An Investigation of Technology Avoidance Effect Into Higher Education Environments

Some Empirical Evidence of Marketing Students' Background and Their Use of Personal Computers Outside the Academic Culture, 12(2)

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ABSTRACT: The major objective of this study was to test a research hypothesis in order to explain the technology avoidance effect in higher educational environments. We addressed the core research themes of our study using a survey. Our intention was to test marketing students' perceptions in order to investigate the potent influence of a climate of non-innovation towards the empowerment of the technology avoidance effect in higher educational environments. We introduce the following definition for technology avoidance in this study: "A behavioral intention not to use a personal computer, where technology-based factors and personal factors are central in influencing the avoidance of technology. The behavioral intention not to use a technology derives the belief that there is no expectation that the technology will enhance job performance." From the statistical analyses it is clear that marketing students with different frequencies of Information Communication Technology (ICT) use and marketing students from different educational environments, three small business schools, present a very different set of perceptions and behavioral intentions. Based on the tests, we have accepted the research hypothesis, which means technology avoidance exists when an innovative culture does not exist. The research results showed us that technology-based factors and personal factors strength the technology avoidance effect in higher educational environments.

Key words: Technology avoidance effect, higher educational environment, innovative culture, business school, marketing students

The major objective of this study is to test a research hypothesis that will allow us to explain the technology avoidance effect within higher educational environments. We address the core research themes of our study using a survey. Our intention is to test students' perceptions in order to investigate the potent influence of a climate of non-innovation at the empowerment of the technology avoidance effect in higher educational environments.

Emerging digital technologies and increasing interest in the computerized delivery of higher education have led to e-learning through electronic mail, the Internet, the World Wide Web (WWW), and multimedia. When new technologies are introduced into the educational environment, successful implementation is often dependent on the technology being used by the right people, at the right time, with the right methods. The technology is only as effective as the faculty who use it; thus, it is necessary that they become familiar with its applications and trained in its appropriate utilization. Once technology integration has taken place, faculty and students can perform evaluations and provide insights regarding improvements or development of additional technologies (Rola, 2002; Tomek & Muldner, 1999).

Technology is a tool that can enrich curricula, enhance teaching and strengthen links between schools and society, and bridge equity gaps for disenfranchised adult learners (Dede, 2000; Imel, 1998; Trotter, 1998). Outcomes depend on many factors, including the quality of the design and delivery of the learning environment. Gardner (2000) recommends, "Before embracing any new technology, we need to declare our educational goals and demonstrate how a particular technology can help us to achieve them" (p. 34). Like other learning tools, technology is only as effective as the educational goals and practice underlying its use.

Technology is not neutral; it affects the way we learn and understand our world (Healy, 1998). New technologies in education are "changing how students acquire and use information" (Scherer, 1999, p. 16), and our understanding of this phenomenon has implications for educational philosophy, including learning theory and practice. For example, attention needs to be given to the instructional strategies used in concert with Web-based technologies, and this must be integrated into the learning environment. The new technologies, like any other educational resource, are then used in a social learning environment with dialogues between instructors (Bransford, Brown, & Cocking, 1999) and peers.

To those who routinely use technology, experience the benefits of informatics, such as improved efficiency, and work simplification, resistance to the use of technology may seem unnatural. It is not surprising; however, that some faculty believe that technology cannot improve teaching and learning (Woodell & Garofoli, 2003). Furthermore, anxiety regarding technology is increased when informatics, a discipline new to many educators, is mentioned. The principle of "diffusion of innovations" (Panth, 1997), which demonstrates the adoption of technological advancements in a population, plays a role in both faculty and students' development of, and students support for, technology.

Small business schools can benefit from analysis of technology history within higher education where, despite the information technology expenditures, instructional technologies had failed to become widely adopted (Wilson, Sherry, Dobrovolny, Batty, & Ryder, 2000; Geoghegan 1994), falling well below the expectations for that time period. One theory that may explain this failure is the technology adoption life cycle, which is based on the classic diffusion model. Several factors affect the acceptance of technology.

The Technology Acceptance Model

The theoretical basis of our study is raised from the concept of the technology acceptance model that Davis, Bagozzi, and Warshaw (1989) introduced. The theoretical basis of this concept was a useful background in order to understand factors that influenced the technology avoidance effect, focusing on the students' use of computers outside the academic culture and their background.

One of the most often used models explaining technology acceptance is the technology acceptance model (TAM) by Davis et al. (1989). It was the first model to state that psychological factors, perceived usefulness and perceived ease of use of the new technology, are central in influencing its use. Since the model allows for the addition of external variables, numerous extensions have been made. These relate to technology-based factors like perceived enjoyment and perceived attractiveness (Van der Heijden, 2003, 2004), and personal factors like personal innovativeness (Agarwal & Prasad, 1998, 1999).

According to the number of citations, the two frequently investigated models in this area are the theory of planned behavior (TPB) (Ajzen, 1991) and the technology acceptance model (TAM) (Davis, 1989; Davis et al., 1989). The theory of planned behavior posits that behavioral intention to perform an activity is determined by: attitude; perceived behavioral control, defined as the perception of how easy or difficult it is to perform a behavior; and subjective norm, defined as one's beliefs about whether significant others think that one should engage in the activity. TAM states that behavioral intention to use a technology derives from two beliefs: (1) perceived usefulness, defined as the expectation that the technology will enhance one's job performance; and (2) perceived ease of use, defined as the belief that using the technology will be free of effort. This formulation of TAM has been developed because of extensive testing and refinement (Venkatesh & Davis, 1996; Venkatesh, 1999).

In order to address the research hypothesis, there is a need to bring some indication of innovation in the business schools.

Do small business schools understand the market dynamics? The contribution of an innovative organizational culture?

Our definition of an innovative culture refers to the extent to which there exists within an organization an emphasis on innovativeness, openness to new ideas, and quick response decision-making (Menon & Varadarajan, 1992; Zaltman 1986). Kerin, Mahajan, and Varadarajan (1990) identify three core dimensions of culture: meanings, communication, and shared-ness. Meanings refer to frames of reference used by decision makers to describe corporate practices; communications refer to informal and formal codes of behavior that reinforce meanings: and shared-ness refers to practices and processes that are common to all and to a shared sense of trust among groups. A central argument is that innovative organizations are successful because they exploit and leverage their internal capabilities in unique and superior ways (Barney 1991). Consistent with this emphasis on process, Menon, Bharadwaj, Adidam, and Edison's (1999) conceptualization of innovative culture refers to a complex set of beliefs and ways of doing things that influence an organization's perspective on how innovation and change should be managed. Innovative cultures create a climate for educational organizations that encourage the search for multiple options and new solutions to educational strategies. Such a climate increases the propensity to analyze concepts such as intelligence, thinking, and knowledge which foster an in-depth examination of strategic alternatives and generates a desire to find newer and better ways of working in an innovative educational environment.

Organizations (profit and non-profit) are pressured to continuously rethink the way they do business and the way they add value to their customers, shareholders, employees, and society. World market pressures such as globalization; digitization; decentralization; and the capitalization of knowledge, information, and intelligence, are now the key drivers of economic wealth and are creating tremendous demands on organizations to rethink, adapt, and respond.

Research Hypothesis

We adopt the following definition for technology avoidance in this study: "A behavioral intention not to use a personal computer, where technology-based factors, personal factors, and interpersonal factors are central in influencing the avoidance of technology. The behavioral intention not to use a technology derives the belief that there is no expectation that the technology will enhance job performance."

On the above basis, we hypothesize the following:

H1: Technology avoidance is not empowered when an innovative organizational culture does not exist in a business school.

Constructs	Definition	References
1. Perceived enjoyment (technology-based factor)	refers to the extent to which the activity of using Information and Communication Technology is perceived to be personally enjoyable in its own right aside from the instrumental value of the technology	Van der Heijden 2003, 2004
2. Perceived attractiveness (technology-based factor)	refers to the extend to which the activity of using Information and Communication Technology is perceived personally attractive in its own right aside from the instrumental value of the technology	Van der Heijden 2003, 2004
3. Personal innovativeness (personal factor)	refers to the behavioral intention of some individuals to increase the use of any new Information and Communication Technology	(Agarwal & Prasad 1998, 1999)

Research Method

The major objective of this study is to test a research hypothesis that will allow us to explain technology avoidance into higher educational environments. We address the core research themes of our study using a survey. Our intention is to test students' perceptions in order to investigate the potent influence of a climate of non-innovation at the empowerment of technology avoidance in higher educational environments.

Participants, Procedure, & Data Collection

The response rate was 92%. The participants in the study were 1,477 undergraduate marketing students from 3 small business schools. About fifty-one percent (51.3%) were women and about forty-nine percent (48.7%) were men. About forty percent (40.1%) aged 18-20, forty-six percent (46%) aged 21-23, about eleven percent (10.9%) aged 24-

26 and three percent (3%) aged more than 26. Our intention is to reach business school students with different experiences, attitudes, and intentions to use information and communication technologies in their studies. Students collected data by means of face-to-face interviews during the 8.5-week period.

Some Details for the Three Business Schools of the Study

All three-business schools are less than ten years old. Business School 1 with the longer presence, has access to higher funding for ITC and Internet purposes, provides a more stimulating environment to its students to exploit ICT (as 1/3 of the modules are related to different applications of ICT). The other two business schools have not increased their ICT budget the last five years.

Measurement of Variables

This study (Figure 1) is measuring three constructs: perceived enjoyment, perceived attractiveness, and personal innovativeness. These relate to technology-based factors discussed by Van der Heijden (2003, 2004), and personal factors discussed by Agarwal and Prasad (1998, 1999). All constructs were measured using multiple items. Items 5-9 were measured using a seven-point Likert-type scale (ranging from 1=strongly disagree to 7=strongly agree), in order to measure students' perceptions and items 1-4 were measured using nominal scale.

With establishing content validity, the questionnaire was refined through rigorous pre-testing. The pre-testing was focused on instrument clarity, question wording, and validity. During the pre-testing, three doctoral students and three professors (from the University of Peloponnese and the University of Ioannina) were invited to comment on the questions and wording. The comments of these six individuals then provided a basis for revisions to the construct measures.

The questionnaire included the following thirteen items:

1. I have a personal computer in my home
2. I have internet access in my home
3. Hours of computer use
4. Hours of internet use
5. Computers are not useful because I can process data
6. Computers are not useful because I can process texts
7. Low use of computers may significantly improve my academic performance
8. Low use of the Internet may significantly improve my adademic performance
9. E-mail is not useful because I can communicate
10. The Internet is not useful because I can find information
11. I do not intend to increase my use of the Internet

12. I do not intend to increase the use of computer programs
13. I do not intend to increase the use of e-mail

Analyses

Mean and standard deviation: Descriptive statistics show the basic features of the data in our study. The mean or average is probably the most commonly used method of describing the central tendency. The standard deviation is a more accurate and detailed estimate of dispersion because an outlier can greatly exaggerate the range. The Standard Deviation will show the relation that a set of scores has to the mean of the sample.

Independent Kruskal-Wallis and Mann-Whitney tests: The research hypothesis is validated by independent Kruskal-Wallis and Mann-Whitney tests. These non-parametric tests are done because the measured items are not normally distributed.

Bivariate Correlations

The goal of the bivariate correlations procedure is to compute the correlation coefficients of Spearman's rho with their significance levels. These correlations will measure how variables or rank orders are related.

Research Results

Chart 1: Personal Computers Holders

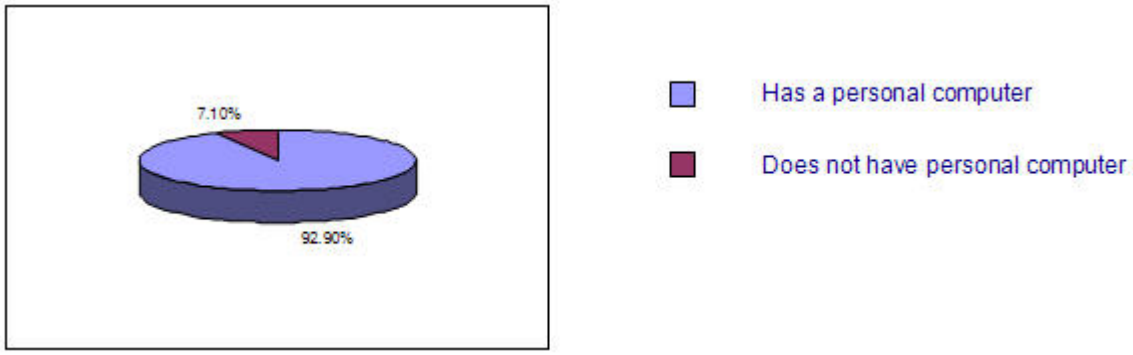


Chart 2: Personal Computers Use

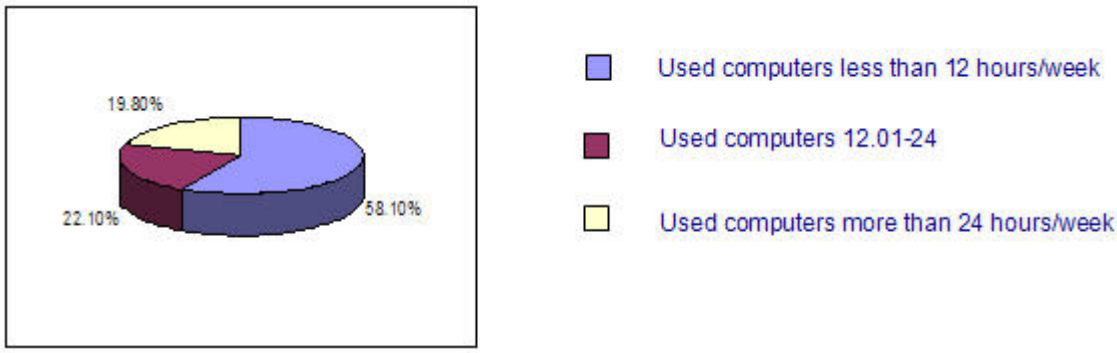


Chart 3: Internet Access in Students' Homes

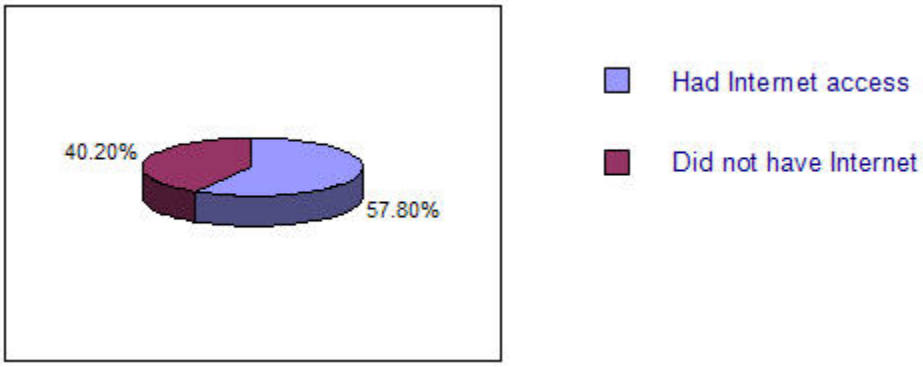
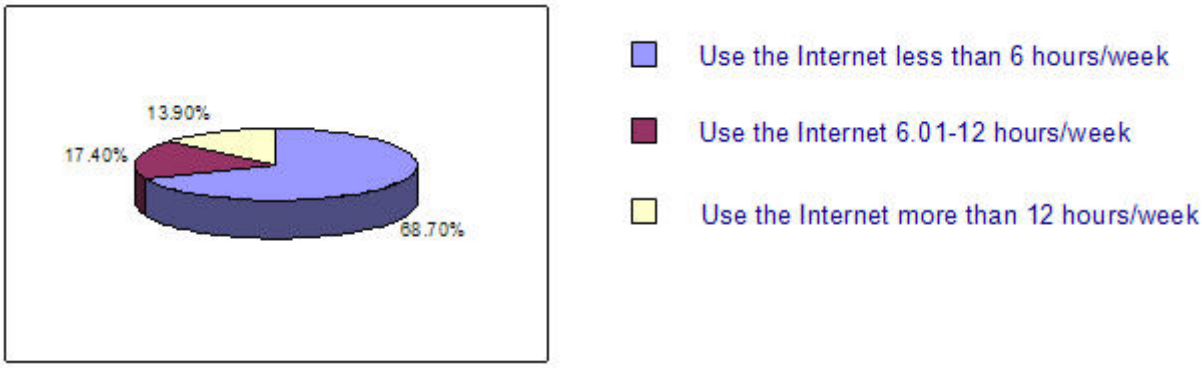


Chart 4: Internet use



Descriptive Statistics

Table 1
Descriptive Statistics

	Minimum	Maximum	Mean (sd)
1. Computers are useful because I can process data	1.00	7.00	6.0718 (1.09458)
2. Computers are useful becaue I can process texts	1.00	7.00	6.2891 (1.02461)
3. Increased use of computes may significantly improve my academic performance	1.00	7.00	5.0718 (1.56832)
4. Increased use of the Internet may significantly improve my academic performance	1.00	7.00	4.7360 (1.74394)
5. E-mail is useful because I can communicate	1.00	7.00	5.2268 (1.59118)
6. The Internet is useful because I can find information	1.00	7.00	6.1821 (1.14409)

7. I intend to increase my use of the Internet	1.00	7.00	4.9465 (1.51815)
8. I intend to increase the use of computer programs	1.00	7.00	5.137 (1.53725)
9. I intend to increase the use of e-mail	1.00	7.00	4.6005 (1.71955)
Valid N (listwise)1,477			

Comparisons among Independent Groups

Results based on Mann-Witney U test, show us that there are statistical differences between the two independent groups: home Internet users and non-home Internet users (Table 4) and between home computer owners and non-home computer owners (Table 5). In addition, there are no statistical differences between the independent groups regarding to the behavioral intentions. A very strong behavioral outcome is that the independent groups according to the criteria of computer possession and Internet access are characterized by very different perceptions regarding to the usefulness of e-mail and their intention not to increase the use of e-mail.

Results based on Kruskal-Wallis test, (Table 2 and Table 3) show us that there are statistical differences among the independent groups with different frequency of computer and Internet use. This means that students with different frequency uses have different perceptions and behavioral intentions regarding the acceptance of technology.

Results based on Kruskal-Wallis test, (Table 6) show us that there are differences among the perceptions and the behavioral intentions among the students of the three small business schools. This means that students acting in different educational environments have different perceptions and behavioral intentions regarding the acceptance of technology.

Table 2
Test 1

	Computers are not useful because I can not process data easily	Computers are not useful because I can not process texts easily	Increased use of computers may not significantly improve my academic performance	Increased use of the Internet may not significantly improve my academic performance	E-mail is not useful because I can not communicate effectively	The Internet is not useful because I can not find useful information	I do not intend to increase my use of the Internet	I do not intend to increase the use of computer programs	I do not intend to increase the use of e-mail
Chi-Square	1.237	7.369	28.536	22.720	25.591	1.926	25.159	16.704	6.582
df	2	2	2	2	2	2	2	2	
Asymp. Sig.	.539	.025	.000	.000	.000	.382	.000	.000	.037

Table 3
Test 2

	Computers are not useful because I can not process data easily	Computers are not useful because I can not process texts easily	Increased use of computers may not significantly improve my academic performance	Increased use of the Internet may not significantly improve my academic performance	E-mail is not useful because I can not communicate effectively	The Internet is not useful because I can not find useful information	I do not intend to increase my use of the Internet	I do not intend to increase the use of computer programs	I do not intend to increase the use of e-mail
Chi-Square	10.451	3.323	42.096	44.804	39.747	22.538	20.254	11.229	11.393
df	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.005	.190	.000	.000	.000	.000	.000	.004	.003

Table 4
Test 3

	Computers are not useful because I can not process data easily	Computers are not useful because I can not process texts easily	Increased use of computers may not significantly improve my academic performance	Increased use of the Internet may not significantly improve my academic performance	E-mail is not useful because I can not communicate effectively	The Internet is not useful because I can not find useful information	I do not intend to increase my use of the Internet	I do not intend to increase the use of computer programs	I do not intend to increase the use of e-mail
Mann-Whitney U	254765.000	242083.000	245993.500	239198.500	235356.000	245317.500	247982.500	262075.000	241638.000
Wilcoxon W	449765.000	437083.000	440993.500	434198.500	430356.000	440317.500	442982.500	626306.000	436638.000
Z	-1.499	-3.322	-2.540	-3.378	-3.889	-2.819	-2.283	-.512	-3.070
Asymp. Sig.	.134	.001	.011	.001	.000	.005	.022	.608	.002

Table 5
Test 4

	Computers are not useful because I can not process data easily	Computers are not useful because I can not process texts easily	Increased use of computers may not significantly improve my academic performance	Increased use of the Internet may not significantly improve my academic performance	E-mail is not useful because I can not communicate effectively	The Internet is not useful because I can not find useful information	I do not intend to increase my use of the Internet	I do not intend to increase the use of computer programs	I do not intend to increase the use of e-mail
Mann-Whitney U	59398.500	54204.000	51655.500	61279.000	46832.000	52072.000	62703.500	67656.500	57411.500
Wilcoxon W	64963.500	59769.000	57220.500	66844.000	52397.000	57637.000	68268.500	73221.500	62976.500
Z	-3.201	-4.732	-4.939	-2.592	-6.120	-5.194	-2.255	-1.061	-3.521
Asymp. Sig.	.001	.000	.000	.010	.000	.000	.024	.289	.000

Table 6
Test 5

	Computers are not useful because I can not process data easily	Computers are not useful because I can not process texts easily	Increased use of computers may not significantly improve my academic performance	Increased use of the Internet may not significantly improve my academic performance	E-mail is not useful because I can not communicate effectively	The Internet is not useful because I can not find useful information	I do not intend to increase my use of the Internet	I do not intend to increase the use of computer programs	I do not intend to increase the use of e-mail
Chi-Square	38.337	7.223	142.086	362.363	41.183	31.162	99.410	250.838	4.638
df	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.000	.027	.000	.000	.000	.000	.000	.000	.098

Based on the above tests the research hypothesis is accepted.

Interpretation of the Questionnaire Results

The intensity of personal computers and Internet use plays quite an important role in marketing students' attitudes towards personal computers' and the Internet's perceived usefulness and the intention to use both more to improve academic performance. Students using personal computers more than 24 hours/week and those surfing the Internet more than 12 hours/week perceive personal computers and Internet use more useful than the other two groups and rather interestingly they are more favorable in increasing Internet and personal computers use in the future for academic purposes.

Students with Internet access at home (58% of sample) deem more than those with no access that increased personal computers and Internet use would improve their academic performance and thus it is not surprising their higher intention to increase Internet use. Students who do not possess personal computers, although only 7 % of the sample, seem not to share the same enthusiasm with those who have a personal computer at home with regard to the usefulness of personal computers and Internet use for academic purpose and consequently they express less intention to increase Internet and personal computer use to improve their academic performance.

Based on further statistical analysis it is clear that marketing students with different frequencies of ICT use and marketing students from different educational environments present a very different set of perceptions and behavioral intentions.

Correlations

The Spearman's Rho correlation coefficients among the variables indicate that all variables are significantly correlated.

Table 7
Correlation analyses (n=1,477)

	Constructs	2.	3.	4.
1.	Actual use of computers	.693(**)	.285(**)	.201(**)
2.	Actual use of the Internet	1.000	.332(**)	.185(**)
3.	Perceived enjoyment and perceived attractiveness	.332(**)	1.000	.532(**)
4.	Intention not to increase the use of personal computers and internet	.185(**)	.532(**)	1.000

Table 8
Research Results

Hypothesis		Support
H_1	*H1= Technology avoidance is not empowered when an innovative organizational culture does not exist in a business school.*	supported

Discussion

The major objective of this study was to test a research hypothesis that would allow us to explain the technology avoidance effect within higher educational environments. We addressed the core research themes of our study using a survey. Our intention was to test marketing students' perceptions in order to investigate the potent influence of a climate of non-innovation towards the empowerment of the technology avoidance effect in higher educational environments.

The theoretical basis of our study was raised from the concept of the technology acceptance model that Davis et al. (1989) introduced. The theoretical basis of this concept was a useful background in order to understand factors that influenced the technology avoidance effect, focusing on the students' use of computers outside the academic culture and their background.

Our definition of an innovative culture in educational environments refers to the extent to which there exists within an educational organization an emphasis on innovativeness, openness to new ideas, and quick response decision-making. Our central argument is that innovative educational organizations are successful because they exploit and leverage their internal capabilities in unique and superior ways. However, what exactly are small business schools doing to optimize their thinking and intelligence assets? If we are in fact in the age of the brain, not brawn, the challenge is to create smarter, more intelligent organizations that are designed to optimize their intellectual capital. As the shelf life of existing knowledge and information continues to decrease, it becomes critical to invest in systems and tools that will increase the organization's intelligence or capacity to learn and cope with cognitive complexity. Business schools will increase their capacity to successfully adapt to the future if they work to increase the effectiveness of the multiple thought progressions, the thinking that occurs everyday, and if they actively seek to expand their organizational intelligence. Intelligence, it has been shown, represents a capacity to learn; intelligent organizations develop systems and processes and actively seek to create environments that enlarge their capacity to learn and respond to complexity.

The research needs of this study demanded we introduce a new definition to the TAM literature. Therefore *technology avoidance* was defined as: "A behavioral intention not to use personal computers, where technology-based factors and personal factors are central in influencing the avoidance of technology. The behavioral intention not to use a technology derives the belief that there is no expectation that the technology will enhance job performance." Based on the five tests, technology avoidance is empowered when an innovative culture does not exist. The research results showed us that technology-based factors, personal factors, and interpersonal factors strengthen the technology avoidance effect in higher educational environments.

One of the most interesting findings of this study is that students with high frequency of personal computers and Internet use need to communicate more in comparison to those students that do not use either. This finding indicates an interesting sociological parameter of modern societies, where the technological determinism effect becomes much stronger.

In addition, it is clear, that marketing students from different educational environments present a very different set of perceptions and behavioral intentions, which show that, the organizational parameter: "organizational culture" is of high importance in the examination of the technology avoidance effect.

Practical Implications

One of the least recognized aspects of the revolution in technology, which we are now experiencing, has been the impact of technological advances upon the classroom setting. In the traditional classroom, marketing students have been passive learners whose role was to absorb knowledge as it was presented to them. However, the recent

technology infusion has caused participation and communication methods in traditional university classrooms to change.

We hope that this research will shift business schools' administrators and academic staff to rethink organizational parameters such as the organizational culture that enhances the learning experience. Analytically, our definition of an innovative culture in educational environments refers to the extent to which there exists within an organization an emphasis on innovativeness, openness to new ideas, and quick response decision-making. Our central argument is that innovative educational organizations are successful because they exploit and leverage their internal capabilities in unique and superior ways.

We believe that the findings of this study are promising because, especially in small business school environments, a careful analysis of the behavioral intention not to use a technology and the in-depth examination of the set of beliefs regarding the lack of expectation that the technology will enhance job performance could be more helpful in implementing strategies to empower the acceptance of technology. Data from individuals who do not intend to use ICT could provide insight concerning the factors involved with trying all the information technologies applications for the first time. Learning the reasons for students' non-usage may help educators break down barriers to students' participation in the technological aspects of learning.

Study's Limitations

As with all empirical research, this study has a few limitations. First, this study refers to university students in Greece who may have different perceptions of technology from students in other parts of the world. Second, the respondents in this study were full-time undergraduate students. The generalization of the study's findings should be done with care. The lifestyles, educational backgrounds, and experiences of these students may differ from those of part-time students or postgraduate students.

Research Directions

Further research might focus on the connection between academic ICT use and effective student performance pertaining to the Internet and other information technologies-related activities. It has been assumed that ICT use in universities prepares individuals to work in a wired world. Further analysis of more non-user perceptions and attitudes regarding a set of sociological variables should be explored.

Conclusion

The major objective of this study was to test a research hypothesis that would allow us to explain the technology avoidance effect within higher educational environments. We addressed the core research themes of our study using a survey. Our intention was to test students' perceptions in order to investigate the potent influence of a climate of non-innovation towards the empowerment of the technology avoidance effect in higher educational environments. Based on the tests, technology avoidance is empowered when an innovative culture does not exist. The research results showed us that technology-based factors, personal factors, and interpersonal factors strength the technology avoidance effect in higher educational environments.

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References

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Agarwal, R., & Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information Systems Research*, 9(2), 204-215.

Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30(2), 361-391.

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management,* 17, 99-120.

Bransford, J.D., Brown, A.L., & Cocking, R.R. (1999). *How people learn: Brain, mind, experience and school*. Washington, DC: National Research Council. Retrieved May 1, 2007, from

http://stills.nap.edu/html/howpeople1/notice.html

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13(3), 319-339.

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Dede, C. (2000). Emerging influences of information technology on school curriculum. *Journal of Curriculum Studies*, 32(2), 281-303.

Gardner, H. (2000). Can technology exploit our many ways of knowing? In D.T. Gordon, (Ed.). *The digital classroom: How technology is changing the way we teach and learn*, (pp. 32-35). Harvard Education Letter, Cambridge, MA.

Geoghegan, W. H. (1994). "What ever happened to instructional technology?" Paper presented at the 22nd Annual Conference of the International Business Schools Computing Association, July 17-20, 1994, Baltimore. Baltimore, MD: International Business Schools Computing Association.

Healy, J.M. (1998). *Failure to connect: How computers affect our children's minds-for better and worse*. New York: Simon & Schuster.

Imel, S. (1998). Technology and adult learning: Current perspectives, Columbus, OH: ERIC Digest No. 197. ERIC Clearinghouse on Adult, Career, and Vocational Education (ED421639).

Kerin, R.A., Mahajan, V., & Varadarajan, P.R. (1990). *Contemporary Perspectives on Strategic Market Planning.* Needham Heights, MA: Allyn and Bacon.

Menon, A., & Varadarajan, P.R. (1992). A Model of Marketing Knowledge Use Within Firms. *Journal of Marketing*, 56, 53-71.

Menon, A., Bharadwaj, S.G., Adidam, P.T., 7 Edison, S. W. (1999). Antecedents and Consequences of Marketing Strategy Making: A Model and a Test. *Journal of Marketing*, 63, 18-40.

Panth, S. (1997). *Technological Innovation, Industrial Evolution, and Economic Growth*. New York: Garland Publishing Inc.

Rola, M. (2002). Building IT into lesson plans. *Computing Canada*, 28(22), 28.

Scherer, M. (1999). The understanding pathway: A conversation with Howard Gardner. *Educational Leadership*, 57(3), 12-16.

Tomek, I., & Muldner, T. (1999). Acadia advantage - Evolution and experiences. *Interactive Learning Environments*, 7(2-3), 175-94.

Trotter, A. (1998). A question of effectiveness. *Education Week*, 18, 5. Retrieved May 1, 2007, from http://www.edweek.org/sreports/tc98/intro/in-n.htm

Van der Heijden, H. (2003). Factors influencing the usage of websites: the case of a generic portal in The Netherlands. *Information & Management*, 40(6), 541-549.

Van der Heijden, H. (2004). User acceptance of hedonistic information systems. *MIS Quarterly*, 28(4), 695-704.

Venkatesh, V. (1999). Creation of favorable user perceptions: exploring the role of intrinsic motivation. *MIS Quarterly*, 23(2), 239-260.

Venkatesh, V., & Davis, F.D. (1996). A model of the antecedents of perceived ease of use: development and test. *Decision Sciences*, 27(3), 451-481.

Wilson, B., Sherry, L., Dobrovolny, J., Batty, M., & Ryder, M. (2000). Adoption of learning technologies in schools and universities. In H. H. Adelsberger, B. Collis, & J. M. Pawlowski (Eds.). *Handbook on information technologies for education & training*. New York: Springer-Verlag.

Woodell, J., & Garofoli, E. (2003). Faculty development and the diffusion of innovations. *Syllabus*, 16(6), 15-17.

Zaltman, G. (1986). Knowledge Utilisation as Planned Social Change. In G. Beal, W. Dissanayake, & S. Konoshima (Eds.), *Knowledge Generation, Exchange and Utilisation*, (pp. 433-462). Boulder, CO: The Westview Press.

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