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INFORMATION TECHNOLOGY DIFFUSION OF FACULTY IN CEBU TECHNOLOGICAL UNIVERSITY NORTH DOMAIN

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ABSTRACT

The objective of this study was to determine status of the information technology diffusion in the CTU North Domain, that is, the characteristics of IT Early Adopters (EAs) and Mainstream Faculty (MF) in terms of level of computer experience, perceptions on the motivations and incentives of IT, the barriers of IT adoption and the preferred learning IT in terms of method, support and accessing information.

There were evidences to support that early adopters were different from the mainstream faculty members of the CTU North Domain in the level of computer experience, personal and information technology adoption profiles. Early adopters and mainstream faculty members did not differ in their perception on the effect of information technology to teaching and learning and they do not vary considerably in their perception on what factors that motivate or prevent information technology adoption in teaching and learning. Moreover, the two groups do not differ significantly in their preferences on the methods of learning, getting support and accessing information technology innovation. Findings of this study support with Rogers' theory of diffusion of innovation as applied in information technology adoption.

INTRODUCTION

One of the innovations that have grown exponentially creating an enormous dependency on computer among human beings is information technology. Research literatures (Bull et al.; 1994; Weil and Rosen, 1997; Brown, Burg and Dominick (1998), Jacobsen (1998)) stressed this growth as explosion of internet and connectivity, computers as standard equipment in education; information adoption has been indispensable in the academe.

Green (1996) and Geoghegan (1994) as cited by Jacobsen (1998) state that the incorporation of IT in teaching and learning in the curriculum has not been deeply inculcated. Studies of Jacobsen (1998) ; Anderson et al (1998); and Groves and Zemel (2000). The impact of age, field of focus, number of hours using computer, availability of equipment, and the ease of use and support for IT adoption vary significantly in the adoption of technology while Robrigo (2004) conducted in Ateneo de Manila University exposed that early adopters and mainstream faculty members acknowledge that IT is a valuable part of education and are motivated to learn about it and to use it as long as the support and training that the school provide warrants. Generally, though there are faculty members of the institution who are very willing to adopt and use the technology in the integration in teaching and learning yet there are still huge numbers of faculty members who are very hesitant in the adoption of the technology for their teaching task. Thus, we need to better understand the importance of IT in higher education especially in CTU North Domain to further investigate what differentiates early adopters from mainstream faculty in the adoption of the technology and to encourage further adoption of IT on campus.

This study anchored on Rogers' (1995) **theory of the diffusion of innovations** and adopter categories in order to describe current faculty innovativeness, as well as to explore the differences between early adopting faculty and mainstream faculty. He added that innovation is as an idea, practice or object that is seen as new by the individual, and diffusion as the process by which an innovation makes its way through a social system. The rate of the adoption of an innovation is the relative speed with which an innovation is adopted by members of a social system. At first, very few adopt the innovation and later on the diffusion of the curve start to climb and generally follow an S-shaped. This normally occurs when about 10%to20% of the population has adopted the innovation and these individuals are the "critical mass" or the heart of the diffusion process". Roger (1995) classifies technology adopters into five (5) categories, each with a unique and important role in diffusion process. Innovators represent that first 2.5% of the population (x-2sd), and regarded as the adventurous and willing to accept some degree of risk.

Mahajan, Muller, & Srivastava (1990) as cited by Jacobsen (1998) suggest that Rogers' classification model based on innovativeness offers several advantages for describing the adoption patterns of individuals in a group: (1) it is easy to use, (2) it offers mutually exclusive and exhaustive standardized categories, by which results can be compared, replicated, and generalized across studies, and (3) because the underlying distribution is assumed to be normal, continued acceptance of an innovation can be predicted and linked to the adopter categories.

This present study is related to the aforementioned theories and investigations in the sense that it seeks to assess the information technology adoption patterns of the Faculty of CTU North Domain. Nonetheless, the environment which this study deals is not the same institution as studied. Thus, this study is not in any way a neither duplication nor part of the generalization derived from the previous studies or investigations which warrant scientific inquiry.

Null Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

H_{O1}: There is no significant difference of perception on the effect of using IT in the teaching-learning process between the early adopters and the mainstream faculty.
H_{O2}: There is no significant difference between the perception of early adopters and mainstream faculty on the following:

a. actors that motivate faculty to integrate IT in the teaching-learning process; and
factors that prevent the respondents from integrating IT in teaching-learning process?
H_{O3}: There is no significant difference between early adopters and mainstream faculty regarding the level of importance given to different methods of enhancing Information Technology competence as to:

a. learning strategies;
b. getting support; and
c. accessing information about innovation.

Instrument

The research instrument used in this study was the questionnaire designed by the researchers to gather data regarding the CTU North Domain IT pattern. The questionnaire was adapted from the three researches, the study of Jacobsen (1998) done in the University of Calgary, Canada, the study of Rodrigo et al (2004) conducted in the Ateneo Manila University, Manila and the study of Himang (2007) conducted at CTU main. It had 6 sections, covering the following variables: Respondent's Personal and Pattern of IT use Profile, Level of Computer Experience, Effect of IT on Teaching and Learning, Motivational Factors of Integrating Technology for Teaching and Learning, Factors that Prevent IT Adoption, and Learning About IT.

The researchers asked seven (7) of his peers representing various disciplines, to review the questionnaire's face validity. The questionnaire was modified based on the suggestions of the reviewers. The survey questionnaire was then fielded out to seven (7) faculty members each from CAdS, CoEd, CoT, CoE and CAS. Their comments were used to modify the questionnaire whenever possible. These faculty members were not included in the final survey sample and their responses were not included in the tabulation of the final survey results.

The final questionnaire consisted of questions for personal information and items that gather nominal and ordinal data about individual IT adoption profile particularly on computer use and purchase patterns, access to technology, and campus acquisition plan, prior learning, and hours of use. There were 44 items for level of computer experience for the faculty, 10 items for effect of IT for teaching and learning, 12 items for motivational factors in using IT, 20 items for barriers of integrating IT and 15 items regarding preferred learning methods in IT.

Procedure for Data Gathering

The researcher secured approval from the President to conduct the study then the questionnaires were fielded to the respondents of CTU North Domain.

The researcher briefly explained the purpose of the survey and encouraged each respondent to answer each item sincerely and thoroughly. The questionnaires were retrieved three days after. Only very few were then retrieved then follow-ups were made that lasted for two (6) months to respondents who had not returned a completed instrument. In spite of the effort to retrieve all the questionnaires only 82 questionnaires were gathered.

Treatment of Data

Data were coded and encoded in the MS Excel for statistical analysis using both SPSS and MS Excel. Statistical treatment of data in this study included means, percentages, and T-test. Arithmetic mean was used to determine the mean rating of each computing competency in terms of level of computer experiences, information adoption profile as to variety of task use, adoption profile as to purchase pattern, test of significant differences. T-test was used to test the significant difference between the view of Early Adopters and the Mainstream Faculty on the variables in the study.

RESULTS AND DISCUSSION

Level of Computer Experience of the CTU North Domain

The level of computer experience of the CTU north domain faculty was indicated by experience in language programming software, operating systems, tool applications, graphics software, communication software, authoring, instructional courseware, and variety.

Applying Roger's diffusion theory, the score on the level of computer experience was used to determine the early adopters and the mainstream faculty members. Those faculty members above 84 percentile where categorized as early adopters and at most 84 percentile where categorized as mainstream faculty.

Table 1 presents the level of computer experience in all the eight (8) categories and significance of the numerical difference is also indicated in each category.

The results indicate that Early Adopters' (EAs) have higher level of computer experience as indicated by its overall mean of 2.04 with a corresponding verbal description of **Fair** while that of the Mainstream Faculty (MFs) got only 0.27 which descriptively means **None.** This general finding is derived from the fact that EAs have higher means for all eight (8) categories of tools ranging descriptively from a little to substantial while the MFs level of computer experience is none. These differences in level of computer experience were also found out to be very highly significant.

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Table 1
Level of Computer Experience in all Major Categories of Tools/Applications
(n = 82)

Categories of Tools/Applications	Early Adopters (n= 13)		Mainstream Faculty (n = 69)	
	Mean	Level of Experience	Mean	Level of Experience
Language Programming Software	1.09	A little	0.16	None
Operating System	1.75	Fair	0.25	None
Tool Applications	2.50	Substantial	0.41	None
Graphic Software	2.26	Fair	0.35	None
Communication Software	2.83	Substantial	0.41	None
Authoring*	.86	A little	0.00	None
Instructional Courseware	2.31	Fair	0.30	None
Varieties	2.01	Fair	0.17	None
Overall Mean	2.04	Fair	0.27	None

Note: * $p<0.05$
Legend:

Range	Level of Experience
3.20 – 4.00	Extensive
2.40 – 3.19	Substantial
1.60 – 2.39	Fair
0.80 – 1.59	A little
0.00 – 0.79	None

The findings of the study corroborate that of the Rogers (1995) theory that early adopters are more innovative by having higher level of experience to the different IT tools. Moreover, the findings support that of the findings of Jacobsen (1998) that EAs have been reported to have higher levels of experience of expertise than MF for more than 75% of all the IT tools. These findings on the other hand contradict that of the study of Rodrigo (2004) of which he concluded that EAs in Loyola Schools had the greater tendency to use computers in classroom and other tasks.

Top Ten Specific Tools/Applications for Early Adopters and Mainstream Faculty

Table 2 reveals the top ten (10) from among the 44 tools/applications for early adopters and mainstream faculty. The groups of respondents evidently differ in the set of specific tools and the corresponding level of experience. Early adopters have extensive experience in the following tools: word processing, drafting CAD, presentation package, text editing, and World Wide Web browsing. However, EAs have substantial experience on windows XP, online chatting, FTP, spreadsheets and CD writing and copying.

On the other hand, MFs have fair experience only in word processing while None to the following tools: Drafting CAD, presentation package, games, text editing, spreadsheets, Windows XP, world wide web, online chatting and clip art.

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Table 2
Top Ten Specific Tools/Applications Used by Early Adopters and Mainstream Faculty
(n = 82)

Applications	Early Adopters Mean	Early Adopters Level of Experience	Applications	Mainstream (n = 69) Mean	Mainstream (n = 69) Level of Experience
1. Word Processing	3.62	Extensive	1. Word Processing	1.19	Fair
2. Drafting, CAD	3.38	Extensive	2. Drafting, CAD	.75	None
3. Presentation package	3.31	Extensive	3. Presentation package	.74	None
4. Text editing	3.23	Extensive	4. Games	.67	None
5. World Wide Web Browsing	3.23	Extensive	5. Text editing	.62	None
6. Windows XP	3.15	Substantial	6. Spreadsheets	.62	None
7. Online chatting	3.08	Substantial	7. Windows XP	.59	None
8. FTP	2.92	Substantial	8. World Wide Web Browsing	.58	None
9. Spreadsheets	2.85	Substantial	9. Online chatting	.52	None
10. CD Writing/Copying	2.83	Substantial	10. Clip Art	.49	None

Note: * p<0.05

The table reveals that both the early adopters and mainstream faculty rated Word Processing or the MS Word to be the most used IT tools. However, their levels of experiences were different indicating that early adopters tend to use more this computer tool than the mainstream faculty. The results substantiate the findings of Rodrigo's (2004) study where he found out that word processor was ranked first among Loyola Faculty as to the extent of IT tool used in teaching. Evidence was found in this investigation that suggests that the later developed IT tools, such as MS Word, Windows, E-mail, PowerPoint, MS Excel and World Wide Web are adopted faster by more members of the faculty social system. Rogers' (1995) concept of interrelatedness provides an explanation for these shorter innovation-decision periods. Interrelatedness suggests that an adopter's experience with one innovation usually influences their perception of the next innovation in a technology cluster to diffuse through their social system. Thus, early computer technology was harder to use, harder to learn, more expensive, unreliable, and in the case of the mainframe software, showed limited gains for production time; in short, earlier technology was complex with little relative advantage. In contrast, current technology is somewhat easier to use with graphical interfaces and point-and-click interaction, easier to learn, less expensive, more reliable, and there are better applications designed specifically for educational application and delivery.

Profile of the IT Adopters

Table 3 shows the profile of the groups of respondents which is categorized into personal characteristics and pattern of IT use for the early adopters and mainstream faculty. Early adopters are younger but were the first to buy and use computer than the mainstream faculty. Moreover, the former have exclusive access to computer both for professional and teaching task and have used longer than the latter.

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Table 3
Profile of the Respondents
(n = 82)

Personal Characteristics	**Average**	
	Early Adopters	**Mainstream Faculty**
Age	35.08 years	50.29 years
Gender	Male	Female
Academic Rank	Instructor 1	Instructor 3
Status of Appointment	Permanent	Permanent
No. of years as faculty member	8.23	22.73
Pattern of IT Use	**Average**	
	Early Adopters	**Mainstream Faculty**
Role in campus when first use computer	As Undergraduate Student	As an experienced faculty member
First Use Computer for Personal/Professional Use	2000	1999
First Use Computer for Research Task	2002	0
First Use Computer for Teaching Task	2000	0
First Buy Computer for Personal/Professional Use	2001	0
No. of computers Owned	0	0
Exclusive access to computer for Professional Task	Yes	No
Exclusive Access to computer for Teaching Task	Yes	Yes
Source of Initial Computer Skill	Self taught	Self-taught
Overall source of current computer skill	Self-teaching and Formal Courses	Self-taught
Teaching Computer	Yes	No
Number of hours spent using computer per day	1 - 3 Hours	1 – 3 Hours

Perception on the Effect of Information and Technology Teaching-Learning Process

Effect of information and technology on teaching and learning is presented in Table 4.

Table 4
Perception on the Effect of IT on Teaching and Learning

With the integration and use of technology for teaching and learning …	Early Adopters		Mainstream Faculty	
	Mean	Verbal Description	Mean	Verbal Description
1. Faculty can expect more from students in terms of their pursuing and editing their work.	4	Agree	3.77	Agree
2. Faculty can spend more time with individual students.	3.77	Agree	3.64	Agree
3. Faculty can be more comfortable with students working independently.	3.92	Agree	3.79	Agree
4. Faculty members are better able to present more complex material to students.	4.23	Strongly Agree	3.89	Agree

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5. Faculty is better able to tailor students' work to their individual needs.	4	Agree	3.64	Agree
6. Faculty spends less time lecturing to the entire class.	4	Agree	3.69	Agree
7. Faculty spends more time working with smaller groups who are pursuing project-based work.	3.77	Agree	3.79	Agree
8. Faculty will spend more time acting as a guide and facilitator with individual students.	4.15	Agree	3.84	Agree
9. Faculty spends less time with the whole class practicing or reviewing material.	3.92	Agree	3.52	Agree
10. Faculty will spend more time preparing materials and resources for instruction.	3.69	Agree	3.60	Agree
Overall	3.95	Agree	3.72	Agree

Note: * $p<0.05$

Legend:

Range	Level of Agreement
4.20 – 5.00	Strongly Agree
3.40 – 4.19	Agree
2.60 – 3.39	Undecided
1.80 – 2.59	Disagree
1.00 – 1.79	Strongly Disagree

Generally, both EAs than MFs at least agreed with most of the statements about positive effect of Information Technology to teaching and learning, which suggests that faculty hold similar positive beliefs about the results of integrating technology, an assertion earlier found out by Hadley & Sheingold (1993) among K-12 teachers. While most of these statements describe direct benefits to student learning, it is clear that respondents are aware that it takes more time to prepare materials and resources when they integrate technology. The results corroborate with Jacobsen’s (1998) study that most of the faculty responses mentioned the increased time spent developing and preparing for instruction, learning to use technology, deal with technical problems, and many discussed how provisions must be made for student access and training with the technology. Jacobsen (1998) added that earlier adopting faculty may have more effective strategies for applying previously learned technology skills than do mainstream faculty, and as a result enjoy some return on their investment of time.

On The Factors That Motivate Faculty To Integrate Information Technology in the Teaching and Learning Process

Table 5 presents the mean level of agreement of EAs and MF regarding factors that motivate the faculty to integrate information technology in the teaching and learning process.

It is evident that EAs have higher agreement on the factors that motivate IT integration than the MFs.

The highest rated incentives for integrating technology into teaching and learning are that computers provide a means of expanding and applying what has been taught and that technology tools enable students to help each other and cooperate on projects. Both of these high rated incentives provide evidence that faculty members believe computers will significantly help students and thereby would promote IT integration to teaching and learning activities.

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Table 5
Factors That Motivate Faculty to Integrate Information Technology in the Teaching and Learning Process

Motivators	Early Adopters		Mainstream Faculty	
	Mean	Verbal Description	Mean	Verbal Description
1. Computers are tools that help students with learning tasks, such as writing, analyzing data, or solving problems.	4.31	Strongly Agree	4.19	Agree
2. Students are enthusiastic about the subjects for which they use computers.	4.15	Agree	4.16	Agree
3. Computers enable me to make a subject more interesting.	4.31	Strongly Agree	4.03	Agree
4. Technology tools enable me to better diagnose learning problems.	4.23	Strongly Agree	3.84	Agree
5. I get personal gratification from learning new computer knowledge and skills.	4.38	Strongly Agree	3.82	Agree
6. Computers provide a means of expanding and applying what has been taught.	4.34	Strongly Agree	4.11	Agree
7. Computer tools enable me to communicate and interact more with students.	4.31	Strongly Agree	3.92	Agree
8. By integrating technology, I am helping students to acquire the basic computer education they will need for future careers.	4.46	Strongly Agree	4.18	Agree
9. I enjoy figuring out how to use computers effectively for a variety of teaching situations.	4.31	Strongly Agree	3.82	Agree
10. Computers provide more opportunities for gifted students.	4.23	Strongly Agree	4.22	Strongly Agree
11. Technology tools enable students to help each other and cooperate on projects.	4.23	Strongly Agree	4.11	Agree
12. Computers provide an environment that appeal to a variety of learning styles.	4.23	Strongly Agree	4.11	Agree
Overall	4.29	Strongly Agree	4.04	Agree

The most common incentives to integrate technology include providing enriched learning opportunities for students, increasing student satisfaction, the change from being a lecturer to a facilitator, the informal recognition and support from colleagues, and the time saving and efficiency benefits of using technological tools for creating presentations, calculating grades, demonstrating complex content, and communicating with others. Some faculties have realized personal benefits of using computers and want to extend these to their students. The incentives of "becoming a better teacher" and the shift towards more "student-centered instruction" with technology are very important to some faculty, but less important to others. Many respondents believe, and rightly so, that they can become excellent teachers and design student-centered instruction without technology. Some faculties are motivated to integrate technology in effective ways to provide models for others who they believe are using technology ineffectively.

Respondents described conditions that would provide a more motivating environment for integrating technology in their teaching, such as release time for training and course development, better student access to technology, grants and financial support, technical support, inexpensive and convenient training, and evidence that technology adds value to student learning over conventional methods. Similar result was found out in the study of Rodrigo (2004).

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On The Factors That Prevent the Respondents from Integrating Information Technology in Teaching-Learning Process

Table 6 shows the factors that prevent the respondents from integrating information technology in teaching-learning process.

Table 6
Factors That Prevent the Faculty from Integrating Information Technology in Teaching-Learning Process

Barriers	Early Adopters		Mainstream Faculty	
	Mean	Verbal Description	Mean	Verbal Description
There are too few computers for individual faculty.	4.23	Strongly Agree	4.26	Strongly Agree
There are too few computers for the number of students.	4.08	Agree	4.14	Agree
There is a scarcity of printers and/or other peripherals in order to effectively use computers for teaching and learning.	3.92	Agree	4.22	Strongly Agree
There are problems scheduling enough computer time and/or resources for different faculty members' classes.	3.69	Agree	3.93	Agree
There is inadequate financial support for the development of instructional uses of computers.	3.46	Agree	3.81	Agree
Faculty members lack enough time to develop instruction that uses computers.	3.23	Undecided	3.78	Agree
Financial support for computer integration from administration is inadequate.	3.54	Agree	3.89	Agree
There is not enough time in the course schedule for computer related instruction.	3.77	Agree	3.92	Agree
There is not enough support for supervising student computer use.	3.61	Agree	3.51	Agree
There are too few training opportunities for faculty members to acquire new computer knowledge and skills.	3.23	Undecided	3.81	Agree
There is limited research literature that shows significant improvements in learning as a result of computer integration.	3.38	Undecided	3.90	Agree
The reward structure does not recognize faculty members for integrating computers for teaching and learning.	3.54	Agree	3.27	Undecided
There is less control over classroom instruction when using computers.	2.77	Undecided	3.06	Undecided
There is no recognition for using computers for teaching and learning.	2.92	Undecided	3.14	Undecided
Available software is not adaptable to my instructional needs.	2.77	Undecided	2.95	Undecided
I am unsure how to effectively integrate computers into instruction.	2.23	Disagree	3.34	Undecided

Computer manuals and materials are inadequate and unhelpful.	2.85	Undecided	2.84	Undecided
Computers do not fit the course or curriculum that I teach.	2.38	Disagree	2.62	Undecided
Faculty members are not interested in using computers for instruction.	2.69	Undecided	2.70	Undecided
Overall	3.27	Undecided	3.52	Agree

Note: * $p<0.05$

Both EAs and MF believed that what prevent integration is generally related to provision of IT resources as reflected in their responses on items regarding few computers and scarcity of IT resources.

These findings are similar with that of Jacobsen (1998) that the five barriers that respondents agreed with most strongly are a “lack of time”, “problems scheduling computer time and resources”, “too few computers for students”, “inadequate financial support from administration”, and the “lack of a reward structure that recognizes faculty for integrating computers for teaching and learning”.

The results imply that faculty found difficulty of integrating technology to teaching and learning due to insufficient computers and its peripherals as well as lack of trainings opportunities and financial support. Moreover, faculty members are seen interested in using computers for instruction even if they are not recognized, although even with level of uncertainty on how.

Test of Significant Difference Between the Perceptions of Early Adopters and the Mainstream Faculty on the Effect of IT, Factors that Prevent and Motivate Faculty to Integrate IT in Teaching and Learning Process

Table 7 exhibits the result of the t-test for significant difference between the perception of early adopters and mainstream faculty on the factors that prevent faculty from integrating IT in teaching and learning process.

Results imply that the results of the study provide sufficient evidence to say that early adopters and mainstream faculty members that there is no effect or change to occur in the process of integrating technology to teaching and learning.

Table 7
Result of the T-test for Significant Difference

	Early Adopters (n=13)		Mainstream Faculty (n = 69)		tcomp	P-Value (one-tailed)	Decision
	Mean	SD	Mean	SD			
Effect of IT in the Teaching and Learning Process	3.94	0.61	3.72	.83	.92	.181	Don’t Reject Ho
Factors that Motivate Faculty to Integrate IT	4.29	0.60	4.04	0.82	1.04	0.151	Don’t Reject Ho
Factors that Prevent Faculty to Integrate IT	3.27	0.53	3.54	0.79	-1.20	0.116	Don’t Reject Ho

It can be established that both early adopters and mainstream faculty members do not significantly differ in their perception as to the factors that motivate IT integration to teaching and learning. Thus, what early adopters considered as motivators will also be the motivators for the MFs. In similar manner, both early adopters and mainstream faculty members do not significantly differ in their perception as to the factors that prevent IT integration to teaching and learning.

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The results signify great importance to the part of the administrators in any attempt to bridge the gap between the early adopters and mainstream faculty members because what will be done is to enhance the same motivators and limit or avoid the same barriers since these factors are generally perceived common to both groups of faculty.

Level of Importance Given by Respondents on Enhancing IT Competence

The view of the faculty on the level of importance on the methods of learning about information technology is described based on learning strategies, getting support, and accessing information about innovation.

Learning Strategies and Getting Support

Table 8 presents the level of importance on the different learning strategies and on getting support for IT learning.

Table reveals that all learning strategies are rated Very important by Mainstream Faculty and Early Adopters.

This finding indicates that there is consistent demand of faculty for more training support in order to augment their IT competence. In addition, findings on the mainstream faculty also corroborate to the findings of Himang (2004) that the colleges of CTU Main have significantly agreed that hands-on workshop was the most preferred training format or mode. Furthermore, the findings are supportive with the findings of Yi and David (2001) that training with hands-on practices is most effective in enhancing computer skills.

The support that rated lowest by early adopters are from experienced students while the rest of the supports are rated Very Important like colleagues on campus, media center support staff, outside professionals trained in technology use, one-on-one assistance, hot-line or telephone assistance and colleague(s) at another institution while mainstream faculty is on colleague (s) at another institution. This finding indicates that early adopters who are also the computer teachers or among faculty in the campus with extensive computer experience they prefer a pool of experts for further advancement through a support staff experts on IT. Alternatively, as mainstream faculty members are among those with low level of computer experience, they tend to be satisfied with the support that they can get from colleague (s) at another institution.

Table 8
Level of Importance on the Learning Strategies and Getting Support

Learning Strategies	Early Adopters		Mainstream Faculty	
	Mean	Verbal Description	Mean	Verbal Description
mixture of manuals and hands-on	2.69	Very Important	2.47	Very Important
workshops and presentations	2.85	Very Important	2.50	Very Important
hands-on experimenting & trouble shooting	2.85	Very Important	2.37	Very Important
hardcopy materials (books, etc.)	2.54	Very Important	2.48	Very Important
structured courses and guidance	2.85	Very Important	2.35	Very Important
on-line manuals	2.61	Very Important	2.42	Very Important
Getting Support	Early Adopters		Mainstream Faculty	
	Mean	Verbal Description	Mean	Verbal Description

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experienced student(s)	2.08	Important	2.19	Important
colleague(s) on campus	2.54	Very Important	2.18	Important
media center support staff	2.77	Very Important	2.13	Important
outside professionals trained in technology use	2.77	Very Important	2.03	Important
one-on-one assistance	2.54	Very Important	2.24	Important
hot-line, or telephone assistance	2.69	Very Important	1.93	Important
colleague(s) at another institution	2.54	Very Important	1.93	Very Important

Legend:

Range	Level of Importance
2.34 – 3.00	Very Important
1.67 – 2.33	Important
1.00 – 1.66	Not Important

Accessing Information about Innovation

Table 9 displays the level of importance on accessing information about innovation.

Table 9
Level of Importance on Accessing Information About Innovation

Accessing Information About Innovation	Early Adopters (n= 13)		Mainstream Faculty (n = 69)	
	Mean	Verbal Description	Mean	Verbal Description
conferences, demonstrations and workshops	2.77	Very Important	2.26	Important
on-line computer newsgroups & websites	2.61	Very Important	2.19	Important
administration	2.61	Very Important	2.19	Important
on-line computer journals	2.54	Very Important	2.21	Important
Colleague(s) on campus	2.46	Very Important	2.10	Important
department chair	2.61	Very Important	2.13	Important
innovative students	2.69	Very Important	2.10	Important
popular newspapers and television	2.45	Very Important	2.27	Important
Informal network of friends and family	2.31	Important	2.07	Important
refereed computer journals	2.46	Very Important	2.07	Important
popular computer magazines	2.61	Very Important	2.05	Important
Colleague(s) at another institution	2.54	Very Important	2.05	Important

publications from major computer vendors	2.54	Very Important	2.07	Important
hardware and software catalogues and brochures	2.54	Very Important	2.12	Important
hardware and software stores, vendors, suppliers	2.54	Very Important	2.07	Important

Note: * p<0.05

Visibly, mainstream faculty members have given their highest ratings in terms of importance to all items in accessing information about innovation. Given that one of the highest rated barriers is on the fact that there are only very few training opportunities for faculty members to acquire new computer knowledge and skills, the result means faculty in general would be willing to adopt IT if provided with extensive opportunities for advancement of their IT knowledge and skills even if their innovativeness will not be significantly acknowledged.

In contrast, early adopters believe that any means of accessing information are very important to them and it is on the top management to give priority on IT integration to have access to innovation. This implies that IT advancement and continual improvement could only happen if administrators commit to some extent the provision of IT resources.

Test of Significant Difference Between the Views of Early Adopters and Mainstream Faculty on Learning IT

Table 10 shows the results of the test of significant difference between the view of early adopters and the mainstream faculty members to the importance in learning strategies, getting support, and accessing information about innovation.

Table 10
Results of the T-test for Significant Difference

	Early Adopters (n=13)		Mainstream Faculty (n = 69)		tcomp	P-value (one tailed)	Decision
	Mean	SD	Mean	SD			
Learning Strategies	2.73	0.34	2.43	0.55	1.89	0.032	Reject Ho
Getting Support	2.56	0.47	2.10	0.63	2.49	0.008	Reject Ho
Accessing Information about Innovation	2.56	0.40	2.12	0.62	2.54	0.006	Reject Ho

Results provide evidence that the importance given to learning strategies, getting support, and accessing information for learning more about IT by the early adopters significantly differ. Thus, the EAs and the MFs do not have same level of preference and further implying that both have the different preferred sets of methods in learning about IT. Early adopters were found to give more importance to the different methods than the mainstream group because these EAs were already knowledgeable to these different learning methods for IT. Moreover, this finding is a contradiction of what has been found from the south and main campuses where they were they do not have significant difference of on the level of importance for these different methods. These findings are very relevant for bridging the gap between EAs and MFs as any strategy, support and method of learning more about IT will be customized to what group will be addressed and on what may effectively work for both groups.

CONCLUSION

This study revealed evidence that diffusion of information technology in CTU North Domain differs between early adopters and mainstream faculty. Likewise, this investigation afforded verifiable results that early adopters and mainstream faculty members do not differ significantly in their perception on the effect of information technology to teaching and learning as they do not vary considerably in their perception on what factors that motivate or prevent information technology adoption in teaching and learning. Moreover, the two groups were found out to have different preferences on the methods of learning, getting support and accessing information technology innovation. Generally, findings of this confirm with Rogers' theory of diffusion of innovation.

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