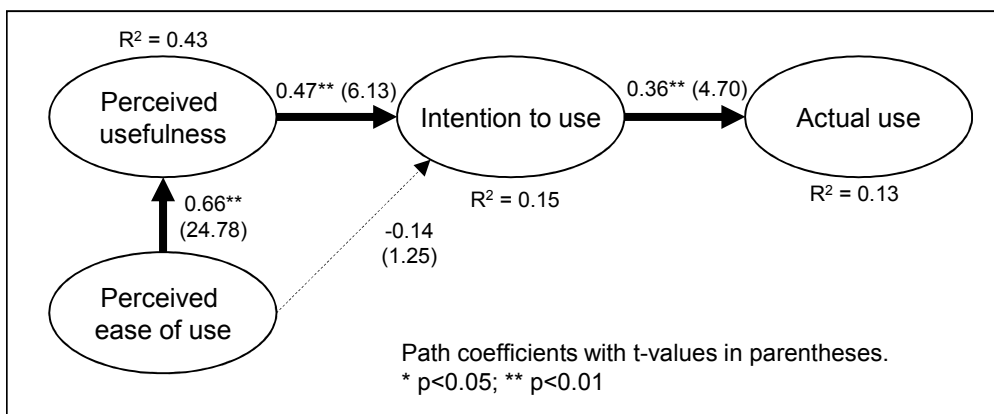

Figure 3. Administrative services

Students used these resources as they were easy to use. Perceived usefulness then determines intention to use and actual use, as predicted by the TAM. This result confirmed our theoretical expectations. The strong positive relationship between perceived ease of use and perceived usefulness and the high R^2 value supports lazy user theory.

5.2 Groupware services

Figure 4 present student acceptance of the web based project productivity service. Perceived ease of use explains 22% of student perceptions of the usefulness of this service. Together with perceived usefulness, perceived ease of use also directly explains 50% of variance in intentions to use this resource.
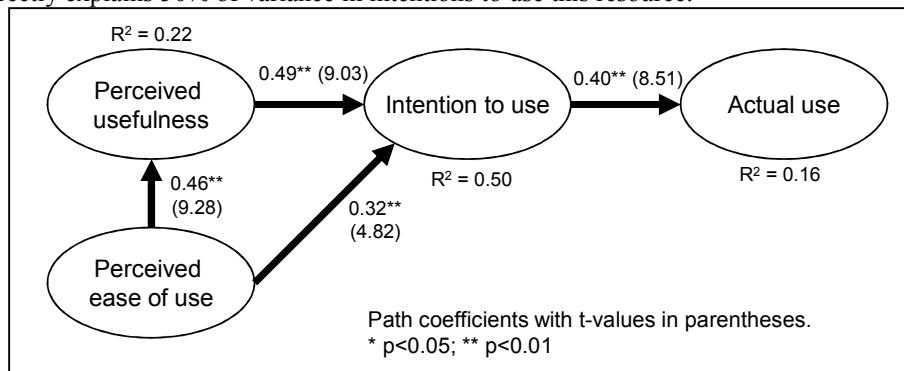

Figure 4. Groupware services

This result differs from the acceptance of web based administrative services insofar as perceived ease of use determines intention to use both indirectly (via perceived usefulness) and directly. Students are attracted to these services by both their perceived usefulness to the learning process and the amount of effort required in using them.

5.3 E-learning services

Perceived ease of use of class preparation resources explains only 11% of the variation in perceived usefulness. Effort minimization had little influence on student use of these services. Perceived usefulness was largely determined by some other factor. Perceived usefulness in turn explains intention to use. These positive perceptions translate in turn into actual use. Student use of class preparation resources is presented in figure 5.
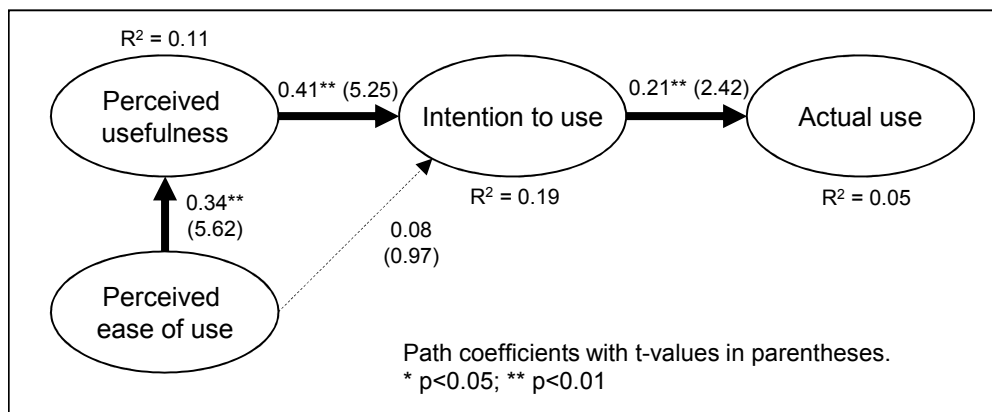

Figure 5. E-learning resources

The influence of perceived ease of use on perceived usefulness was highest for administrative services. The ease of use of these services explains 43% of the variance in perceived usefulness. Students are attracted to class preparation services in part by the low effort required to use them but, as was the case for the e-learning service, other unidentified factors largely determined student perceptions of usefulness. These results support our research proposition.

6. Discussion

Our research was motivated by a need to better understand how students perceive different online services provided via class websites. Based on Tetard & Collan's (2009) Lazy User Theory we hypothesized that student use of administrative online resources would depend on a trade-off between their perceived utility and the effort necessary to use them. Our results support this conjecture.

We first studied the use of web-based administrative services. These services included the news items, the download page, the FAQ, online instructor evaluations, the electronic library, the course programme page, the personal CV and profile pages. Our results confirmed our expectation that student perceptions of ease of use influence the perceived usefulness of these services to the learning process.

We found a similar result with the second type of web service, web-based groupware. Student intentions to use this service were influenced both directly and indirectly by perceptions of ease of use. This may be explained by the nature of this service. It was a productivity tool. If students found it difficult to use then productivity gains from using it would be low.

The third type of web site service studied was web based class preparation. This service directly concerned student learning. Perceived usefulness mainly explained student intention to use these services and perceived ease of use had only a small influence on perceived usefulness (R^2=11%). Student use of learning materials was mainly influenced by their perceived usefulness.

While the ease of using the different services influences the perceptions of usefulness for all three different types of web services, this influence is by far strongest for web-based administrative services. When faced with a collection of resources, ease of use influences student use of non-essential administrative services but is less important when resources have a higher potential learning outcome. One explanation may be that students find it easier to use offline alternatives to satisfy their administrative needs.

There are several implications for the design of learning systems. Instructors should consider the set of possible solutions available to students when they choose online resources. If other alternatives are available that require lesser effort, then students may overlook online services. When services are provided, the focus should be on reducing their perceived ease of use through clear classroom promotion and explanation. Developers should also design new services following usability guidelines. Future research could investigate the determinants of perceived ease of use and explore usage differences in the types of administrative or non-critical resources that

are provided by instructors.

7. Conclusion

Today's instructors are expected to provide a rich array of online resources: student expectations, accreditation processes and the expanding capabilities of web based learning management systems are all increasing pressure on faculty to cater to different student needs. Yet the way students choose amongst different optional learning resources is poorly understood.

Using Lazy User Theory we examined student perceptions and use of three different types of online learning resources: administrative, project productivity and e-learning. We found that effort minimization strongly influenced the use of administrative resources, partially influenced student use of online groupware and had little effect on learning resources.

By acknowledging that students have a portfolio of possible solutions for their different learning needs and by improving the ease of use of online resources, instructors can help students benefit from rich online offerings and help institutions improve the increasingly online experience they provide to students.

References

Adams, D.A., Nelson, R.R., & Todd, P.A. . (1992). "Perceived usefulness, ease of use, and usage of information technology: A replication" *MIS Quarterly, 16*(2), 227-247.

Armatas, C, Holt, D, & Rice, M. (2003). "Impacts of an Online-Supported, Resource-Based Learning Environment: Does One Size Fit All?" *Distance Education, 24*(2), 141-158.

Bagdonas, E, Ramanauskiene, J, & Skvernys, V. (2009). "Are students really overloaded?" Paper presented at the *New Approaches and Results in Time Use Research, 31st Conference of the International Association for Time Use Research*, Leuphana University Lüneburg, Germany.

Brown, J.S., & Duguid, P. (2000). *The social life of information*. Boston, MA: Harvard Business School Press.

Chin, W. W. (1998). "Issues and Opinion on Structural Equation Modeling" *MIS Quarterly, 22*(1), vii – xvi.

Chin, W. W. (1999). "Structural Equation Modeling Analysis with Small Samples Using Partial Least Squares" In E. R. Hoyle (Ed.), *Statistical Strategies for Small Sample Research* (pp. 307-341). Thousand Oaks, CA: Sage Publications.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. . (2003). "A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion/Adoption Study" *Information Systems Research, 14*(2), 189-236.

Davis, F. (1989). "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology" *MIS Quarterly, 13*(3), 318-342.

Dillard-Eggers, J, Wooten, T, Childs, B, & Coker, J. (2008). "Evidence on the effectiveness of on-line homework" *College Teaching Methods & Styles Journal, 4*(5), 9-16.

Donovan, W, & Nakhleh, M. (2007). "Student Use of Web-Based Tutorial Materials and Understanding of Chemistry Concepts" *Journal of Computers in Mathematics and Science Teaching, 26*(4), 291-327.

Fornell, C., & Larcker, D. F. (1981). "Structural Equation Models with Unobservable Variables and Measurement Errors" *Journal of Marketing Research, 18*(1), 39-50.

Grabe, M., & Christopherson, K. (2008). "Optional Student Use of Online Lecture Resources: Resource Preferences, Performance and Lecture Attendance" *Journal of Computer Assisted Learning, 24*(1), 1-10.

Guthrie, C. (2010). "Towards Greater Learner Control: Web Supported Project-Based Learning" *Journal of Information Systems Education, 21*(1), 121-130.

Inglis, M., Palipana, A., Trenholm, S., & Ward, J. (2011). "Individual differences in students' use of optional learning resources" *Journal of Computer Assisted Learning, 27*(6), 490-502.

Kazlauskas, A, & Robinson, K. (2011). "Podcasts are not for everyone" *British Journal of Educational Technology, 43*(2), 321-330.

Lammers, H. B, Kiesler, T, Curren, M. T., Cours, D, & Connett, B. (2005). « How Hard Do I Have to Work? Student and Faculty Expectations Regarding University Work" *Journal of Education for Business, 80*(4), 210-213.

Larkin, H. E. (2010). "But they won't come to lectures ... The impact of audio recorded lectures on student experience and attendance" *Australasian Journal of Educational Technology, 26*(2), 238-249.

Lilje, Osu, & Peat, Mary. (2006). "Use and perceptions of use of a blended learning resource: are students engaging with the materials?" Paper presented at the *9th Pacific Rime Conference First Year in Higher Education, Engaging Students*.

Looi, C.K. (2001). "Enhancing learning ecology on the Internet" *Journal of Computer Assisted Learning, 17*, 13-20.

Lust, G, Vandewaetere, M, Ceulemans, E, Elen, J, & Clarebout, G. (2011). "Tool-use in a blended undergraduate course: In Search of user profiles" *Computers & Education, 57*, 2135–2144.

Marchewka, J. T., Liu, C, & Kostiwa, K. (2007). "An application of the UTAUT model for understanding student perceptions using course management software" *Communications of the IIMA, 7*(2), 93-104.

Martins, L., & Kellermanns, F. (2004). "A model of business school students' acceptance of a web-based course management system" *Academy of Management Learning & Education, 3*(1), 7-27.

Masrom, Maslin. (2007). "Technology Acceptance Model and E-learning" Paper presented at the *12th International Conference on Education*, Sultan Hassanal Bolkiah Institute of Education, Universiti Brunei Darussalam.

McFadden, K, & Dart, J. (1992). "Time management skills of undergraduate business students" *Journal of Education for Business, 68*(2), 84-88.

Miller, S.M., & Miller, K.L. (1999). "Using Instructional Theory To Facilitate Communication in Web-based Courses" *Educational Technology & Society, 2*(3), 106-114.

Nunnally, J. (1978). *Psychometric Theory*. New York: McGraw-Hill.

Park, S. Y. (2009). "An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning". *Educational Technology & Society, 12*(3), 150-162.

Rander, R., & Rothchild, M. (1975). "On the allocation of effort". *Journal of Economic Theory, 10*, 358-376.

Richardson, A. (2002). "An ecology of learning and the role of elearning in the learning environment" Paper presented at the *Global Summit 2002*.

Ringle, C. M., Wende, S., & Will, A. (2005). SmartPLS (Version 2.0 (beta)). Hamburg, Germany: SmartPLS.

Selim, H. M. (2003). "An empirical investigation of student acceptance of course web sites" *Computers & Education, 40*(4), 343-360.

Stevens, Ph., & Weale, M. (2004). *Lazy Students? A study of student time use*. National Institute of Economic and Social Research (No. 233).

Tenenhaus, M, Vinzi, V. E, Chatelin, Y-M, & Lauro, C. (2005). "PLS path modeling". *Computational Statistics & Data Analysis, 48*(1), 159-205.

Tetard, F, & Collan, M. (2009). "Lazy User Theory: A Dynamic Model to Understand User Selection of Products and Services" Paper presented at the *42nd Hawaii International Conference on System Sciences*.

Trout, P. (1997). "Disengaged students and the decline of academic standards" *Academic Questions, 10*(2), 46-56.

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