THE ROLE OF COMMITMENT TO PEDAGOGICAL QUALITY: THE ADOPTION OF INSTRUCTIONAL TECHNOLOGY IN HIGHER EDUCATION

Patricia L Baia, PhD
Albany College of Pharmacy and Health Sciences
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This study examined the importance of faculty's commitment to pedagogical quality (CPQ) in predicting instructional technology adoption. A customized electronic survey of 27 questions was developed and implemented to four higher educational institutions and yielded 104 usable surveys. Data were analyzed with SPSS using correlation and backward stepwise regression methods. Results indicated CPQ is related to instructional technology adoption. Beliefs about instructional technology and categorical variables (academic title, years taught in higher education, and tenure status) affect both CPQ and faculty adoption of instructional technology independently. Intrinsic and extrinsic motives, and teaching in health-related courses also predict adoption.

KEYWORDS: Higher education, instructional technology, adoption, commitment, pedagogy

Higher education characteristics and the faculty profession are two unique entities which have very different goals and features from other environments (Lucas & Murray, 2002; http://www.nysed.gov/; Wolcott, 1997 & 1998; Camblin, & Steger, 2000, Barone & Hagner, 2001; Hagner, 2001; Jacobsen, 1997 & 1998; Kearsley & Shneiderman, 1998; Mars & Ginter, 2007; Buckley, 2002; Garrison, Anderson, & Archer, 2000). Various research describes the complex and expected role of each faculty member in higher education, including and going beyond teaching, scholarship, and service (Wergin, 1994; Boyer, 1990; Lucas & Murray, 2002; Wolcott, 1998; Morris, 2004; Camblin, & Steger, 2000). In addition, academic title, teaching experience, and tenure status are factors that

predict faculty's involvement in change (Bradshaw, 2002; Boyer, 1990; Diamond, 2002; and Pryor & Pryor, 2005). In higher education, there are many reasons why an instructor would or would not adopt technology. These might include intrinsic and extrinsic motivations, "withitness" (Kounin, 1970), obstacles, beliefs (Ferguson, 2004; Sugar, Crawley & Fine, 2004; Zayim, Yildirim, & Saka, 2006; Davis, Bagozzi, & Warshaw, 1989; Wolski & Jackson, 1999; Hall & Hord, 1987; Dooley, 1999; Langer, 2005; Kotter, 1996; Dwyer, Ringstaff & Sandholtz, 1990, Pryor & Pryor, 2005), environment, commitments to pedagogical quality, specialization/discipline, and efficiency. This study seeks to tease apart some of these issues in an attempt to bring the field a useful model, showcasing components that predict instructional technology adoption. Employing Mishra and Koehler's (2006) concept of Technological Pedagogical Content Knowledge (TPCK), this study investigates the relationship of commitment to pedagogical quality to the adoption of instructional technology. TPCK's triad shows us that pedagogy is an essential member of knowledge development related to educational success and can not be separated from technology and content. The purpose of this study is to identify what motivates full-time faculty to incorporate instructional technology. It will test the hypothesis that each faculty's commitment to pedagogical quality is a strong predictor of instructional technology adoption. This work challenges future research to explore higher education and faculty characteristics, specifically the quality of faculty's commitment to pedagogy, as a way to develop instructional technology adoption models. Practically, this information will aid administrators and instructional technology staff when supporting and assisting faculty in incorporating technology in instruction. It will also inform faculty on how to identify their own commitments to the profession

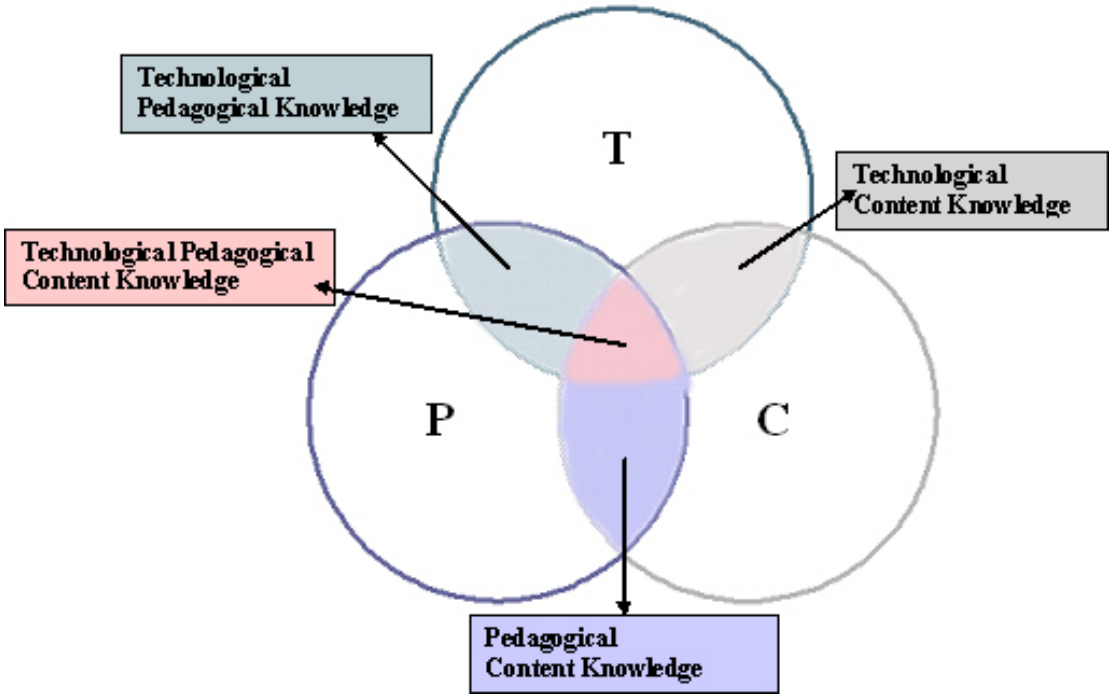
[education] and how those commitments are related to their acceptance of change or innovation, plus mediators that affect adoption. Essentially, its goal is to understand what engages faculty to change and improve their own teaching with technology; even further how these commitments affect readiness to innovate and pedagogical quality.

If they are to be applied to a higher education context, existing instructional technology adoption models (ITAMs) should be built upon elements that comprise a higher education institution, faculty characteristics, and faculty commitment to instructional excellence. What is the unity that exists between content, pedagogy and technology knowledge? In academia, these components become necessary for faculty to obtain Technological Pedagogical Content Knowledge (TPCK) in a college or university setting (Mishra & Koehler, 2006).

Technological Pedagogical Content Knowledge (TPCK)

ased on Shulman's (1987) model of Pedagogical Reasoning and Action, Mishra and Koehler's (2006) developed the notion of Technological Pedagogical Content Knowledge. It offers a new way of looking at instructional technology and its adoption in higher education. Shulman's original model distinguished and linked content and pedagogy. As an "emergent form of knowledge that goes beyond content, pedagogy, and technology" (p.1028), TPCK highlights what faculty members need to know to teach in an information age. The TPCK model shows these 3 components as cohesive (Figure 1). It presumes that Technology, Content, and Pedagogy should not be isolated from each other, or good teaching and successful technology implementation will be compromised.

Figure 1: Technological Pedagogical Content Knowledge – reconstructed diagram (T= Technology, C = Content, P = Pedagogy) (Mishra & Koehler, 2006, p 1025)



It also suggests the restructuring of professional development experiences to foster their interconnections. Specifically, as there continues to be a push for instructional technology adoption and for faculty to change the way they teach, their lack of knowledge in educational theory and practice becomes clearer.

Faculty are primarily hired because they are subject matter experts in their field, but do not necessarily have pedagogical knowledge. When considering the adoption of instructional technology, both content and pedagogy should be considered as a unit. If one component is changed, the others should move with it. "Viewing any of these components in isolation from the others represents a real disservice to good teaching" (Mishra & Koehler's, 2006, p.1030). The quality of teaching is determined by knowledge in all three elements. The concept of commitment to pedagogical quality (CPQ) should revolve around these TPCK's notion of teaching. It exposes various

questions: Are faculty members aware of the unity needed between these three elements? Are they committed to acquiring, maintaining, and changing this knowledge as they continue to teach and as new instructional technologies surface? TPCK is a presumed template for the design and development of a higher education Instructional Technology Adoption Model (ITAM), as this value of teaching becomes a part of CPQ.

Methodology

This study investigates full-time faculty in higher education (during the spring 2008 semester), who taught in Albany, New York, and were employed at an institution that is a member of the University Heights Association (UHA). Three research questions were addressed:

> **1:** What is the relationship between commitment to pedagogical quality and instructional technology adoption?
>
> **2:** To what degree do beliefs, motives, adequacy of resources, and categorical variables (mediator variables) predict instructional technology adoption?
>
> **3:** What is the relationship between commitment to pedagogical quality and the mediator variables?

These questions focus on the ways in which meaning was shaped within each faculty and how a common meaning may have developed within the professorate. The value of teaching and student learning is central to foster a constructivist pedagogy (Richardson, 2003; Laurillard, 2002). It is this psychological approach to constructivism which frames this work.

Sample

Full-time Faculty (n = 286) are experts in various disciplines and subjects, each teaching a variety of courses. The University Heights Association (UHA) established in 1995 a partnership among four institutions of higher education within the Capital Region around Albany, NY. The four private institution members include: Albany College of Pharmacy, Albany Law School, Albany Medical College, and The Sage Colleges. Not only does each institution share in a geographical community, each believes in "a unique combination of quality education, premium health care, public discourse of important issues, cutting edge research and technology, vibrant neighborhoods and progressive public and private partnerships" (http://www.universityheights.org/).

Albany College of Pharmacy. A private, not-for-profit, professional pharmaceutical and health school located in New York State's capital, Albany, New York, the Albany College of Pharmacy was founded in 1881 and is one of the only independent schools of pharmacy in the United States. It is accredited by Middle States Association of Colleges and Schools, Commission on Higher Education, and the New York State Board of Regents. It employs 86 full-time faculty (http://www.acp.edu/). Participation in this study will be offered to each full-time faculty member.

Albany Law School. Established in 1851, Albany Law School is the oldest independent law school in North America. Located in Albany, New York, it a member of the American Bar Association (ABA) and employees 50 full-time

faculty (http://www.albanylaw.edu). Participation in this study will be offered to each full-time faculty member.

Albany Medical College. Founded in 1837, Albany Medical College is one of the oldest private not-for-profit medical schools and maintains a large full-time faculty population (50). Its curriculum emphasizes "wellness, prevention and patient education" (http://www.amc.edu/Academic/) and offers only graduate (advanced) degrees. Participation in this study will be offered to each full-time faculty member.

Sage College of Albany. "The Sage Colleges is an independent private institution of higher education comprised of three colleges: Russell Sage College, a comprehensive, undergraduate college for women in Troy, NY; Sage College of Albany, a co-educational undergraduate college of applied studies in Albany, NY; and Sage Graduate School offering applied master's and doctoral degrees" (http://www.sage.edu/aboutsage/index.php). Participation in this study will be offered to each full-time faculty member (100) who is employed at the Sage College of Albany Campus. This college shares the Albany neighborhood with the other three private institutions mentioned above and a student centered bookstore located in the Albany College of Pharmacy.

Instruments

This study adapted a survey originally developed at Middle Tennessee State University (http://www.mtsu.edu/~itsurvey) in 1998 and then revised in 2000 to assess the effectiveness of instructional technology, by measuring the depth and breadth of content covered, student performance, and good teaching practices. Permission was obtained to use the survey and alter it. In addition, one question (question 20) was used from the University of Alaska, Anchorage's Faculty Technology Survey (Chapman, 2004) regarding faculty perspectives on instructional technology. Permission was provided September 24th 2007, and the question was altered to reflect the needs of this study. The revised survey was piloted to obtain feedback on the adequacy of questions, terms, and format. A panel of faculty, subject matter experts, and technology professionals was consulted from the Capital District Educational Technology Group (CDETG), a professional group of faculty (at varying levels of technical expertise, some with none) and instructional technology specialists who work in higher education institutions in and around the Albany, NY area, (http://www.cdetg.org). Fifteen CDETG members were randomly selected from a members list and emailed a link to the electronic survey during the summer of 2007 (using Surveymonkey.com). The randomization occurred by putting each members name in a hat and drawing 15 participants. Participants were asked to read and complete the survey, then reply to the email with feedback on understanding.

Changes were implemented based on responses from the nine CDETG members who participated. Two individuals completed the survey, but did not respond to the questions. However, seven participants did respond to the above questions. In addition, the survey went through a second round of revision at the hands of three educational researchers

with experience in survey design. The goals of this revision were to make the format of items consistent, shorten the survey as much as possible, and ensure that the variables in the proposed instructional technology adoption model were represented. Appendix A shows the final 27 question survey instrument that emerged following the pilot and further edits. Mann and Stewart (2000) report the advantages of using an electronic survey including; access to unique populations, time, cost, collection methods, ease of use, and accessibility. Internet communication and research has advanced much and is considered a widely available technology. Accessibility to the internet for each of the four colleges was established by their IT departments, through informal conversation within the CDETG group.

All full-time faculty (n=286) received an email with, a consent form, instructions to complete the consent form, and directions on how to access and complete the survey electronically on SurveyMonkey.com. Additional correspondence through email continued only for further clarification on how to access the survey or complete questions on the consent form. Data collection took place over a 1-month period. Email reminders were sent out, as needed, to each faculty member to encourage participation. After a month, the survey responses, including quantitative and qualitative data, were collected and analyzed. Response rate yielded 104 responses.

Data collection

The survey data was collected electronically, and results were quantitative in nature with some qualitative data on comments, concerns and feedback. Categorical information was collected to indicate institution type (teaching or research) and faculty demographics

(years teaching, tenure status, specialization, academic rank, and length of time employed at institution). Table 1 showcases each survey question in relationship to the study's variables.

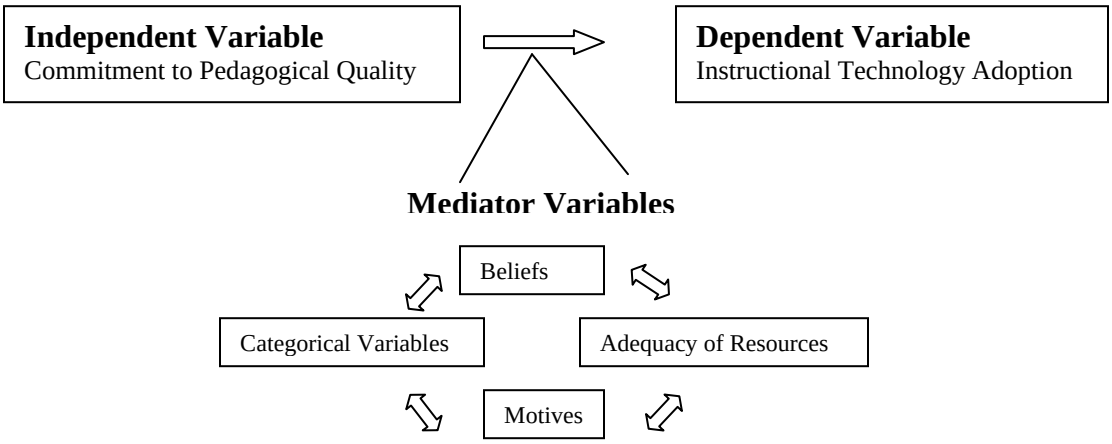
Table 1: Survey question[s] associated with variables

Dependent Variable
Faculty's adoption of instructional technology
Q1 In the 2 most recent semesters you have taught, rate the degree to which you used the following instructional technology tools: a.Presentation software, b.Spreadsheets, c.Internet content, d.Word Processing, e.Audio, f.Video, g.Animation, h.Email, i.Discussion Boards, j.Chats, k.Course Management System, l.Blogs, m.Podcasts, n.Wikis
Q20. Which of the following five statements represents your perspective? I am personally committed to incorporating technologies into my teaching as much as possible, I occasionally select and use technologies that I feel are particularly suited to my course content and students, I use little or no technologies in my course now, but may wish to do so in the future, I use technologies in my teaching, but prefer not to, I do NOT use technologies in my teaching.
Independent Variables
Commitment to Pedagogical Quality
Q3. Teaching is the most important part of my job.
Q5. I am eager to find new ways to help students learn.
Q7. The content of my course is more important than the way I teach the course
Q11. I feel my teaching is successful when I thoroughly cover the course content.
Q14. I enjoy teaching.
Q16. I feel my teaching is successful when my students demonstrate their learning.
Q18. I change my teaching plans and strategies to foster student learning.
Categorical Variables
Q22 Enter the number of years you have taught in higher education
Q23. Check your academic title: professor, associate professor, assistant professor, instructor, other.
Q24. Your institution is considered a: Teaching College, Research College, Both, I don't know, other.
Q25. Are you tenured? Yes or no
Q26. What is your specialization/discipline?
Q27. Please share any survey comments, concerns, or feedback.
Mediator Variables
Beliefs about Instructional Technology
Q2. I believe that the use of technology in education can enhance student learning in my discipline.
Q4 I believe the use of instructional technology is counterproductive to student learning.
Q6. I believe the use of instructional technology can enhance my teaching.

Q17. I believe instructional technology is important in higher education.
Motives
Q19. Rate the degree to which the following are available to you at your institution for the use of instructional technology: Monetary incentives or rewards, Administrative recognition, Peer recognition, Advantage for tenure or promotion, Release time, May lead to a research publication, Professional development opportunities.
Q21. To what degree is using instructional technology personally satisfying to you.
Adequacy of Resources
Q8. The administration in my institution supports my use of technology in education.
Q9. I have adequate training opportunities at my institution to develop the technical skills required for instructional technology use
Q10. My office computer or laptop is adequate for supporting my use of technology in education
Q12. I have access to instructional technology technical support
Q13. I have sufficient time to incorporate instructional technology into my courses.
Q15. The classrooms at my institution are sufficient and support my use of technology in education.

Descriptive statistics, graphic representations, and correlations were used to detect preliminary patterns, relationships, and participant characteristics across data. Data were analyzed in various ways by the researcher for summaries, themes, gaps, emerging categories, relationships that may explain teaching with instructional technology. A backwards stepwise regression analysis was used to see the degree to which commitment to pedagogical quality (independent variable) explains or predicts instructional technology adoption (dependent variable). In addition, mediator variables (beliefs about instructional technology, motives, adequacy of resources and categorical variables) exist as intermediaries to investigate the relationships between the dependent and independent variables (figure 2).

Figure 2: Possible Variable Relationships



A regression was used to examine relations among the study's primary constructs. This approach was chosen since it indicates the contribution of each variable in the prediction of technology adoption and it compares the degree of influence from each included variable (direct or indirect effects). Considering the number of variables that exist in this study, this method was chosen as the best mode to predict a relationship. These linear methods provide a clue about how two or more variables may fit in relationship to other variables (Brase & Brase, 2003). It is important to reiterate that this study is looking for linear correlational (not necessarily causal) relationships. Furthermore, this study does not attempt to distinguish between a thoughtful and unreflective adoption of instructional technology. The study implicitly assumes that technological adoption is a conscious and positive choice of individual faculty members (Langer, 2005).

Analysis

The response rate of 37% yielded 104 usable surveys. Fifty-six percent of respondents indicated that their institutions were teaching colleges, 32% described their institution as both teaching and research, none considered their institution to be solely a research college, 12% fell into an "other" category and identified either a law school, medical college, or they did not know. The respondents ranged in disciplines were in health (33.7%), pharmacy (15.4%), liberal arts (12.5%), science (11.5%), law (8.7%), business and communication (4.8% respectively), and education (1.8%). The other 11.6% skipped this question.

Respondents were predominately non-tenured (60.4%). Adjunct faculty were not surveyed; full-time faculty were the only participants in the study. Faculty who participated held varying academic titles: Professor (19.2%), Associate Professor (40.4%), Assistant Professor (31.3%), or Instructor (9.1%). Respondents identified the number of years they have taught in higher education. Years of experience ranged between 1 to 40 years with a mean score of 15.12. Information about non-respondents could not be collected directly or systematically, but by comparing respondent characteristics with the general characteristics of the faculty of the University Heights Association, one can infer that non-respondents were mostly (60%) assistant and associate professors with 2% holding tenure status. It seems non-respondents tend to be instructors as well as untenured assistant and associate professors.

Every participant who responded to the survey used some level of technology in education. This may be because faculty who are already using technology in education are more attracted to completing an electronic survey or are looking for an outlet to

showcase their accomplishments. Instructional technology adoption was measured in terms of "intensity," "extensity," and "intention."

Table 2: Intensity - frequency of use

Answer Options	0 never	1 rarely	2 occasionally	3 frequently	4 extensively	% Response
a.Presentation	8.7	7.7	15.4	27.9	40.4	100%
b.Spreadsheets	34.6	21.2	17.3	18.3	5.8	97.10%
c.Internet content	1.0	4.8	29.8	44.2	18.3	98.10%
d.Word Proc	3.8	3.8	10.6	30.8	48.1	97.10%
e.Audio	22.1	21.2	29.8	16.3	5.8	95.20%
f.Video	12.5	14.4	45.2	19.2	6.7	98.10%
g.Animation	51.9	17.3	16.3	7.7	1.9	95.20%
h.Email	5.8	1.9	2.9	21.2	66.3	98.10%
i.Dis Boards	35.6	16.3	24.0	12.5	8.7	97.10%
j.Chats	70.2	10.6	11.5	1.9	0	94.20%
k.CMS	9.6	8.7	12.5	18.3	50.0	99.00%
l.Blogs	86.5	4.8	4.8	1.9	1.0	99.00%
m.Podcasts	80.0	5.8	8.7	1.9	1.9	99.00%
n.Wikis	84.6	7.7	3.8	1.9	1.0	99.00%

From the list of 14 technologies (Table 2), intensity was high for presentations, word processing, email, internet content, and content management systems (CMS); each ranking in the "frequently used" and "extensively" category. Spreadsheets, animation, blogs, podcasts, and wiki's were used the least with a ranking of "never" and "rarely". The other technologies (audio, video, discussion boards and chats) fell into a low/middle range with use combination at "never," "rarely," or "occasionally." Several sets of analyses were conducted including descriptive statistics, frequencies, factor analysis, correlations, and backward stepwise regressions. SPSS software was used for analysis (Cronk, 2002). Survey respondents (faculty) were questioned regarding their commitments to pedagogical quality (independent variable), their use and perception of

instructional technology adoption (dependent variable), and mediator variables (beliefs about instructional technology, motives, adequacy of resources and categorical data. Descriptive statistics can be seen in table 3.

Table 3: Descriptive Statistics for Variables

Variables	**N**	**Min**	**Max**	**Possible**	**Mean**	**SD**
Extensity	89	9	42	0-56	23.40	6.89
Intention	104	1	4	0-4	3.29	0.64
CPQ	101	14	26	0-28	21.57	2.49
Beliefs	103	7	16	0-16	13.50	2.09
Motives	95	2	25	0-32	10.19	4.05
AoR	101	2	23	0-15	13.86	4.78
Years Taught in HE	99	1	40	open	15.12	10.27
Academic Title	99	1	4	0-5	2.30	0.89
Institution Type	100	0	4	0-5	1.68	1.13
Tenure Status	101	1	2	0-2	1.60	0.49
Specialization	**N**	**Min**	**Max**	**Median**	**Mean**	**SD**
Health	104	0	1	0	0.34	0.47
Business	104	0	1	0	0.05	0.21
Communication	104	0	1	0	0.05	0.21
Education	104	0	1	0	0.02	0.14
Law	104	0	1	0	0.09	0.28
Liberal Arts	104	0	1	0	0.13	0.33
Pharmacy	104	0	1	0	0.15	0.36
Science	104	0	1	0	0.12	0.32

Table 3 Key
Extensity = Faculty's average use of the 14 technologies
Intention = Faculty's intention to use technology
CPQ = Commitment to Pedagogical Quality
Beliefs = Beliefs about Instructional Technology
Motives = Motives to use Instructional Technology
AoR = Adequacy of Resources
Specialization = Summary categories for faculty disciplines or area of interest

Faculty's adoption of instructional technology was measured three ways: Intensity (question 1), Extensity (question 1), and Intention (question 20). Intensity is the frequency of use of each technology (Table 2), Extensity is the average use of all the

fourteen technologies for each respondent, and Intention is the faculty's intent to use technology. Table 6 shows the descriptive statistics for both Extensity and Intention. In the Extensity inquiry, faculty's' range of scores was 9-42 with a mean score of 23.4, and Intention ranged from 1-4 with a mean score of 3.29. As the mean describes the central location of the data and the standard deviation describes the spread; results indicate these respondent have a strong intention to use instructional technology and a mid to low use rate of each of the fourteen technologies (instructional technology adoption).

Commitment to pedagogical quality (CPQ) is comprised of questions 3, 5, 7, 11, 14, 16, and 18. This variable takes a closer look at the participants' value of teaching and student learning. Faculty's CPQ ranged between 14-26, with a mean score of 21.57. Indicating that, in general, these respondents had strong commitments to the quality of their teaching. Each range was calculated through SPSS's descriptive statistics tool, which revealed the collective min and max of respondent's answers. Beliefs about instructional technology (beliefs) were measured through questions (2, 4, 6, and 17). Beliefs ranged between a 7-16 with a mean score of 13.50. Generally, respondents' beliefs about instructional technology were positive. Motives to use instructional technology (motives) examined respondent's perceptions of the presence of both intrinsic and extrinsic incentives through questions 19 and 21. Motives ranged between 2-25 with a total mean score of 10.19. Broken down further, extrinsic motives (question 19) ranged from 7-25 with a mean score of 7, and intrinsic motives (question 21) ranged from 2-4 with a mean score of 3. In short, these respondents indicated a very low degree of extrinsic incentives for adopting technology (the shape of the curve is skewed to the right), but relatively high intrinsic motivation (the shape of the curve is skewed to the

left). Adequacy of resources (AoR) was measured through questions 8, 9, 10, 12, 13, and 15. AoR ranged between 2-23 with a mean score of 13.86.

Respondents' mean score indicates a strong commitment to pedagogical quality, a positive set of beliefs about instructional technology, and high intrinsic motivation to use it in education. A middling mean score for AoR indicates faculty occasional/frequent level of satisfaction with their institution's adequacy of resources. A low mean score on extrinsic motivation indicates that faculty perceived a lack of institutional incentives to use instructional technology. In addition, it is important to note CPQ and belief scores are at or near the maximum possible level, a ceiling effect (Table 3). In general, a high mean score creates a problem of generalization; it may be that any patterns found may not extend beyond this population. Plus CPQ's scores have a lack of variability, a restriction of range. Restricted range correlations may be greater in a more varied population or it may be this study's sample was different from the population originally hypothesized about. These distributions are important to note and may signify a reduced size in correlation in subsequent analyses.

A Cronbach alpha was conducted for each variable. This test was conducted to measure the reliability of each variable. All variables (except CPQ = .422) statistically demonstrated inter-item consistency, greater then .60 (Table 4). Please refer to corrected item-total correlations to reveal the most problematic items. The low Cronbach alpha for CPQ was an anticipated finding, because the hypothesized operations it measured were two-fold; the value of teaching and the value of student learning. As these operations define this variable, their presence and depth may be difficult for respondents to express.

Table 4: Cronbach Alpha of Variables

Variable	Cronbach Alpha
CPQ	0.422
Instructional Technology Adoption	0.725
Beliefs	0.770
Motives	0.767
AoR	0.816

Table 5: CPQ Factor Analysis

Item	Extraction		
Q3	.646	**KMO**	. 529
Q5	.650	**Bartlett**	Approx. Chi-Square = 74.381
Q7	.542		df = 21.000
Q11	.649		Sig = .000
Q14	.691		
Q16	.433		
Q18	.765		

Both a Bartlett's test of sphericity and Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy revealed a factor analysis is an appropriate analysis for the CPQ variable, yielding a highly significant value ($p < .001$) and an accepted value of .529 respectively (Table 4). A factor analysis (using a principal component extraction) revealed CPQ's commonalities among its items (Table 5). An eigenvalue of 1.0 or greater was required to retain a factor. Each of the seven question extractions accounted for the shared variance among CPQ with a range between 43.3%-76.5%. The factor analysis yielded three factors that met the criteria. The 'value of student learning' (questions 5 and 18) was the first factor extracted and accounted for 26.6% of the variance. The second factor was the 'value of teaching success' (questions 7, 11, 16) and accounted for 19.9% of the variance after rotation. Finally, the 'value of teaching' factor (questions 3 and 14) accounted for 15.9%. The 'value of teaching success' was not a

planned factor in this measure of CPQ and the questions that comprise this factor were conceived to measure the valuing of student learning and teaching. Future research may need to include interviews to clarify this construct and re-design questions. In addition, there are other issues that need to be taken into account when interpreting CPQ scores: number of survey responses; the wording of survey questions 3, 5, 7, 11, 14, 16, and 18; the limitations of a survey as a research instrument; and the faculty sample. CPQ will be discussed as both a summed variable and then by each question to find relationships and predictors at the item level.

A correlation was conducted between intensity (frequency of use) and commitment to pedagogical quality (CPQ). Eight tools showed a positive low correlation with CPQ: Internet content, word processing, audio, video, email, discussion boards, chats and content management systems (Table 6). Grey highlighted areas represent a significant correlation. The indicated use of these instructional technology tools points to a relationship with respondent's commitment to pedagogical quality.

Table 6: Intensity Correlations with CPQ

Technology	**Pearson Correlation**	**Sig. (1-tailed)**
Presentation	-.013	.45
Spreadsheet	.157	.06
InternetContent	.178*	.038
WordProcessing	.207*	.02
Audio	.281**	.003
Video	.187*	.031
Animation	.005	.48
Email	.192*	.028
DiscussionBoard	.221*	.014
Chats	.191*	.031
CMS	.194*	.026
Blog	.042	.337
Podcast	-.054	.296
Wiki	-.045	.329

CPQ as a Summed Variable

Correlations were used to determine the strength and direction of relationships between each variable (Table 7). Six variables produced significant associations: extensity, intention, CPQ, beliefs, motives, and AoR. The two measures of instructional technology adoption (extensity and intention) are positively correlated ($r = .340$, $p<.01$). That is, the more positively a respondent felt about the use of instructional technologies the more likely they were to use different types. A positive correlation between CPQ and extensity can be seen ($r =.348$, $p =.01$) and no relationship exists between CPQ and intention ($r = -.040$, $p>.1$). Of interest, motives ($r = .207$, $p<.05$) and beliefs ($r = .516$, $p=.01$) are correlated with intention. Beliefs had a low correlation with extensity ($r = .182$, $p=<.05$). Plus, motives were found to be correlated with AoR ($r = .266$, $p<.01$). In addition, categorical variables showed relationships among variables. Tenure status ($r = .205$, $P<.05$) and academic title ($r = .214$, $P<.05$) showed a low correlation with CPQ. A low and negative correlation is present for the number of years faculty taught in higher education with CPQ ($r = -0.238$, $p = 01$) and beliefs ($r = -0.209$, $p<.05$). Specialization/discipline also played a significant role with intention and beliefs. A low correlation exists between health and intention ($r = .220$, $p<.05$) and law and AoR ($r = .214$, $p<.05$). A negative low correlation can be seen between liberal arts and AoR ($r = -0.206$, $p< 0.05$). In addition, a low and negative correlation exists for faculty with a specialization in business and their intention to use instructional technology adoption ($r = -.247$, $p<.01$). Lastly, communication and extensity showed a small correlation at $r = .201$, $p<.05$. These correlations are laid out in table 7 for reference.

Table 7: Pearson Correlation among Variables

CONTINUOUS VARIABLES						
	Intention	**Extensity**	**CPQ**	**Beliefs**	**Motives**	**AoR**
Intention		0.34**	0.04	0.52**	0.217*	-0.04
Extensity	0.34**		0.35**	0.18	0.12	0.05
CPQ	0.04	0.35**		0.18	-0.01	0.08
Beliefs	0.52**	0.18	0.18		0.14	0.07
Motives	0.21*	0.12	-0.01	0.14		0.27*
AoR	-0.04	0.05	0.08	0.07	0.27*	
CONTINUOUS VARIABLES WITH CATEGORICAL VARIABLES						
Years Taught in HE	-0.11	-0.01	-0.24**	-0.21*	0.13	-0.07
Academic Title	0.12	-0.02	0.21*	0.14	-0.15	0.08
Institution Type	0.01	-0.17	-0.12	0.05	-0.11	0.01
Tenure Status	0.05	-0.19	0.21*	0.15	-0.10	0.06
Health	0.22**	0.02	0.07	0.19	-0.01	-0.14
Business	-0.25**	0.07	-0.02	-0.14	-0.07	-0.05
Communication	0.11	0.20*	0.13	0.18	-0.06	0.05
Education	0.16	0.01	0.10	0.17	-0.02	-0.01
Law	-0.14	-0.18	0.17	-0.09	-0.11	0.21*
Liberal Arts	0.01	0.01	-0.11	-0.11	0.01	-0.21*
Pharmacy	-0.07	-0.03	-0.06	-0.01	0.12	0.20
Science	-0.07	0.04	-0.10	-0.05	0.02	0.11

* *Correlation is significant at the .05 level (1-tailed)*
** *Correlation is significant at the .01 level (1-tailed)*
Correlation sample size ranged from 83-103

Two separate backward stepwise regressions were conducted; one with Intention (q20) as the dependent variable and the other with Extensity as the dependent variable (Table 8). A backwards stepwise regression was the best way to determine which variable had the greater predictive power for adopting instructional technology, specifically CPQ predictive qualities. All variables, but motives were normally distributed. As motives measures questions 19 and 21 (intrinsic and extrinsic incentives), results showed a slightly skewed curve following a few large outliers. In some cases, extreme values in data provide useful information about values of some of the coefficients and a realistic guide to the scale of errors (Brase & Brase, 2003). This study

will proceed with the regression analysis with the motive variable assumptions in mind. One way to protect against type 1 error is to take a more exploratory approach to data analysis, and a backwards stepwise regression is well-suited to exploratory analysis. Exploratory analysis looks for reasonable statistically detectable relations and counts on replication to confirm them (Williams, 2003). Patterns are suggestive and need confirmation through replication. The analysis begins with an examination of the combined effect of all of the variables on the dependent variable. One by one, variables (usually starting with the weakest predictor) are removed, and a new analysis emerges. The results provide coefficients for each variable, telling the degree to which each (when combined with the others) contributes to predicting the dependent variable (Williams, 2003).

Findings revealed beliefs about instructional technology (beliefs) (R^2 = .160, p < .05) as a significant predictor of intention to use instructional technology, accounting for 16% of the variance. Motives and faculty in Health disciplines were almost significant at p=.055 and p=.058), respectively: together accounting for 7% of the variance. These coefficient scores might suggest a trend; it implies further study may be needed to warrant how motives and the field of health contribute to intention. Remarkably, CPQ (R^2 = .160, p<01) and institutional type (R^2 = .160, p<05) were statistically significant predictors of extensity, accounting for 32% of the variance. The other variables have no impact on extensity. Of note, the number of years taught in higher education was the only mediator variable found to be statistically significant to CPQ (R^2= .077 p <.01), accounting for 7% of the variance.

Table 8: Backwards Stepwise Regressions

Intention						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
14	(Constant)	1.656	.409		4.045	.000
	Beliefs	.096	.030	.327	3.191	.002
	Motives	.026	.013	.195	1.945	.055
	Health discipline	.218	.113	.195	1.927	.058
Extensity						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
15	(Constant)	7.355	7.167		1.026	.308
	CPQ	.885	.316	.312	2.800	.007
	Institution Type	-1.410	.684	-.230	-2.060	.043
Commitment to Pedagogical Quality (CPQ)						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
12	(Constant)	22.611	.447		50.627	.000
	Years taught in HE	-.067	.024	-.277	-2.723	.008

CPQ Analyzed by Item

Stepwise regression analysis was used to explore further the relationships between items that constituted the, CPQ variable and both intention and extensity (Table 9). Results showed question 7 (the way I teach is more important than course content) accounted for 9% of the variance in extensity (R^2 = .096, $p < .05$). This finding shows that respondents' use of instructional technology might predict their greater concern for teaching processes rather than course content. In addition, question 5 (eager to find new ways to help students learn) is statistically significant ($p < .05$) and question 16 (my

teaching is successful when my students demonstrate their learning) is marginally significant (p = .052); together they account for 7 % of the variance for intention (R^2 = .079). This finding revealed two factors: 1. Faculty's intention to use technology in education is related to those who are eager to use new ways to help students learn, and; 2. Faculty who feel their teaching is successful when their students demonstrate their learning co-varies with their intention to use instructional technology.

Table 9: CPQ Analyzed by Question (Q3, Q5, Q7, Q11, Q14, Q16, Q18)

Extensity						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
6	(Constant)	8.213	6.361		1.291	.200
	Q7	1.604	.767	.219	2.091	.040
	Q14	3.042	1.660	.192	1.833	.070
Intention						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
6	(Constant)	2.978	.578		5.152	.000
	Q5	.267	.126	.206	2.126	.036
	Q16	-.190	.097	-.191	-1.965	.052

Discussion

This research assumes that Technology, Pedagogical, Content Knowledge (TPCK) should not be isolated from each other; good teaching and successful technology implementation require their integration (Mishra & Koehler, 2006). TPCK highlights what faculty members need to know to teach in an information age. This value of

teaching is part of the commitment to pedagogical quality (CPQ) variable. Commitment to pedagogical quality describes faculty's commitment to acquiring, maintaining, and changing this knowledge as they continue to teach and as new instructional technologies surface. An adoption model which focuses on content, technology, and pedagogy was deemed worth investigating and may be central to facilitation of instructional technology adoption in higher education. This work challenges future research to explore higher education, faculty characteristics and their commitment to pedagogical quality, as a way to develop instructional technology adoption models. This study's purpose is to identify what motivates full-time faculty in higher educational institutions to incorporate instructional technology in their instructional practice. It is clear faculty's commitment to pedagogical quality occurs or exists with instructional technology adoption.

In subsequent sections, I will first discuss the relationship between commitment to pedagogical quality and instructional technology adoption, second the degree to which beliefs, motives, adequacy of resources, and categorical variables (mediator variables) predict instructional technology adoption, then finally the relationship between commitment to pedagogical quality and the mediator variables.

Commitment to Pedagogical Quality and Instructional Technology Adoption

A central question in this study is whether an instructor's commitment to pedagogical quality would explain the instructor's willingness to adopt technology in education. Instructional technology adoption was measured in three ways: 'intensity' (the frequency a particular tool is used), 'extensity' (the average use of fourteen identified technologies), and 'intention' (faculty's intent to use technology). It is important to reiterate that this

study is looking for linear correlational (not necessarily causal) relationships. Furthermore, this study does not attempt to distinguish between a thoughtful and unreflective adoption of instructional technology. The study implicitly assumes that technological adoption is a conscious and positive choice of individual faculty members.

A Commitment to Pedagogical Quality (CPQ) score was the sum of responses to seven questions (questions 3, 5, 7, 11, 14, 16, and 18) that measure the respondents' valuing of teaching and student learning. Due to CPQ's low Cronbach alpha measure (.422) and the factor analysis indicating three measures rather than two, the CPQ variable was measured as a summed variable and then by each question to find relationships and predictors at the item level. In this study, CPQ's scores were clustered at or near the maximum possible level (ceiling effect) and thus restricted in range. As a new construct, this study is the first attempt to measure CPQ and define it as the value of teaching and student learning. In future research, the questions that comprise this variable may need to be redesigned to allow more range of responses and look closer at a new measure of CPQ, the 'value of teaching success'..

CPQ as a Summed Variable

Respondents indicated their use of fourteen instructional technology tools during the last two semesters they have taught (intensity). These tools fell into either a rank of high use (Internet Content, Word Processing, Email, & CMS), middle use (Spreadsheets, Audio, Video, Discussion Boards), or low use (Animation, Chats, Blogs, Podcats, and Wiki's). CPQ was found to be positively correlated with intensity for specific tools including Internet Content, Word Processing, Audio, Video, Email, Discussion Board, Chats, and

CMS. When paired with CPQ, this finding indicates faculty's use of particular tools is related to faculty's value of teaching and/or their value of student learning. For example, it may be faculty use internet content (which was given a high use rank) because they value this tool as an important teaching and learning resources. On the opposite end, faculty may not value "Chats" as a teaching and learning resource. Future research should include participant interviews to sort through high, middle and low use relationships (intensity) between CPQ.

Technological Pedagogical Content Knowledge (TPCK) highlights what faculty members need to know to teach in an information age. It presumes that Technology, Content, and Pedagogy must not be isolated from each other for good teaching and successful technology implementation. This value of teaching is part of the CPQ construct. Faculty in this study are committed to acquiring, maintaining, and changing their knowledge as they continue to teach and as new instructional technologies surface. We see this through the results of the CPQ construct as a summed variable and then by each question. A backwards stepwise regression showed CPQ predicted extensity (range of technology use). This indicates a possibility that those with a strong commitment are willing to try a variety of approaches. In addition, it is also possible that faculty who like to experiment with technologies coincidentally have a strong commitment. These two possibilities are important to note because this study did not gather data to investigate the nature of the relationship. Just that a relationship exists. Further research is needed to forecast the nature of the relationship between CPQ and extensity.

CPQ Analyzed by Item

Because the CPQ items showed low consistency, correlations were explored between extensity and individual CPQ items. Respondents to this survey were more likely to use a variety of software (extensity) when they indicated they valued the processes of teaching over the content they taught (question 7). This finding hints at the possibility that TPCK is not a unified construct, but that pedagogical knowledge has primacy over technological and content knowledge when it comes to successful technology integration in teaching. Taking this notion a step further, pedagogical knowledge is a fundamental necessity for successful teaching, learning, and technology adoption to occur. The questions used in this survey looked more at attitudes and motives, but it is practical to think that pedagogical knowledge, knowledge of good teaching practices, provide a framework into which knowledge of technology and content are woven to enhance student learning. Future research should investigate faculty's level of content and teaching knowledge in relationship to their value of teaching over the content they taught. This empirical investigation could contribute much to the field of educational theory and practice.

Two CPQ items were significantly correlated with intention to use instructional technology. Respondents that were "eager to find new ways to help students learn" (question 5) and "regarded student learning as a chief evaluative criteria for success in teaching" (question 16), reported more likelihood to use technology. Commitment to student learning may be an important motivating variable in faculty adoption of technology. These results provide clear evidence that commitment to pedagogical quality should be considered a valuable part of technology adoption models in higher education.

Mediator Variables and Instructional Technology Adoption

Instructional technology adoption is a strong initiative in higher educational institutions pushing faculty to change and innovate. There are factors (mediator variables) that affect the adoption process. Mediator variables investigated in this study consisted of beliefs about instructional technology (beliefs), motives, adequacy of resources (AoR), and categorical variables (academic title, institution type, tenure status, and specialization). Various research described the complex and expected role of each faculty member in higher education, including and going beyond teaching, scholarship, and service (Wergin, 1994; Boyer, 1990; Lucas & Murray, 2002; Wolcott, 1998; Morris, 2004; Camblin, & Steger, 2000). In addition, academic title, teaching experience, and tenure status are factors that predict faculty's involvement in change (Bradshaw, 2002; Boyer, 1990; Diamond, 2002; and Pryor & Pryor, 2005).

Results of a backwards stepwise regression revealed that 16% of the variance in faculty's intent to use technology is predicted by their beliefs about instructional technology. It is easy to imagine that a faculty member who believes instructional technology can enhance student learning in their discipline would be more likely to use technology to enhance teaching and learning. Not surprisingly, faculty members who reported more frequent extrinsic and intrinsic motives for technology use reported a stronger intent to use technology. However, it is not clear why results revealed faculty who teach health related courses intend to use technology more than other disciplines. It is possible that the health professions may promote the use of technology more in practice and educators are transferring its importance in the classroom. Also, it could be an institutional factor, considering out of the four colleges, one was a medical school and

another a pharmacy school. It maybe that faculty at Albany Medical College and Albany College of Pharmacy are more likely to use technology. Future research may need to use a larger and more diverse sample of respondents to study how these two variables contribute to 'intention'.

Faculty beliefs about instructional technology were found to be related to the range of technology use and intention to use technology. These findings reinforce current research in the field pertaining to beliefs as an influence on instructional technology adoption (Ferguson, 2004; Sugar, Crawley & Fine, 2004; Zayim, Yildirim, & Saka, 2006; Davis, Bagozzi, & Warshaw, 1989; Wolski & Jackson, 1999; Hall & Hord, 1987; Dooley, 1999; Langer, 2005; Kotter, 1996; Dwyer, Ringstaff & Sandholtz, 1990, Pryor & Pryor, 2005). Specifically, this study examined faculty's beliefs about instructional technology's ability to enhance student learning in a discipline, be productive to learning, enhance their own teaching, and serve as an important aspect in higher education. The Model of Reasoned Action (MORA) (Pryor & Pryor, 2005) describes how personal and social factors affect the decision process. The personal factors focus on attitudes and feelings about the behavior, whereas social factors focus on perceptions of social pressure. This model helps explain how beliefs form and how they can be influenced.

Institutional type was found to be related to the range of technology use (extensity). Institutional type was comprised of four choices; teaching college, research college, both, or other. The majority of respondents (56%) considered their college to be a teaching college, 32% were both, none answered research college, and 12% chose other. The extent to which a respondent used technology was predicted by the perceived mission of the respondent's institution. For our respondents, the way an institution

defines its mission (or the way they interpret the mission) is important, and it does affect the extent to which technology is used. This may be due to the specific types of institutions that were used in this study, who may highlight these factors as more important than the standard teaching/research dichotomy. An instructional technology adoption model which takes institutional type into consideration for predicting extensity could investigate the way faculty, administration, and support staff, think about and implement technology in higher education. Clearly, the institutional type variable sets higher education apart from other entities (Barone & Hagner, 2001; Jacobsen, 1997 & 1998; Hagner, 2001; Kearsley & Shneiderman, 1998; Mars & Ginter, 2007; Buckley, 2002; Garrison, Anderson, & Archer, 2000). It is this distinction, which highlights the need for higher education ITAMs to be developed for its audience, based on the unique qualities these institutions comprise.

Commitment to Pedagogical Quality and the Mediator Variables

Most respondents in this study were non-tenured (60.4 %). Non-tenured faculty in this study were more committed to the quality of teaching and student learning than tenured faculty. Similarly, assistant and associate professors were more committed to pedagogical quality. There are various possible explanations for these correlations. Non-tenured and lower ranked faculty may, in general, be newer to their faculty roles and approach teaching with greater "freshness" and enthusiasm. It is possible too that "newer" untenured faculty may differ from their older colleagues in their sensitivity to student activity in the learning process. It is also possible that the criteria for achieving tenure and promotions have a negative influence on a faculty's commitment to

pedagogical quality. In addition, it may be beneficial to investigate the properties of each academic title to determine a set of qualities that comprises each. Future research could examine these possible relations in more detail.

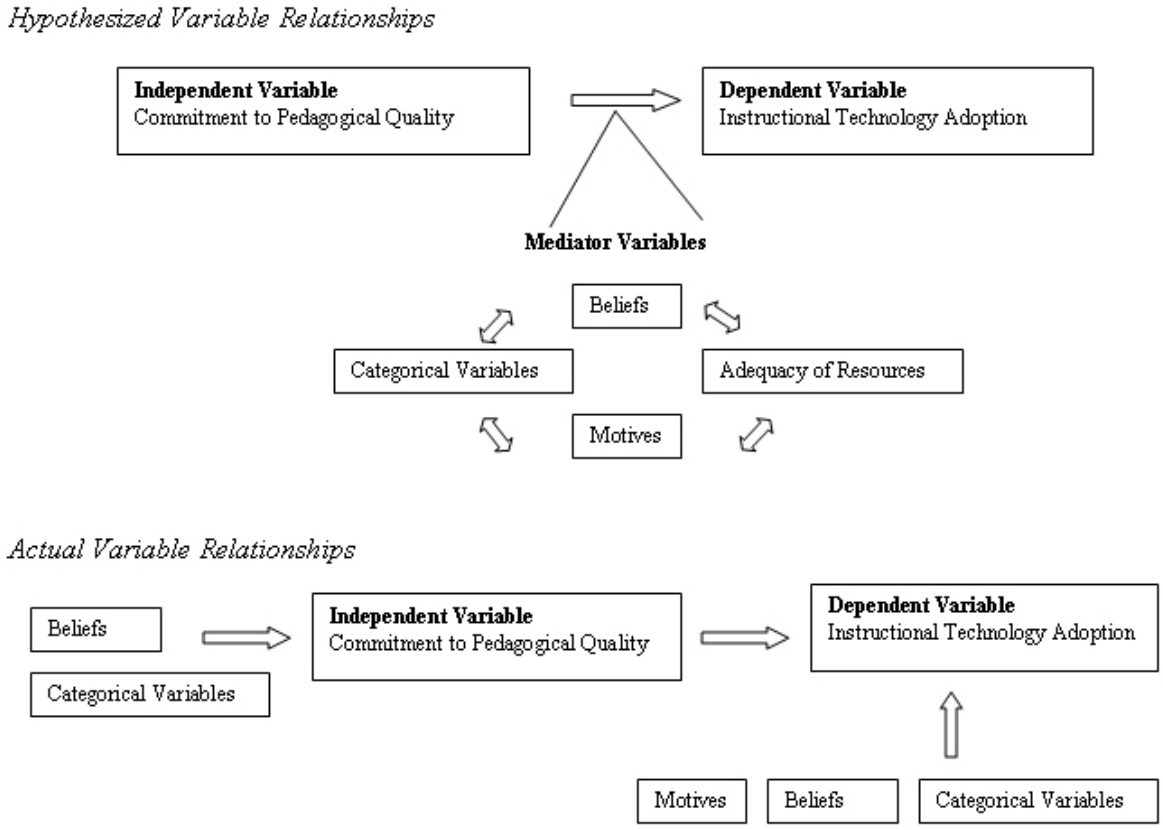
The number of years a respondent taught in higher education (question 22) accounted for 7% of the variance in CPQ. Data revealed 67 respondents fell into the 1-20 years teaching range and 32 respondents taught 21-40 years (n=99), with a mean score of 15 years of teaching. Clearly, faculty members who taught 20 or fewer years tend to be more committed to pedagogical quality. Why are professors who have taught more than 20 years less committed to teaching? What characteristics of these two populations influence this distinction between levels of commitment? With this said, I do not think that all faculty who have been teaching for awhile will fall in this category, since the distinction is very small (7%). But it is important to note as administrators and technology staff work to enhance the instructional technology adoption efforts among each faculty member. Thus, a comprehensive analysis would need to be conducted to look particularly at years of teaching experience in higher education as a lead variable in commitment. In addition, the CPQ variable could be altered to include alternative questions that expand beyond the faculty's value of teaching and student learning. The faculty's value of scholarship, service, and teaching could operationalize CPQ or maybe it is the institution's value of teaching and student learning. Either way, there is much opportunity in the educational field to further investigate the concept of CPQ and evaluate its role in education. This research is an initial investigation and begins the conversation about CPQ.

As a possible explanation for the correlation of these three variables (academic title, tenure status, and number of years teaching) with CPQ, these variables could be considered connected. In fact, it is usually part of the promotion and tenure (P&T) policies at each institution to link each of these demographics together (Boyer, 1990). However, even though they are linked and common, each higher educational institution has its own P&T policies which redefine how they are applied and achieved. Future research should investigate relationships between these variables and promotion and tenure guidelines at each institution. This study did not collect promotion and tenure data from its participants or sample colleges. However, a scattered pattern did emerge regarding respondents results. For example, individuals who taught for 7 years (N=8) were both professors with tenure (N=3) and assistant professors without tenure (N=5). Institutional characteristics (such as promotion and tenure guidelines, hiring strategies, institution type, etc.) will be different (Bradshaw, 2002, Boyer, 1990, Diamond, 2002, and Pryor & Pryor, 2005) and may alter the relationships between these three variables. This data would be interesting to gather and analyze against academic title, tenure status, and number of years teaching. Further research is needed to investigate inter-variable relationships among institutions that have these different characteristics.

Theoretical and Practical Implications

Figure 3 displays a summary of variable relationships that resulted from this study. As you can see this illustration is much different from the model hypothesized, as the mediator variable relationships have changed. This model shows ways in which the dependent and independent variable (IV and DV) depend on mediator variables.

Figure 3: Variable Relationships

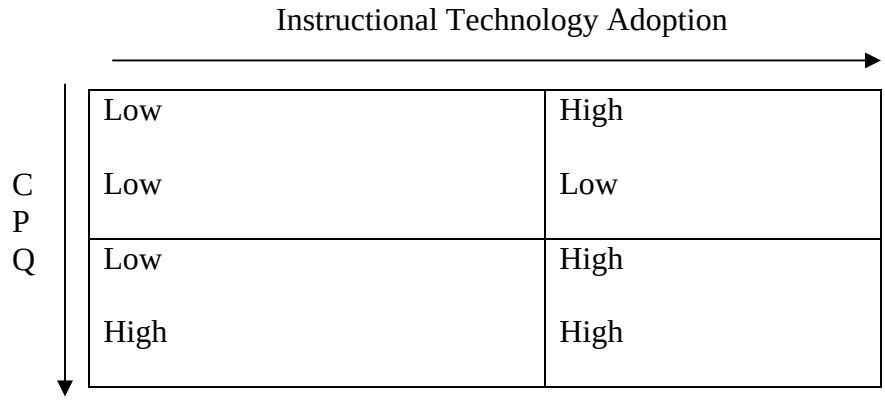


In fact, none of the variables are "mediators" in the ways I originally hypothesized and seem to play a very different role with the IV and DV altogether. Correlation data (Table 6 & 7) and regression results (Table 8 & 9) suggest these relationships and predictors are much more complex, involving interaction with both the IV and DV. Based on this study's findings, moving each variable and their relationship point was based upon the following: beliefs and categorical variables (academic title, years taught in higher education, and tenure status) are affecting both the IV and DV independently; motives affect just the DV, and perceived adequacy of resources (AoR) was not found to correlate to any other variable.

Practically, this information will aid administrators and instructional technology staff when supporting and assisting faculty in incorporating technology in instruction. By knowing faculty's CPQ, administrators and support staff can tailor adoption strategies and engage faculty further into the adoption process through these commitments. It is this insight into the way each faculty member values teaching and student learning that may be the key to adoption. Most importantly, it will inform faculty on how to identify their own commitments to the profession [education] and how those commitments are related to their acceptance of change or innovation, plus additional variables that affect adoption.

Figure 4 shows a working view of how the higher education community can begin to look and to define themselves within the context of their instructional technology adoption and commitments to pedagogical quality. This 2x2 is a starting point to see the connections between these two variables. Essentially, its goal is to understand how commitments affect readiness to innovate and how readiness to innovate affects commitments.

Figure 4: Instructional Technology Adoption and CPQ 2x2



Even further, it initiates the conversation on what engages faculty to change and improve their own teaching.

This model provides a simple way to identify where an individual faculty fits among these two variables. This 2x2 does not necessarily emerge from my data, but is a useful way to provide a thought-experiment about the relationship between CPQ and technology adoption. Other directionalities were not explored in this study. It is possible, even likely, that the motives and factors that influence technology adoption will interact in complex ways over time. However, my study assumes that there should be a sizable portion of faculty who fall along the diagonal (low-low, and high-high). In spite of the vagaries of my sample, the quality of the CPQ measure, and statistical difficulties (e.g., restriction of range, ceiling effects, etc.), this relationship exists and is worth talking about. For example, faculty who fall in the high-high category maybe considered an individual who is flexible and absorbent to change. Change and benefits of adoption are accepted and they are willing to participate. For those who are high CPQ, but low adoption, the support person could investigate ways to link pedagogical concern with use of technology. These faculty appear to value teaching and student learning, but are resistant to adoption because of obstacles or gaps between the two variables. The low-low faculty maybe individuals who are resistant to change, unwilling to see the benefits, and refuse to participate in best practices. Support staff will need to engage this faculty in both pedagogical knowledge and instructional technology best practices. A low CPQ, high adopter is an oddity, but might be explained by someone who is simply adopting technology for love of technology or for some other valued incentive. As their understanding of their value of teaching and student learning increases, they are able to

see the benefits and apply their use of technology to teaching and learning by using best practices. This group and the low-low category need the most training on the importance of teaching and its effects on learning.

With this knowledge, faculty may begin to question what CPQ means for them. Is it the value of teaching and student learning, or do they think about it differently; perhaps in terms of service, scholarship and teaching? Is it the institution's definition, or is it the professors' definition? Essentially, commitment to pedagogical quality has not been looked at in the past nor taken into consideration when change occurs in higher education. By introducing CPQ as a factor in adopting instructional technology, we can begin to develop deeper knowledge of the professoriate. In addition, knowing the relationship and predictive qualities of motives, beliefs and categorical variables will assist in implementation process.

Future Research

There are a number of ways in which this research can be extended. It would be important for future research to clarify the definition of CPQ and develop a set of question that best operationalizes it. The low Cronbach alpha for CPQ, to some extent, was an expected finding, because it was originally hypnotized as a two-fold measure: the value of teaching and the value of student learning. However a third operation emerged through the factor analysis, the 'value of teaching success'. As these operations define this variable in this study, their presence and depth may be difficult for respondents to express. In addition, there are many possible factors that could explain CPQ's low

Cronbach score including number of survey responses; the wording of survey questions; the limitations of a survey as a research instrument; and the faculty sample.

Non-respondents were mostly assistant and associate professors with a small population holding tenure status. The profile of non-respondents does not seem to match the profile of respondents. It would be worthwhile to produce a future study with a sample size yielding alternative faculty demographics. As stated previously, higher education characteristics and the faculty profession are two unique entities which have very different goals and features from other environments (Lucas & Murray, 2002; http://www.nysed.gov/; Wolcott, 1997 & 1998; Camblin, & Steger, 2000). We know that public and private institutions employ faculty for the primary roles of teaching, scholarship (research and publishing), and service (Wergin, 1994; Boyer, 1990). However, within this context, higher educational characteristics (i.e. promotion and tenure policies, mission, administration, etc.) can be very different among institutions and may yield different results.

Potential limitations of a self-reporting survey involve honesty and accuracy of responses. This inquiry acknowledges these potential limitations, but assumes participants have been truthful and accurate in their responses because there would be no special advantage for dishonest or exaggerated responses. In addition, the anonymity of the survey supported the likelihood of candid responses, and question format (reverse responses, placement/order of questions, and language use) assisted in triangulation (Mann & Stewart, 2000). Another possibility for future research involves the addition of interviews. This methodology would help researchers to understand the meaning behind the survey responses. In general, interview questions should expand upon survey

responses and help clarify results/choices. For example, a follow up interview may have provided further details to explain the relationship between CPQ and the intensity of use of particular technologies. Also, measuring faculty's CPQ maybe better surveyed with the addition of interviews. Future research could use a set of standardized questions that adhere to interview protocol techniques to probe the respondent for in-depth information. This qualitative data may prove helpful to the overall quality and robustness of this study. In addition, respondents in this study all participated through the internet and most reported high technology use and high CPQ. However, the reader should keep in mind that this survey about technology adoption was administered through technological means. It is possible that non-responders differed systematically from responders and that this difference was due in part to the means of survey administration. That is, technology users might be more likely than non-users to complete an Internet–based survey. Future research might target faculty with low technology use and low CPQ, plus provide hard copy survey's for alternative data collection. In addition, future research should explore the quality of instructional technology adoption. This study only looked for linear relationships and was not sensitive enough to distinguish between a thoughtful and unreflective adoption of instructional technology. Other relationships between instructional technology adoption and CPQ could be explored. It is possible that adoption over time is a much more complex, dynamic, and interactive process than a linear relationship suggests. These factors are worth investigating and would provide further insight into the commitments and professional development needs of faculty.

Concluding Comments

An extensive statistical analysis was conducted in an effort to examine the role of faculty's commitment to pedagogical quality (CPQ) when adopting instructional technology in higher education. This study found commitment to pedagogical quality (CPQ) does influence the adoption of instructional technology. This is shown as CPQ is measured as a summed variable and then by each question to find relationships and predictors at the item level. The three CPQ survey questions that stood out as predictors of technology adoption included: finding new ways to help students learn, teaching is successful when students demonstrate their learning, and teaching style is more important than content. Beliefs about instructional technology and certain categorical variables (academic title, years taught in higher education, and tenure status) affected both faculty's commitment to pedagogical quality (independent variable) and their adoption of instructional technology (dependent variable). Motives (intrinsic and extrinsic) and faculty teaching in health-related courses also affect the adoption of instructional technology, but the perceived adequacy of resources (AoR) was unrelated to both the independent and dependent variable. If future research can provide support for the results found here, and address the limitations of the current research, the CPQ variable may prove to be a viable tool to further establish successful adoption of instructional technology in higher education.

Appendix A

Faculty Survey on Instructional Technology Adoption

Contact: baiap@acp.edu

Definition of Instructional Technology: The use of computer-based tools or equivalent electronic devices in teaching and learning.

q1. In the 2 most recent semesters you have taught, rate the degree to which you used the following instructional technology tools...

	1(never)	2(rarely)	3(occasionally)	4(frequently)	5(extensively)
a.Presentation software	○	○	○	○	○
b.Spreadsheets	○	○	○	○	○
c.Internet content	○	○	○	○	○
d.Word Processing	○	○	○	○	○
e.Audio	○	○	○	○	○
f.Video	○	○	○	○	○
g.Animation	○	○	○	○	○
h.Email	○	○	○	○	○
i.Discussion Boards	○	○	○	○	○
j.Chats	○	○	○	○	○
k.Course Management System (i.e. Blackboard, Moodle, TWEN, Sakai, etc.)	○	○	○	○	○
l.Blogs	○	○	○	○	○
m.Podcasts	○	○	○	○	○
n.Wikis	○	○	○	○	○

Faculty Survey on Instructional Technology Adoption

Contact: baiap@acp.edu

Definition of Instructional Technology: The use of computer-based tools or equivalent electronic devices in teaching and learning.

For questions below, rate how much you agree with each statement using the following scale: SD=Strongly Disagree, D=Disagree, N=Neither agree nor disagree, A=Agree, or SA=Strongly Agree

	SD	D	N	A	SA
q2. I believe that the use of technology in education can enhance student learning in my discipline.	○	○	○	○	○
q3. Teaching is the most important part of my job.	○	○	○	○	○
q4. I believe the use of instructional technology is counter productive to student learning.	○	○	○	○	○
q5. I am eager to find new ways to help students learn.	○	○	○	○	○
q6. I believe the use of instructional technology can enhance my teaching.	○	○	○	○	○
q7. The content of my course is more important then the way I teach the course.	○	○	○	○	○
q8. The administration in my institution supports my use of technology in education.	○	○	○	○	○
q9. I have adequate training opportunities at my institution to develop the technical skills required for instructional	○	○	○	○	○

technology use.

q10. My office computer or laptop is adequate for supporting the use of technology in education.	○	○	○	○	○
q11. I feel my teaching is successful when I thoroughly cover the course content.	○	○	○	○	○
q12. I have access to instructional technology technical support.	○	○	○	○	○
q13. I have sufficient time to incorporate instructional technology into my courses.	○	○	○	○	○
q14. I enjoy teaching.	○	○	○	○	○
q15. The classrooms at my institution are sufficient and support my use of technology in education.	○	○	○	○	○
q16. I feel my teaching is successful when my students demonstrate their learning.	○	○	○	○	○
q17. I believe instructional technology is important in higher education.	○	○	○	○	○
q18. I change my teaching plans and strategies to foster student learning.	○	○	○	○	○

Faculty Survey on Instructional Technology Adoption

Contact: baiap@acp.edu

q19. Rate the degree to which the following are available to you at your institution for the use of instructional technology:

	1(never)	2(rarely)	3(occasionally)	4(frequently)	5(extensively)
a. Monetary incentives or rewards	○	○	○	○	○
b. Administrative recognition	○	○	○	○	○
c. Peer recognition	○	○	○	○	○
d. Advantage for tenure or promotion	○	○	○	○	○
e. Release time	○	○	○	○	○
f. May lead to a research publication	○	○	○	○	○
g. Professional development opportunities	○	○	○	○	○

q20. Which of the following five statements represents your perspective?

☐ I am personally committed to incorporating technologies into my teaching as much as possible.
☐ I occasionally select and use technologies that I feel are particularly suited to my course content and students.
☐ I use little or no technologies in my courses now, but may wish to do so in the future.
☐ I use technologies in my teaching, but prefer not to.
☐ I do NOT use technologies in my teaching.

q21. To what degree is using instructional technology personally satisfying to you?

○ 1(never)
○ 2(rarely)
○ 3(occasionally)
○ 4(frequently)
○ 5(extensively)

Faculty Survey on Instructional Technology Adoption

Contact: baiap@acp.edu

q22. Enter the number of years you have taught in higher education.

q23. Check your academic title.

- ◯ Professor
- ◯ Associate Professor
- ◯ Assistant Professor
- ◯ Instructor

Other (please specify)

q24. Is your institution considered a

- ◯ Teaching College
- ◯ Research College
- ◯ Both
- ◯ I don't know
- ◯ Other (please specify)

q25. Are you tenured?

- ◯ Yes
- ◯ No

q26. What is your specialization/discipline?

q27. Please share any survey comments, concerns, or feedback.

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