

The REFLECT Initiative:
Researching Electronic portFolios: Learning, Engagement and Collaboration through Technology.

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Abstract

In 2005, TaskStream launched this research project to study the impact of electronic portfolios in secondary schools. This Roundtable discussion will review the research design and specifically an instrument being developed to gather information on high school students' attitudes toward portfolios and assessment, reflection on learning, and the specific technologies and tool being used (TaskStream).

a. objectives or purposes;

The overarching goal of The REFLECT Initiative is to collect data and draw conclusions about the impact that developing and maintaining electronic portfolios have on secondary student learning, motivation and engagement; and how teaching practices and strategies change with electronic portfolio integration.

REFLECT is both an acronym and the overarching purpose behind this research project: the REFLECT Initiative will study issues related to portfolio learning and reflection. The data collected will provide research-based evidence on the effect that developing and maintaining electronic portfolios have on student learning, motivation, and engagement. To that end we will seek to identify what conditions facilitate and encourage students to care about their work and be proud of it. Can the project identify the conditions necessary to motivate students to maintain their portfolios as a record of their growth over time and as a story of their learning? Some of the key research questions that will guide the study include:

- How do e-portfolios provide evidence of deep learning?
- Under what conditions can e-portfolios be successfully used to demonstrate assessment for learning and assessment of learning?
- Under what conditions do students take ownership of their e-portfolios?
- What are the benefits of developing e-portfolios as perceived by students, teachers, administrators, and/or parents?
- What are perceived obstacles to implementing e-portfolios with secondary school students and how can they be overcome?
- How do paper portfolios differ from e-portfolios?

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b. perspective(s) or theoretical framework;

The research will draw upon the established literature and theoretical constructs with validated research instruments and data collection protocols. These resources will include: (see the reference list for the details of these resources)

- **Reflection:** Jennifer Moon, Maxine Alterio & Janice McDrury
- **Motivation:** Self-Determination Theory, Intrinsic Motivation (Deci & Ryan): <http://www.psych.rochester.edu/SDT/>
- **Theory of Student Engagement and Qualities of Engaging Schoolwork** (Schlechty Center): <http://schlechtycenter.org>,
- **Project-Based Learning:** Buck Institute, George Lucas Education Foundation
- **Technology Competency:** ISTE NETS-T and NETS-S plus Essential Conditions
- **Portfolio Development:** Teachers (Nona Lyons, Lee Shulman), K-12 Students (Elizabeth Hebert, Anne Davies, Jim Mahoney, Evangeline Harris Stefanakis), Post-Secondary (Kathleen Blake Yancey, Barbara Cambridge, David Tosh)
- **Assessment FOR Learning:** Rick Stiggins, Anne Davies, QCA: <http://www.qca.org.uk/af/>

c. methods, techniques, or modes of inquiry; and d. data sources or evidence;

Research data will be generated through such vehicles as surveys, on-site observations, online discussions, and journals, and the aggregation of student performance-based assessment data. Data will be collected at several points along the way:

- Early in the process (Fall 2005 – beginning of first school year) – “Pre”
- Half-way through the process (Spring 2006 – end of first school year) – “Mid”
- End of the process (Winter 2006-2007 – after first half of second school year) – “Post”

The next two pages contain the detail, in table form, of the research design, including the research questions, research methods, data collection instruments, and summary of the data collection timeline.

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DESIRED OUTCOMES (HYPOTHESES)	RESEARCH QUESTIONS	RESEARCH METHOD	DATA COLLECTION INSTRUMENTS	WHEN
E-Portfolios enhance student learning.	How do e-portfolios provide evidence of deep learning? Deep learning: - involves reflection - is developmental, - is integrative, - is self-directive, and - is lifelong	Teachers assess students level of reflection in portfolios Student reflections in portfolios Student attitude toward self-directed learning	Rubric on Reflection co-developed during online course (based on Moon) Random review of student portfolios Deci & Ryan	Mid and Post Post Pre & Post
	Under what conditions can e-portfolios be successfully used to demonstrate assessment for learning and assessment of learning?	Teacher Reflections on implementation process Observations in schools Conversations with teachers and administrators Optional: student test data	Postings in online course Onsite observation checklist C-BAM Optional: site-delivered student test scores	Fall 2005 through Winter 2006 Post Pre and Post Post
E-Portfolios enhance student motivation.	Under what conditions do students take ownership of their learning and work?	Questionnaire about Motivation and Learning (students)	Self-Determination Theory questionnaires (Deci & Ryan)	Pre And Post
E-Portfolios enhance student engagement.		Questionnaire about Level of Student Engagement and 10 qualities of engaging schoolwork Student Focus Groups	Schlechy Center Theory of Engagement and WOW instruments? Questions to be developed (based on Tosh)	Pre? and Post Post
E-Portfolios are more effective than paper-based portfolios. Developing e-portfolios builds technology skills.	What are the benefits of developing e-portfolios as perceived by students, teachers, administrators, and/or parents?	Teacher Reflections & Interviews Student Questionnaire Parent Questionnaire Administrator Questionnaire	Postings in online course To be developed	Post
	What are perceived obstacles to implementing e-portfolios with secondary school students and how can they be overcome?	Teacher Reflections and Interviews Student Questionnaire or Focus Groups	Postings in online course To be developed	Mid and Post Mid and Post
	How do paper portfolios differ from e-portfolios?	Teacher Reflections & Interviews	Postings in online course Onsite observation/interviews	Fall 2005 through Winter 2006
	What are the skills necessary to effectively implement e-portfolios?	Technology Skills Assessment – - Teachers - Students	ISTE NETS-T ISTE NETS-S	Pre and Post Pre and Post
		Portfolio Facilitation Skills – Teachers	To be developed	Post
E-Portfolio development benefits all learners and all schools	What are the characteristics of the study participants?	Demographic Questionnaire – teachers & students	To be developed	Pre
	What are characteristics of school sites?	NETS Essential Conditions plus local school site information	Inaugural Meeting + Online course assignment	Pre

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Summary of Research Protocols

	Source: S=Student T=Teachers P=Parents	Data type: T= qualitative #=quantitative	Data collection method
Pre: Early in the process (Fall 2005 – beginning of first school year)			
Demographic Questionnaire - Prior experience with paper portfolios Prior Experience with tech integration (T)	S & T	T & #	Survey
Questionnaire about Motivation and Learning	S	#	Survey
Questionnaire about Level of Student Engagement and 10 qualities of engaging schoolwork (Schlechty)*	T, S	T & #	Survey
NETS – Technology Skills Pre-Assessment NETS-T & NETS-S	S & T	#	Survey
NETS Essential Conditions plus local school site information –	Site Facilitator	T& #	Survey
CBAM Instrument	T	#	Regional
Questionnaire – T, S, P?, A – Initial attitude assessment on portfolios	T, S, P?, A		Survey
Ongoing through Online Professional Development			
Rubric on Reflection co-developed during online course and then used for data collection	T	#?	Rubric Builder
Teacher Reflections on implementation process, including: - benefits of e-portfolios	T	T	Journal or Discussion
- obstacles to implementation, and how they can be overcome	T & S	T	Journal
- how the portfolio is introduced to students (lesson plan)	T	T	Journal
Discussion on how paper portfolios differ from e-portfolios	T	T	Discussion
Onsite observations and conversations – Fall 2005			
Observation checklist (to be developed)	Director	T & #	See below
<ul style="list-style-type: none"> - Purpose of Portfolio Implementation - Introduction to Students (Lesson Plan) - Transition from paper to electronic format for portfolios - Challenges - Successes - Examples to review – prior paper-based portfolios 			
Mid: process (Spring 2006 – end of first school year)			
Student and Teachers data on successes & obstacles to implementing e- portfolios with secondary school students and how they can be overcome	S & T	T & #	Survey
Onsite observations and conversations – Fall 2006			
Observation checklist (to be developed)	Director	T & #	See above
Student Focus Groups - Questions to be developed (based on Tosh)		T	Audio
Post: End of the process (Winter 2006-2007 – after first half of second school year)			
Random review of student portfolios (Document reviews – need rubric)	S	T	DRF
Questionnaire about Motivation and Learning	S	T & #	Survey
Questionnaire about Level of Student Engagement and 10 qualities of engaging schoolwork (Schlechty)*	S & T	T & #	Survey
Questionnaires for Students, Teachers, Parents, Administrators on benefits of e-portfolios (to be developed)	S & T & A & P	T & #	Survey
NETS – Technology Skills Post-Assessment	S & T	#	Survey
Portfolio Facilitation Skills Assessment (to be developed)	T	#	DRF
C-BAM -	T	#	Survey
Optional: Site-delivered student test scores	S	#	

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e. results and/or conclusions/point of view

In a round table discussion, the preliminary data from the initial data collection from students and teachers will be presented. Data will be collected in the fall semester 2005. This data will be summarized and presented in summary form in the Roundtable. The second round of data collection will be conducted within a month after the AERA conference, so the preliminary instruments will be shared for formative feedback.

f. educational or scientific importance of the study.

The REFLECT Initiative is an 18-month action research study of the impact of electronic portfolios on student learning, motivation, and engagement in secondary schools. In May 2005 more than 25 schools or districts were accepted to participate in this mixed-methods study. The project will engage up to 6,000 secondary school students from across the country in the use of web-based electronic student portfolio tools that are being provided at no cost to the students for two years.

The existence of an accessible archive of authentic student work can provide valuable data for school improvement. For the students themselves, the effect of maintaining a reflective portfolio has the potential to support deep learning and ownership of the learning process. The use of technology-based productivity tools has become widespread; most of the work of students now passes through or is finalized in electronic form or can be converted easily into digital documents. This development and the availability of web-accessible portfolio tools and secure web-based storage of data, create the dual opportunity inherent in the design of the REFLECT Initiative.

The central question of the overall study is, “What is the impact of electronic portfolios on student learning, motivation, and engagement in secondary schools?” But the study also requires participants to design how they will study the use the portfolios with their students. Thus, the participating institution can incorporate its own questions regarding the organization of work or student products over time, assessment, presentation, portfolio design, roles of various faculty members or simply, “How can we explore and make use of this resource with our students?”

The project includes a significant professional development component and the sponsoring ASP includes direct technical support to aid in design and execution of a school’s portfolio program. The size of the study affords all of us the opportunity to transcend anecdotal evidence and amass significant experiential data relating to the impact on student achievement. The web-based interactive environment supplied by the ASP offers all participating educational institutions the opportunity to share results and experiences at local levels and in the overall study.

This is the first national research project on electronic portfolios in secondary schools, from California, Arizona, New York, New Jersey, Michigan, Tennessee, Ohio, Maryland plus a cohort in an English language school in Brazil! Two projects are sponsored by State Departments of Education (Arizona and New Jersey). In the Arizona project, future teachers begin developing their professional teaching ePortfolios while still in high school, easily transferring them to any Teacher Education program in that state.

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Portfolios & Assessment

Electronic Portfolios (e-portfolio) are, in essence, an archive of one's work, achievements, ideas, thoughts and feelings. This archive reflects an individual's intellectual, emotional and social developments – documenting their learning over time. They are collections of your work where you can represent your skills and interests to diverse audiences. Highly customizable, e-portfolios allow the user to assemble subsets of their work to present to instructors, potential employers, and others.

Introduction (Source: David Tosh)

1. Is the concept of e-portfolios as defined above new to you?
 Yes No Not sure
2. Have you been given an introduction on e-portfolios and how to use them?
 Yes No Don't know
3. If you answered 'yes' rate this statement. At this point, I feel comfortable the introduction was adequate.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
4. At this point, I feel comfortable with the level of support available to me when using the e-portfolio?
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
5. Do you have an effective way, in your opinion, to deal with the following? (yes/no/to an extent/not sure?)
 - a. Present your coursework/thoughts/ideas
 - b. Represent your growth over the duration of a course
 - c. Think about what you are learning and how you would like it to develop
6. The following are features of the e-portfolio. Please rank each based on how important you think the feature will be to you throughout the course.
(1 = not important up to 5 = very important)
 - a. Having all coursework in one location accessed through one interface
 - b. Being able to share your experiences (coursework, reflections, thoughts) with your peers, teachers, parents
 - c. Having a tool that allows you to reflect and record these reflections throughout your academic course
 - d. Being able to view your teacher feedback, personal reflections and coursework in one system
 - e. Being able to show potential employers actual examples of your growth and development (this could involve showing them actual pieces of coursework – reflective entries etc)
 - f. Being able to participate in learning communities with your peers (this could be online tutorial groups or just individuals with shared interests)
 - g. Sharing your experiences and resources with fellow students (this could be useful articles etc you have found)
 - h. Being able to sharing and discuss any problem you may be having on a particular course
 - i. Using a portfolio of evidence built up over the year to demonstrate your competence in a subject instead of taking final exams

The following statements cover how your teacher involves you in assessment for learning.

(Source: Anne Davies)

1. My teacher involves students in on-going assessment for learning.
 I don't know Not at all Some of the time All or most of the time
2. My teacher summarizes the learning that students are expected to accomplish.
 I don't know Not at all Some of the time All or most of the time
3. My teacher collects and reviews samples and models to show what the learning looks like for students of a particular age range.
 I don't know Not at all Some of the time All or most of the time
4. My teacher thinks about what kinds of evidence students could produce to show we have learned what we needed to learn.
 I don't know Not at all Some of the time All or most of the time

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5. My teacher ensures the evidence of learning is valid and reliable by collecting evidence over time so emerging trends and patterns can be identified.
 I don't know Not at all Some of the time All or most of the time
6. My teacher uses classroom assessment information to fine-tune instruction and the learning environment for students.
 I don't know Not at all Some of the time All or most of the time

Regularly...

1. I am able to articulate the learning goals
 Not at all Some of the time All or most of the time
2. I collect and refer to samples that show quality work.
 Not at all Some of the time All or most of the time
3. I am able to describe what evidence of learning might look like.
 Not at all Some of the time All or most of the time
4. I set criteria with my teacher to define quality learning.
 Not at all Some of the time All or most of the time
5. I have time to learn.
 Not at all Some of the time All or most of the time
6. I receive and give specific, descriptive feedback as I learn.
 Not at all Some of the time All or most of the time
7. I debrief my learning with my peers and others.
 Not at all Some of the time All or most of the time
8. I self-assess, and set goals.
 Not at all Some of the time All or most of the time
9. I revisit and reset the criteria as I learn more.
 Not at all Some of the time All or most of the time
10. I collect evidence of my own learning.
 Not at all Some of the time All or most of the time
11. I present evidence of learning to others and receive feedback.
 Not at all Some of the time All or most of the time
12. I am fully involved in the assessment process. I am working harder and learning more.
 Not at all Some of the time All or most of the time

4c. Based on your experience in creating your e-Portfolio, indicate the degree to which you agree or disagree with the following statements: (Source: Kirk Vandersall)
(Strongly Agree, Agree, Agree a Little, Neither Agree Nor Disagree, Disagree a Little, Disagree, Strongly Disagree)

- a. Technology has really made it easier for me to save a store artifacts and reflections I'm going to use in my portfolio.
- b. Technology has really made it easier for me to get feedback about artifacts and reflections I'm producing or have produced.
- c. Technology has really added to the quality of the portfolio I'm producing or have produced.
- d. Many of the resources that were used to create my portfolio were generated through the use of technology.
- e. I wish I had access to technology tools that would help me store and archive the work I want to include in my portfolio.
- f. The technology tools available to me aren't really helpful to organizing the artifacts I've collected.
- g. The technology tools available to me don't conveniently allow me to link a reflection to a specific artifact.
- h. The technology tools available to me don't conveniently allow professors to link their comments to a particular reflection or a particular artifact.

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Responses below: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree
(Source: Bartlett, A., & Sherry, A.)

1. While creating my electronic portfolio, I learned about technology.
2. While creating my electronic portfolio, I learned to use new equipment.
3. While creating my electronic portfolio I improved my use of familiar equipment.
4. While creating my electronic portfolio I learned to use new software programs.
5. While creating my electronic portfolio I improved my use of familiar software programs.
6. While creating my electronic portfolio I learned to organize and present ideas.
8. While creating my electronic portfolio I learned to apply technology in my learning.
10. While creating my electronic portfolio I learned to evaluate my learning.
12. Electronic portfolios are more powerful and convenient than traditional portfolios.
14. Electronic portfolios can showcase learning.
15. Electronic portfolios provide a means of self-evaluation.
18. I can apply what I learned from creating an electronic portfolio to my learning.
19. I had difficulties related to equipment when creating my electronic portfolio.
20. I had difficulties related to software when creating my electronic portfolio.
21. I felt time constraints when creating my electronic portfolio.
22. My electronic portfolio was too limited in the topics that were covered.
24. My lack of knowledge with certain aspects of technology was a problem when creating my portfolio.
26. This assignment needs to have more direct guidance throughout the process.
27. It was challenging to select the content of my electronic portfolio.
28. I had sufficient time to work on my electronic portfolio assignment.
29. Sufficient class time was allotted for working on my portfolio.
30. I had adequate access to equipment when creating my electronic portfolio.
31. I was able to include a sufficient number of topics in my electronic portfolio.
32. I was able to be creative in my portfolio.
34. I did an adequate amount of reflection on my development as a learner.
35. My electronic portfolio shows an adequate level of reflection on the samples I chose to include.
37. My electronic portfolio looks professional.
38. Guidelines for the electronic portfolio assignment were clearly stated.
39. There were sufficient opportunities to receive feedback on my portfolio from my peers.
40. There were sufficient opportunities to receive feedback on my portfolio from teachers.
41. There were sufficient opportunities to view my peers' portfolios during the process.
42. The electronic portfolio assignment should be optional.
44. I had adequate access to needed software when creating my electronic portfolio.
45. I had adequate access to technical support when creating my electronic portfolio.
46. I had adequate access to needed equipment when creating my electronic portfolio.
47. I felt I adequately protected the privacy of individuals appearing in my electronic portfolio.
49. I would like to publish my electronic portfolio on the Web.
50. I am more likely to use technology in my future employment because of my experiences making an electronic portfolio.
51. I found the electronic portfolio assignment to be collaborative.
52. I found the electronic portfolio assignment to be inclusive.
53. I found the electronic portfolio assignment to be dynamic.
54. I found the electronic portfolio assignment to be inquiring.
55. I found the electronic portfolio assignment to be reflective.
56. I plan to use my electronic portfolio in job searches.
60. I plan to use my electronic portfolio to apply for colleges.
61. I do not plan to use my electronic portfolio in the future.
71. On a scale of 1 -10, with 10 being the highest score, my overall satisfaction with my electronic portfolio was:
72. Do you believe it was worth your time to create an electronic portfolio?

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Reflection on Learning

Source below: David Tosh

“Reflection is a form of mental processing – like a form of thinking – that we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to relatively complicated or unstructured ideas for which there is not an obvious solution and is largely based on the further processing of knowledge and understanding and possibly emotions that we already possess” (Moon 1999)

1. Reading the definition of reflection above have you been asked to reflect on some aspect of your learning before? Yes No Not sure
2. If you answered yes please describe. (text box)
3. I usually set out to understand for myself the meaning of what we have to learn.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
7. I try to make sense of things by linking them to what I already know.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
8. On the whole, I’m quite systematic and organised in my studying.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
9. When things don’t make sense to me I will continue to go over them until they do.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
10. If I don’t understanding things well enough while I’m studying, I try a different approach.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
11. I try to relate information I come across to other topics or courses whenever possible.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
12. Much of what I’ve learned seems like unrelated bits and pieces in my mind.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
13. I don’t think topics through for myself; I rely on what we’re taught.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
14. I work steadily throughout a course, rather than leaving things until the last minute.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
15. I pay careful attention to any advice or feedback I’m given on my course and use this to improve my understanding of the course.
 Strongly agree Agree Neither agree nor Disagree Disagree Strongly disagree
16. How do you identify areas where you have strengths and weaknesses?
 I don’t
 Correspondence with my teacher
 On a personal website
 Using a progress report
 Other – please specify
17. How do you think about and keep track of areas you need to improve? (textbox)
18. When preparing for an assignment what is your primary concentration?
 Discussing with your teacher
 Consulting the library
 Discussing with other students
 Use online resources
 Other (please state)

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TaskStream/technology tools

(source below: David Tosh)

A weblog (blog) is defined as any web page with content organized according to date. Examples are Blogger and LiveJournal.

Social networking is Web technology which allows people to discover new business or personal contacts by exploring relationship links between people. Examples are MySpace, Friendster and FaceBook.

1. Do you do any of the following? (never/once or twice/regularly)
 - Maintain a personal weblog
 - Use weblogs to find information
 - Use weblogs to keep in touch with friends
 - Use social software to take part in online communities
 - Take part in online chat rooms
 - Use Instant Messaging (any of: MSN, YIM, AIM, Skype or equivalent)
 - Use online discussion groups
 - Maintain a MySpace account?
2. What would you prefer: *(please select)*
 - A system that is highly structured and guides me through all I need to do
 - An open system giving me more control over the whole process, layout etc.

Source below: Studler & Wetzell

4. Do/Did you have sufficient access to computers and other technologies to complete your portfolios in a timely manner?
5. What is the level of support available to you for EP use? What support would be helpful to you? To other students?
6. How well prepared do/did you feel to complete the EP? How well prepared are/were the other students?
7. Did you or your fellow students have problems in putting together the EPs? Has this changed over time?
8. What are the advantages or benefits resulting from putting together your EP?
9. What are the disadvantages or concerns resulting from putting together your EP?
10. Do you plan to use it after you graduate? Add to it?

Source below: Helen Barrett

11. What kind of documents did you include in your portfolio? (check all that apply)
 - Text I typed into TaskStream
 - Text I copied from another document and pasted into TaskStream
 - Word Processing documents that I attached to my portfolio in TaskStream
 - Images that I found on the Internet (including TaskStream)
 - Images that I created myself with a computer graphics program
 - Images that I created myself and scanned
 - Digital photos created with a digital camera
 - Links to other websites
 - Links to a web page I created myself
 - Audio files that I found on the Internet (including music)
 - Audio files that I created myself
 - Video files that I found on the Internet
 - Video files that I created myself
 - Other [text box]

REFLECT Initiative Mid-Point Data Collection – Student Version
First Draft

TaskStream Questions: Note. SA = *Strongly agree*, A = *Agree*, N = *Neutral*, D = *Disagree*, SD = *Strongly Disagree*, N/A = *Have not used or not applicable* (Source: Mark Rodriguez)

1. I had trouble remembering my User ID.
2. I had trouble remembering my password.
3. I had difficulty resolving problems with my User ID.
4. I had difficulty resolving problems with my password.
5. Instant Messenger was a useful feature in TaskStream.
6. My Programs was a useful feature in TaskStream.
7. The Cybrary was a useful feature in TaskStream.
8. The Mybrary was a useful feature in TaskStream.
9. The Web Folio Builder was a useful feature in TaskStream.
10. The Web Page Builder was a useful feature in TaskStream.
11. The Message Center was a useful feature in TaskStream.
12. The Discussion Board was a useful feature in TaskStream.
13. The Calendar was a useful feature in TaskStream.
14. The Announcements was a useful feature in TaskStream.
15. Help was a useful feature in TaskStream.
16. Instant Messenger was a difficult feature to learn to use.
17. My Programs was a difficult feature to learn to use.
18. The Cybrary was a difficult feature to learn to use.
19. The Mybrary was a difficult feature to learn to use.
20. The Web Folio Builder was a difficult feature to learn to use.
21. The Web Page Builder was a difficult feature to learn to use.
22. The Message Center was a difficult feature to learn to use.
23. The Discussion Board was a difficult feature to learn to use.
24. The Calendar was a difficult feature to learn to use.
25. The Announcements was a difficult feature to learn to use.
26. Help was a difficult feature to learn to use.
27. Navigation inside of TaskStream was confusing.
28. TaskStream was a fun program to use.
29. TaskStream was an easy program to use.
30. I enjoyed using TaskStream.
31. TaskStream was very helpful to me in my learning.
32. Overall, TaskStream was too complex to learn.
33. Only some features in TaskStream were helpful.
34. Some features in TaskStream were not easy to use.
35. Some features in TaskStream were helpful for learning.
36. Some features in TaskStream impeded my learning.

Sources of question items:

- Barrett, Helen (Research Consultant) <http://electronicportfolios.org/>
- Bartlett, A., & Sherry, A. (University of Hawaii Manoa) <http://www.citejournal.org/articles/v4i2currentpractice1.pdf>
- Davies, Anne (Classroom Connections International) http://www.connect2learning.com/anne_davies/
- Rodriguez, Mark (California State University Sacramento)
- Strudler, Neal (University of Nevada Las Vegas) and Wetzal, Keith (Arizona State University West) <http://coe.nevada.edu/nstrudler/epstudy.html>
- Tosh, David (University of Edinburgh) <http://elgg.net/dtosh/>
- Vandersall, Kirk (Arroyo Research Services) <http://www.arroyoresearchservices.com/>