National Educational Technology Standards (NETS):
Preservice Teachers’ Perceived Preparation*

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Abstract

With the implementation of No Child Left Behind in 2002 (Klecka, Lin, Odell, Spalding, & Wang, J., 2010) and Tennessee’s First to the Top (2010) and the Common Core State Initiative Standards (2012) the teaching profession faces more difficult challenges than ever before. The pressure to provide tangible results of student progress has led legislators to hold teachers more accountable for how much their students actually learn. This study suggests that technology integration can effectively help raise standardized test scores if integrated properly in the classroom. These higher test scores are a reflection of improved student learning outcomes. Although the International Society for Technology in Education (ISTE) has established the National Educational Technology Standard (NETS) for teachers (2008a), the debate is whether the preservice teachers in the teacher education programs are actually obtaining these skills. Furthermore, are they comfortable implementing them into their future classroom to help their students raise their test scores across the board? Based on the results, upon completion of the technology integration course preservice teachers did perceive themselves as significantly more prepared to teach students according to the NETS standards in their future classroom.

Keywords: preservice teachers, technology, NETS, integration

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National Educational Technology Standards (NETS): Preservice Teachers’ Perceived Preparation

With the implementation of No Child Left Behind, in 2002 (Klecka, Lin, Odell, Spalding, & Wang, 2010), Tennessee’s First to the Top (2010), and the Common Core State Initiative Standards (2012) the teaching profession faces more difficult challenges than ever before. Teachers today have increased scrutiny from stakeholders and the public to provide proof that they are effective teachers. The pressure to provide tangible results of progress for students is at the forefront of this pressure. Legislators are increasingly searching for ways to hold teachers more and more accountable for how much their students actually learn while in their classrooms. This has led to further investigation into how exactly to hold those teachers accountable. Legislators recently passed significant changes in the tenure evaluation process that effectively redefines how in-service teachers will be evaluated (Tennessee Department of Education, 2012). The formula for obtaining tenure now includes a percentage based on student achievement. Currently student results on standardized testing now accounts for thirty-five percent of the evaluation process.

The concern now is what proven methods can teachers utilizing to effectively raise the standardized test scores of their students in their curriculum area to prove their effectiveness in the eyes of evaluators. University educational programs are now facing the ever-evolving issue of “in-service teacher accountability.” Many universities attempt to address this by both better educating preservice teachers in their programs according to the new standards. However, they still must find ways to better train them to meet the demands they will face in preparing their own future students to perform well on standardized tests. While technology integration can play a vital role in this process, overcoming the barriers to integrating technology and the difficulty of preparing these teachers in a single technology integration course within the teacher education program is very challenging. It is becoming more and more apparent that this is difficult to do with a single course and thus is even more dependent on a technology integration emphasis reflected within the culture of the program itself.

As research suggests, identifying beliefs or perceptions play an integral role in eliminating many of the barriers that exist towards technology and technology integration. This study will identify the perceptions preservice teachers have toward technology and their preparedness to integrate and utilize it in their future classrooms.

Literature Review

The mission statement for the new Common Core Standards Initiative (2012) is as follows:

The Common Core State Standards provide a consistent, clear understanding of what students expected to learn, so teachers and parents know what they need to do to help them. The standards design is to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With
American students fully prepared for the future, our communities are positioning to compete successfully in the global economy.

As shown in the mission statement above, students are preparing for success in both their career and/or college that is increasingly becoming more and more technology driven. This magnifies the need for technology competent teachers that becomes more and more apparent as technology becomes a greater factor in society. This fact is even more evident in today’s classrooms with the emphasis of standardized testing and the expectations employees have that students will obtain various technology skills from their educational experiences. This, in turn, has placed an even greater need for the teaching of technology skills within teacher education programs (Burke, 2000). In 1999 the U.S. Department of Education’s Preparing Tomorrow’s Teachers to Use Technology (PT3) grant program was established to provide federal funding to teacher education programs across the nation to better prepare preservice teacher education candidates to utilize technology (Brush, 2003). The International Society for Technology in Education (ISTE) developed the National Educational Technology Standards (NETS) for teachers (2008a) and students (2008b) that identify the various technology skills each should have based on current trends and technology. Clearly, the focus and pressure is on properly preparing preservice teachers in teacher education programs to utilize technology in their future classrooms in order to model and help their future students learn and perform at a higher level on standardized tests (Vermillion, Young, & Hannafin, 2007).

Research indicates that in order to incorporate technology into the classroom effectively, teachers must first have positive attitudes toward the benefits of technology and integration. So, while the use of workshops/seminars, professional development and graduate coursework is successful in preparing in-service teachers to integrate technology, researchers have learned that it is equally important to identify the perceptions and beliefs that many in-service teachers have toward technology integration (Mouza & Wong, 2009). This is especially true for negative perceptions that may hinder their integration efforts (Russell, Bebell, O’Dwyer, & O’Conner, 2003).

The ongoing problem continues to be eliminating the negative perceptions and barriers and then in order to properly equip and prepare preservice teachers in teacher education programs to meet the demands of a continually evolving educational landscape. With the emphasis now squarely on standardized testing and proof of student improvement, teachers are searching for ways to help better prepare their students to perform well on the standardized tests. This student success oriented approach now may be a major factor in determining whether the teacher obtains merit pay, receive favorable evaluations themselves, and/or more importantly secure their employment. The simple fact that we now more than ever before are a digital society lends itself to the notion that technology should be utilized to help meet these educational needs of students.

Many research efforts have attempted to identify ways in which teacher education programs can better equip preservice teachers with technology skills and prepare them to integrate those skills into their future classrooms. Murphy, Richards, Lewis, and Carman (2005) stated that in order strengthen and bridge the gap between teacher education programs and educational technology in K-8, there needs to be a “restructuring of both teacher preparation
programs and current classroom practice” (p. 125). According to Shoffner (2009), the success of properly infusing technology integration into any teacher education program has much to do with the attitudes and/or perceptions of preservice teachers towards the use of technology. Preservice teachers with positive attitudes and/or perceptions toward technology are more likely to experiment with different types of technology in their classroom.

Hammond (2007) described a task-oriented approach to stand-alone technology integration courses within a teacher education program. This approach involves dissecting all classroom activities of both students and teachers and then matching them to appropriate technologies. Not only does this approach teach preservice teachers various technologies but it also allows them to make connections between when to use them. As Mims, Drew, Shepherd, and Inan (2006) stated, simply having the technology skills alone is not enough but rather being able to make the connections between learning and technology in the most important.

One teacher education program used a PT3 grant to help ensure that their preservice teachers were meeting the NETS standards by developing an on-line support system and installing a portfolio development and assessment process (Shoffner & Dias, 2001). Another study looked at the idea of a virtual (Internet) practicum in which preservice teachers observe and interact with high-quality classroom teachers as opposed to physically going into the classroom setting itself (Karchmer-Klein, 2007). While this study did find some support for this idea, it highly recommended using it in addition to traditional methods of actually immersing preservice teachers within the actual physical classroom to observe.

The idea of Internet practicum seems supportive if the cooperating classroom teachers are modeling proper computer technology integration. Fleming, Motamedi, and May (2007) found that preservice teachers were more likely to indicate computer technology competence if those skills were modeled by not only cooperating teachers, but also professors across the program as well. Mims et al. (2006) insisted that properly preparing preservice teachers to utilize and integrate technology effectively in their classrooms depends largely on how effectively methods courses within their program use technology within the course.

**Purpose of the Study**

The foundation of this study was the idea that successfully integrating technology can effectively help raise standardized test scores if integrated properly in the classroom. These higher test scores are a reflection of student learning outcomes. Although the International Society for Technology in Education (ISTE) has established the National Educational Technology Standard (NETS) for teachers (2008a), the debate is whether the preservice teachers in the teacher education programs are actually obtaining these skills. Furthermore, do they feel comfortable implementing them into their future classroom to help their students raise their test scores across the board?

This study expands the literature regarding use of NETS to prepare preservice teachers to integrate technology into their future classrooms. It examines preservice teachers’ technology integration skills prior to and upon completion of the required technology integration course taken within the teacher education program. It furthermore assisted our teacher education
program in better understanding whether or not the course is effectively preparing preservice teachers. Most importantly, does it prepare teachers to meet the challenges of utilizing technology in their future classrooms to help their students learn and perform at a higher level on standardized tests? It also helps identify weaknesses or areas where preservice teachers might be lacking various skills or are weak in certain areas and allows for changes within the course.

Two primary questions guided this research:

1. Do preservice teachers perceive themselves as prepared to teach students according to the NETS standards in their future classroom?

2. Do preservice teachers perceive themselves as adequately prepared to meet the NETS

Methodology

This quasi-experimental study compared student teachers’ perceived knowledge and comfort level with the NETS standards before and after completing the technology integration course within the teacher education program.

A survey of student teachers who completed the teacher education program including a technology integration course assessed their perception of their own understanding and comfort level of NETS standards. Course presentation is both face-to-face and online. The face-to-face course is a traditional course that uses Blackboard to supplement course delivery. Delivery of the online course is exclusively through Blackboard. The same instructor teaches both courses and the content is the same for both.

The technology integration course utilizes the NETS standards and incorporates the use of the Integrating Computer Technology into the Classroom (NTeQ Model) to train preservice teachers to integrate technology into their classroom based on a ten-step approach (Morrison & Lowther, 2010). While this is the foundation of the course, it also utilizes various technology-based activities in Microsoft Word, Excel, Hyperstudio, Inspiration/Kidspiration, Prezi and various educational websites. The clear definition of the relationship between the NETS standards and all course-related programs and activities informed the students of standards associated with each course activity.

Sample

There were 89 total pre-survey responses and 70 total post-survey responses. Of the 70 post-survey responses, 54 were from students participating in the face-to-face course and 16 were from the online section. Of the total participants, only 58 (11 male and 47 female) completed both the pre- and post-survey questions. There were 3 freshmen; 25 sophomores; 21 juniors and 9 seniors. Of the 58, 33 were actively participating in the teacher education program and 25 were not. Teaching interests varied from 25 in elementary, 16 in secondary, 9 in family and consumer science, 5 in pre-kindergarten and 2 in both middle school and special education. Students enrolled in both face-to-face and online formats of the same technology integration course participated in the surveys. Both courses followed the same schedule and used the same
materials. The pre- and post-survey administrations occurred at the start and end of the spring semester.

**Data Collection and Analysis**

Participants completed the Perceptions of Computers and Technology Survey (Barron, Kemker, Harmes, & Kalaydjian, 2003) for both the face-to-face and online courses. The survey measures preservice teachers’ self-reported perceptions of how prepared they feel to meet the NETS standards in their future classroom prior to taking the technology integration course and after completing it. They take the same survey at the beginning of the course (pretest) and upon completion of the course (posttest). The survey consisted of a demographics section and 94 questions divided among five different categories. The five main categories identified are (1) how prepared preservice teachers feel they are to use technology, (2) school support they receive, (3) their perceptions of integration, (4) types of software used, and (5) a digital educator profile where they indicate their comfort level with various technologies. Citations of this well-known survey occur often in the literature. Hogarty, Lang, and Kromrey (2003) provided an in-depth discussion of the validity of the survey.

In order to address the first research question (whether or not teachers felt prepared to teach students according to the NETS standards in their future classroom) we derived a subscale score by summing eight of the 10 questions in the preparation, confidence, and comfort subscales and conducted dependent samples t-tests to assess the difference between pre/post-test subscale scores. A second dependent samples t-test focused on the question of whether the respondents thought they would use technology in the classroom. A third dependent sample t-test addressed the question if they would use various software after taking the course compared to before the course.

The second research question evaluated whether or not teachers felt their teacher education program/technology integration course adequately prepared them to meet the NETS standards. To determine this, pre- and post-levels of technology expertise were compared using two more dependent samples t-tests on calculated subscale scores for instructional attributes and leadership attributes. Next, several Wilcoxon’s signed-rank test were performed to test between the specific pre- and post-survey answers. Non-parametric tests were used because the questions had ordinal rank answers on a scale from 1-5.

**Results**

A dependent samples t-test evaluated the difference between the pre/posttest subscale scores to see if reported preparation increased after taking a technology integration course. Significant differences were found $t_{(57)} = 6.04, p < 0.05$. The mean score on the pretest was 28.91 ($SD = 4.38$) and 34.86 ($SD = 6.06$) on the posttest.

To test whether or not students would be more likely to incorporate technology into the classroom another dependent samples t-test assessed the pre and post-technology subscale scores. The differences were not significant.
A third dependent samples t-test found differences in the projected use of various software to complete school related activities, after taking this class, $t_{(57)} = 2.10, p < 0.05$, signifying that participants were more likely to use technology, $M = 50.22$ ($SD = 10.45$) and $55.87$ ($SD = 12.74$).

The second research question of whether or not teachers felt their teacher education program/technology integration course adequately prepared them to meet the NETS standards was addressed first with two dependent samples t-tests. Participants indicated technology expertise increased after taking this class specifically with instructional attributes, $t_{(57)} = 9.27, p < 0.05$ and leadership attributes, $t_{(57)} = 8.68, p < 0.05$. In both cases the post scores ($M = 37.51; SD = 6.08$ and $22.31; SD = 3.63$) were significantly higher than the pretest scores ($M = 25.79; SD = 8.06$ and $15.86; SD = 5.32$) respectively.

The researchers used the Wilcoxon signed-rank test to analyze pre-tests and posttest survey answers'. The z-scores with negative values indicate that posttest scores were higher than the pretest scores. Several specific questions showed significant differences in median ranks (see Table 1 for specific questions).

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have had adequate training in technology use</td>
<td>58</td>
<td>-2.57</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>I feel prepared to use my laptop in classroom</td>
<td>58</td>
<td>-2.75</td>
<td>0.008</td>
</tr>
<tr>
<td>I feel prepared to create rubrics to assess multimedia projects</td>
<td>58</td>
<td>-2.58</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>How often do you plan to use web publishing programs to complete school related activities</td>
<td>57</td>
<td>-2.04</td>
<td>0.029</td>
</tr>
<tr>
<td>How often do you plan to use graphics programs to complete school related activities</td>
<td>56</td>
<td>-2.53</td>
<td>0.006</td>
</tr>
<tr>
<td>How often do you plan to use instructional games to complete school related activities</td>
<td>58</td>
<td>-2.59</td>
<td>0.002</td>
</tr>
<tr>
<td>How often do you plan to use concept mapping programs to complete school related activities</td>
<td>57</td>
<td>-2.62</td>
<td>0.009</td>
</tr>
<tr>
<td>How often do you plan to use programming or authoring tools to complete school related activities</td>
<td>58</td>
<td>-2.72</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Overall, preservice teachers perceived the technology integration course to have a significant impact on their preparation to meet the NETS standards. The overall median scores from pre survey to post survey were significantly different. The results indicated that students gained confidence in each of the five main categories according to the survey. Table 2 (below) displays the average median student scores.
Table 2
Category Average for Student Median Scores

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
<td>1. Teacher Preparation for Technology Use</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>2. Confidence &amp; Comfort Using Technology</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>3. Integration of Technology Into the Classroom</td>
<td>2.50</td>
<td>4.00</td>
</tr>
<tr>
<td>4. Types of Software Used to Complete School Related Activities</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>5. Digital Educator Profile</td>
<td>2.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

As shown in table 2, the greatest difference in average median scores between pre/post occurs in category five. The results indicated that most preservice teachers felt they were between a ‘novice’ and ‘being comfortable’ prior to taking the technology integration course in terms of their comfort level in the use of digital tools in instructional, leadership, and classroom areas. Conversely, after completing the course preservice teachers indicated that overall they were between ‘comfortable’ and ‘very comfortable’ in doing so.

While all post-survey responses were higher than pre survey responses, some individual questions within categories showed greater differences in mean scores between the two surveys and appeared to stand out. For example, when asked if they felt prepared to create rubrics to assess multimedia projects, pre survey median score was $Mdn = 3.00$ while post survey mean score was $Mdn = 4.00$. One of the largest differences appeared when asked if they felt prepared to guide other teachers in planning and implementing lessons that incorporate technology. Pre survey results were $Mdn = 2.50$ while post survey results were $Mdn = 4.00$. Still another rather large difference between pre ($Mdn = 3.00$) and post ($Mdn = 4.00$) was in response to comfort level of assigning multimedia projects to their students. One final rather large difference in median scores between pre ($Mdn = 2.00$) and post ($Mdn = 4.00$) appeared when asked how comfortable they felt modeling, mentoring, and promoting the infusion of digital technologies in their school.

Discussion

As mentioned above, the basis of the study is two main research questions. The research questions were as follows: Do teachers feel prepared to teach students according to the NETS standards in their future classroom. Do teachers feel their teacher education program/technology integration course adequately prepared them to meet the NETS standards?

Based on the results, upon completion of the technology integration course preservice teachers did perceive themselves as significantly more prepared to teach students according to the NETS standards in their future classroom. This research question revolves around all five categories of the survey and each had significantly higher overall mean scores. Category 1 and 5 directly related to research question two that also had significantly higher overall mean scores. Results indicated that teachers did in fact perceive themselves as more prepared to meet the NETS standards upon completion of the teacher education integration course.

While the successes of the course appear to be obvious, there are still gains to make. The constantly evolving standardized testing landscape will continue to create a need for more
instructional technology to aid students in meeting the standards. This is a challenge that should be met college or departmental wide and not merely left to a single technology integration course in a teacher education program. Research continues to show that obtaining the needed integration skills to help meet the NETS standards is becoming more and more dependent on modeling from other faculty and cooperating teachers across the entire program.

As Sutton (2011) found, students indicated they saw a contradiction between how they were taught to integrate and use technology in the classroom and the practices they observed by their professors in other courses in their teacher education program. Sutton (2011) also noted that students found there to be a “perceived disconnect between preservice technology training and the rest of their teacher preparation program” (p. 43).

Future Research

Future research should center on a longitudinal study that would encompass a larger number of students to allow for more in depth comparisons. For example, Barron et al., (2003) looked at comparisons across curriculum areas to determine which area indicated a greater intention of using the skills learned in their future classrooms. A comparison of both online and face-to-face formats would likely need examination. It also might be useful to compare the different academic classifications to each other, such as comparing freshman to seniors, sophomore to juniors, etc. A follow-up survey would also be interesting to follow the preservice teachers into the field and determine if they were actually using the skills learned from the technology integration course in their own classrooms. Were in-service teachers integrating the NETS standards into their courses in an effective manner? A comparison of skills used to their perceptions at the conclusion of the technology integration course would determine if the perceptions of their skills were accurate.

As both technology and students needs continue to change, and the standardized testing process continues to evolve on both national and state levels, it would be important to conduct a routine assessment of this area. This would help determine if the teaching of the technology course continued to be effective in the training of preservice teachers to meet new challenges or new standards. Prior research does look at the need to have technology integration courses included in teacher education programs and examined the various means to improve the technology skills of preservice students (Blankson, Keengwe, & Kyei-Blankson, 2010). Similarly, this study looked at a specific teacher education program and its technology integration course to determine if it was effectively meeting the needs of preservice teachers as defined by NETS standards. According to Shoffner and Dias (2001), this should be the goal of every program--as standards, technology and testing change so should the way we prepare our students to meet these needs. They proposed the use of an ongoing matrix and portfolio system. They felt these needed constant monitoring to provide feedback to the faculty and the program. This would assist preservice teachers to develop the skills necessary to meet the needs of the teacher education program as well as the technology integration course(s) used to meet the NETS standards. This should be an ongoing process as the standards and technology continue to change as a function of changing requirements for teacher accountability for standardized testing.
References


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Appendix

Stages of Concern Questionnaire

Please read the following directions carefully before completing this questionnaire.

The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the innovation adoption process. The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various innovations to many years’ experience in using them. Therefore, a good part of the items may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please mark "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale, according to the explanation contained in the scales below.

Please respond to the items in terms of your present concerns, or how you feel about your involvement or potential involvement with mobile technology. We do not hold to any one definition of this innovation, so please think of it in terms of your own perception of what it involves. Since this questionnaire is used for a variety of innovations, the name mobile technology does not always appear. However, phrases such as "this approach" or "the new system" refer to mobile technology. Remember to respond to each item in terms of your present concerns about your involvement or potential involvement with mobile technology.

Please read each of the following 35 questions and then select the number that most closely matches your concerns about each item. Please refer to the scales below to select your level of concern for each item.

Please respond in terms of your present concerns, or how you feel about your involvement or potential involvement with mobile technology.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not true of me now</td>
<td>Somewhat true of me now</td>
<td>Very true of me now</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I am concerned about students’ attitudes toward mobile technology.
2. I now know of some other approaches that might work better.
3. I am more concerned about another mobile technology.
4. I am concerned about not having enough time to organize myself each day.
5. I would like to help other faculty in their use mobile technology.
6. I have very limited knowledge about mobile technology.
7. I would like to know the effect of reorganization on my professional status.
8. I am concerned about conflict between my interests and my responsibilities.
9. I am concerned about revising my use of mobile technology.
10. I would like to develop working relationships with both our faculty and outside faculty using mobile technology.
11. I am not concerned about how mobile technology affects students.
12. I am not concerned about mobile technology at this time.
13. I would like to know who will make the decisions in the new system.
14. I would like to discuss the possibility of using mobile technology.
15. I would like to know what resources are available if we decide to adopt mobile technology.
16. I am concerned about my inability to manage all mobile technology requires.
17. I would like to know how my teaching or administration is supposed to change.
18. I would like to familiarize other departments or persons with the progress of this new approach.
19. I am concerned about evaluating my impact on students.
20. I would like to revise the innovation’s instructional approach.
21. I am preoccupied with things other than mobile technology.
22. I would like to modify the use of mobile technology based on the experiences of our students.
23. I spend little time thinking about mobile technology.
24. I would like to excite my students about their part in this approach.
25. I am concerned about time spent working with non-academic problems related to mobile technology.
26. I would like to know what the use of mobile technology will require in the immediate future.

27. I would like to coordinate my efforts with others to maximize the mobile technology’s effects.

28. I would like to have more information on time and energy commitments required by mobile technology.

29. I would like to know what other faculty are doing in this area.

30. Currently, other priorities prevent me from focusing my attention on mobile technology.

31. I would like to determine how to supplement, enhance, or replace mobile technology.

32. I would like to use feedback from my students to change the program.

33. I would like to know how my job would change when I am using mobile technology.

34. Coordination of tasks and people is taking too much of my time.

35. I would like to know how mobile technology is better than what we have now.

Stages of Concern Questionnaire Statements Grouped by Stage

Stage 0 - Awareness

3  I am more concerned about another innovation.

12  I am not concerned about the innovation at this time.

21  I am preoccupied with things other than the innovation.

23  I spend little time thinking about the innovation.

30  Currently, other priorities prevent me from focusing my attention on the innovation.

Stage 1 - Informational

6  I have a very limited knowledge about the innovation.

14  I would like to discuss the possibility of using the innovation.

15  I would like to know what resources are available if we decide to adopt the innovation.

26  I would like to know what the use of the innovation will require in the immediate future.

35  I would like to know how the innovation is better than what we have now.

Stage 2 - Personal

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I would like to know the effect of reorganization on my professional status.
I would like to know who will make the decisions in the new system.
I would like to know how my teaching or administration is supposed to change.
I would like to have more information on time and energy commitments required by the innovation.
I would like to know how my role will change when I am using the innovation.

Stage 3 - Management
I am concerned about not having enough time to organize myself each day.
I am concerned about conflict between my interests and my responsibilities.
I am concerned about my inability to manage all the innovation requires.
I am concerned about time spent working with nonacademic problems related to the innovation.
Coordination of tasks and people is taking too much of my time.

Stage 4 - Consequence
I am concerned about students' attitudes toward the innovation.
I am concerned about how the innovation affects students.
I am concerned about evaluating my impact on students.
I would like to excite my students about their part in this approach.
I would like to use feedback from students to change the program.

Stage 5 - Collaboration
I would like to help other faculty in their use of the innovation.
I would like to develop working relationships with both our faculty and outside faculty using the innovation.
I would like to familiarize other departments or persons with the progress of this new approach.
I would like to coordinate my effort with others to maximize the innovation's effects.
I would like to know what other faculty are doing in this area.

Stage 6 - Refocusing
I now know of some other approaches that might work better.
I am concerned about revising my use of the innovation.
I would like to revise the innovation's instructional approach.
I would like to modify our use of the innovation based on the experiences of our students.

I would like to determine how to supplement, enhance, or replace the innovation.