

**Reflection and Metacognition in First Year Experience at
Queensborough Community College**

Darcy, Jean ¹

¹ Queensborough Community College

In data provided by Victor Fichera, Principal Investigator of Academy Assessment Protocol at Queensborough Community College, it is reported that students enrolled in courses in which reflection and metacognition are used in projects that engage active learners, students are retained at higher levels of passing grades. In these projects technology is used in collaboration with scaffolded tasks that result in the student production of a “web object,” in this case a digital story. It is our thesis that the use of technology in parallel relation to reflection amplifies and makes visible the metacognitive work. In our project, The Student Wiki Interdisciplinary Group, students use ePortfolio learning spaces to build an identity in terms of both personal goals and the roles they assume within the academic community in the classroom.

En 101 Enrollment Fall 2010	N	Exempt/Passed All Placement Tests	Fall 2010 CUM GPA	Pass Rate En 101
All Enrolled	2,872	31.4%	2.34	85%
Non SWIG	2,721	31.0%	2.33	84.4%
SWIG	151	37.7%	2.39	95.8%
Non SWIG All Exempt	844	100%	2.42	86.2%

In addition, to determine how reflection works in moving students from the meaning making practices in relation to communal bonding to disciplinary practices that move students to work on future career goals, we use a reflection survey. The survey is administered through a survey monkey three times during the creation of their projects. In this way reflection is a dynamic action in parallel relation to knowledge production. Results from the reflection survey also support our hypothesis. (see appendix). Using SPSS, a strong correlation was found between a student's use of memory in the project and their report that the project made them think about future learning.

The reflection survey not only prompts students to reflect, but it helps them focus on specific cognitive tasks. By focusing on specific tasks and relating those tasks to reflection in the process of knowledge production, students see in their interactions with technology an amplified version of their own cognitive development. In teaching this kind of synthesis, students come to understand integrated learning. All the changes to the project are visible in the project "draft history."

Strong communal bonding can be used by students in their first year academic work. In our Freshman Composition courses students write stories that reflect meaningful moments, learning experiences. These stories are developed in relation to the peer stories; thereby providing students with a chance to see alternative paths of ethnic and cultural experience. The result is a kind of community that includes the differing perspectives. When students form teams, this bonding increases as they share multiple intelligences. In a rich "story telling community" empathy becomes a part of active work as roles are recognized and talents acknowledged.

At Queensborough Community College we learn in a truly global classroom. As an Hispanic serving institution with 26% Hispanic population, students learn alongside students from 143 countries bringing language experience in Spanish, French, Urdu, Hindi, Punjabi, Chinese, Pushto, and Farsi. By stressing metacognitive practices in this diverse first year experience, we are able to bring into expression the multiplicity of rich cultural experiences that enrich our dialogues and provide ways for students to connect with each other, gaining a sense of “academic” community through shared disciplinary practices rooted in cultural concerns.

The guiding principle for this project comes from John Dewey’s “Art and Experience”, 1934. He introduces the reflection cycle as a way of centering the learning experience in the student. He is arguing against the “reflex arc” which defines learning as a result of external stimuli. To center the student in his own learning through reflection we use Dewey’s understanding of beginning with the “human creature in his conditions,” and we move the student through cultural knowledge by introducing them to the analysis of artifacts.

To this end we have broken Dewey’s reflection cycle into eight stages in an effort to make the process visible to students.

The reflection cycle is:

- 1) Entering the Academic Community: Threshold Experience
- 2) Negotiating the Borders of Disciplinary Discourse
- 3) Mutual Gift Giving (sharing cultural artifacts)
- 4) Selecting and Storyboarding (sorting through and selecting from a gallery)
- 5) Integrating Voice with Visual-Knowledge
- 6) Producing and Distributing

7) Presenting to Audience

8) Assessing Reflection: Part of the Reflection Cycle Itself

Entering the Academic Community:

Each student is welcomed into the academic community by allowing for a time of recognition in the threshold experience. In the English classes, the teacher coaches students into writing their personal stories around meaning making moments. That story is revised and edited using the writing techniques learned from the texts studied. Each paragraph employs new writing techniques that expand on description, analysis, synthesis and research literacy. Revised stories become essays as information relates the personal experience to cultural knowledge in the form of graphs, demographics and statistics. This use of disciplinary approaches changes the stories. Yet, our anecdotal experience in SWIG indicates that it is the moment when students move into the use of social pedagogy on the class wiki that connects them to other classes and teammates that has significant impact on students. (See appendix).

Negotiating the Borders of Disciplinary Discourse and Mutual Gift Giving:

Functioning more like a blog with a wiki component, we like to call it a “bliki,” students create their own wiki spaces by posting their stories and inviting other students into their space. Here, they post their stories and share “gifts.” In scaffolding our learning unit on storytelling we stress “mutual gift giving” as a practice that helps students negotiate the boundaries between disciplines. This mutuality among our storytellers helps them to understand academic communal sharing in which different disciplines, different ways of knowing, enhance and deepen problem solving strategies. What is encouraged is Carol Rodgers “listening skills” and sharing techniques. In this

way a web space becomes a space in which students are real and active listeners. (Rodgers 209-37)

A student who is posting to a peer's wiki might be in a sociology class and see the story in its relation to the social aggregate. A student peer in a history class might see its historical context. In a psychology class the dynamic is one that explores the relation between personal experience and theories of personality. In addition, the student is also able to access their own sense of personal gifts by selecting art, music, cartoons, You Tube documentaries, graphs, demographics, quotes and music to demonstrate that disciplinary knowledge. Students accumulate gifts that inspire them to explore in new ways, thereby altering habits of mind as they see how other students from other cultures approach the story.

Selecting and Storyboarding:

Aware of new alternative pathways, students now must select among those alternatives to storyboard their projects in a coherent form. With a myriad of web objects that embody different ways of knowing that are in parallel relation to their written texts, students must now focus on coherence, a coherence that is in parallel relation to the written text but containing other ways of knowing. A storyboard is created that has the coherence of disciplinary argument that expands that of the written text. Media becomes involved in the message because one kind of text does not contain the same kind of knowledge. Students are challenged to explore how each different kind of media text is in an ironic, humorous, contradictory or descriptive relation. Two texts do not collapse meaning into the same interpretation.

Voice:

Integrating voice into the digital story is a challenge in that students must confront a new way of understanding their own accents, pitch, and volume. While many students are self-conscious about their accents, they soon learn in listening to others that these very accents add to the performance and make it unique. Clarity is the important element. Nonetheless, mostly, the students “read” their texts as texts instead of allowing the text to become a part of their own voices in dialogue with others. Coming to own their own voices and read from an interior space of personal resonance, helps students own their projects in a conversation with others making academic community a matter of conversations about what matters. Using recording software, a voiceover accompanies the visuals and new kind of integration is made that brings the work into oral traditions of storytelling.

Producing and Distributing:

Knowing that their stories/essays will be produced and hosted on the world wide web has influenced student choices from the beginning of the project. The relation between private and public knowledge is negotiated with an awareness of writing in the age of media. This sharing changes the audience of student work which is no longer a personal document shared only with a teacher. How do we protect our private lives at the same time that we write about what is most significant?

Tim O’Brien is most helpful here. In his advice about storytelling he claims that “A thing may happen and be a total lie; another thing may not happen and be truer than the truth.” Instead of using the truths of their own lives for their stories, students use fictional conventions to write their stories yet stay close to their own concerns. From the beginning students are encouraged to

acknowledge the audience of the www. What they write today may be something that they regret sharing in the future. The www audience reaction is different from the empathy shared in a classroom experience. For that reason, student stories are shared in spaces controlled by access keys and teachers are trained by Institutional Review Boards about student privacy. Nonetheless, under that access key, students can share their stories with family in other countries.

Presentations and Reflections

After doing presentations in class students report being surprised by the way their stories are received. Their story is meaningful to another. They see themselves differently through another's eyes. Most significantly students report that while presenting their stories they feel like they are doing a "public reflection." So used to the reflective practice built into the process, at the moment of presentation, students are recording in their own inner spaces how their own work is being seen by another, the mirror of their own meaning.

Scholarship:

Boud, Keogh, and Walker define reflection in a way that emphasizes an embodied way of knowing.

- **Returning** to experience-recalling or detailing salient events;
- **Attending to or connecting** with feelings;
- **Evaluating experience, re-examining** experience in the light of one's intent and existing knowledge; integrating new knowledge into one's conceptual frameworks. (Boud, Keogh, and Walker 26-31).

Bret Eynon noted in his essay on reflection “In Transit” a report from the National Research Council:

...integration of metacognitive instruction with discipline –based learning can enhance student achievement and develop in students the ability to learn independently. It should be consciously incorporated into curricula across disciplines and age levels (National 21).

Patricia Cross, former dean of Cornell University, expresses it well when she characterizes the difference between “surface” learning and learning that is deeply rooted.

While there are surely facts that must be learned in any field of study, the problem with surface learning is that when the facts fails to become rooted in the student’s schema, they cannot be used to build knowledge and the isolated bits of information are quickly forgotten. (Cross)

It is Donald Schon in The Reflective Practitioner who conveys to educators the urgency related to teaching our students habits of reflection that will prepare students for a future in which the world will be changing at ever increasing rates making adaptation a vital skill.

The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behavior. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation. (68)

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Appendix

ePortfolio Reflection Questionnaire Analysis Prepared by Michael Bradley

Hypotheses

Hypothesis 1: Student responses to questions about reflections will increase from the first survey to the second survey.

Hypothesis 2: Student responses will increase from the second survey to the third survey*

Hypothesis 3: Student responses to question 1 (While doing this project, I considered past memories and learning experiences.) will be correlated to responses to question 10 (While doing this project, I considered how this project might influence my future thoughts, learning, and actions.)

Data Collection and Sample

Students responded to the same ten questions at two points during their semester project. Students enrolled in English classes responded to the survey a third time. Data were collected over three semesters. Table 1 shows the distribution of survey responses over the data collection period.

Table 1. Semester of Data Collection and Quantity of Data Collected

Semester	First Survey	Second Survey	Third Survey Total	
<i>Spring 2010</i>	254	169	100	523
<i>Fall 2010</i>	273	168	82	523
<i>Spring 2011</i>	226	144	52	422
Total	753	481	234	1468

Demographic data was collected with the surveys. Approximately 50% of respondents were 19-21 years old, with an additional 26% reporting their age to be between 16-18. The sample was heavily female (65%) and racially diverse. The following ethnicities were represented in this sample: American Indian or Alaska Native (1.5%), Asian (14.2%), Black or African American (15.5%), Hispanic (23.6%), Native Hawaiian or Other Pacific Islander (.7%), White (13%), and Other (10.3%). Students were also asked about their employment status, financial aid status, and whether they had children. Approximately 38% of respondents indicated that they held a part-time job, 5.6% worked more than one part-time job, and 9.7% held a full-time job. The remainder of the sample (46%) did not work. When asked if they received financial aid to attend QCC, 58% of students said yes. Only 9.4% of the sample had children.

Analysis

Hypotheses 1 and 2 were tested simultaneously using a One Way Analysis of Variance

(ANOVA). This allowed for comparison of all three time points to one another. Results were statistically significant if $\alpha < .05$. Tukey's HSD was used for a post-hoc analysis. Table 2 presents average student responses to the ten survey questions at the three time points. Table 3 presents statistically significant group differences found by the ANOVA.

Table 2. Average responses to Survey Questions

Question	First Survey	Second Survey	Third Survey
While doing this project, I considered past memories and learning experiences.	3.6820	3.6216	3.8947
While doing this project, I considered my own thoughts and feelings.	3.8516	3.8217	4.0433
While doing this project, I considered how I think, learn and understand information.	3.8649	3.8950	4.0343
While doing this project, I considered how media, including the Internet, influences my learning.	3.5023	3.7494	3.8634
While doing this project, I considered another person's point of view, skills and knowledge.	3.5601	3.8167	3.8495
While doing this project, I considered how group work impacts my own learning.	3.3809	3.5806	3.7010
<i>While doing this project, I considered my impact on another's understanding and knowledge.</i>	3.5129	3.6041	3.7696
<i>While doing this project, I considered what I need to learn.</i>	3.9105	3.8433	4.0585
<i>While doing this project, I considered how different disciplines influence one another.</i>	3.5994	3.6932	3.8981
<i>While doing this project, I considered how this project might influence my future thoughts, learning and actions.</i>	3.7623	3.7523	3.8841

Question	Time Period	F	<i>p</i>	Mean Difference
While doing this project, I considered how media, including the internet, influences my learning.	1 to 2	12.74	<.0001	.247
While doing this project, I considered another person's point of view, skills, and knowledge	1 to 2	11.47	<.0001	.257
While doing this project, I considered how group work impacts my own learning.	1 to 2	9.11	<.0001	.1997
While doing this project, I considered past memories and learning experiences.	2 to 3	4.67	.010	.272
While doing this project, I considered my own thoughts and feelings.	2 to 3	3.89	.021	.222
While doing this project, I considered what I need to learn.	2 to 3	3.34	.036	.215
While doing this project, I considered how different disciplines influence one another.	2 to 3	6.91	.001	.205

Note: Time Period refers to the change in responses from one survey to the next. 1 to 2 means that change in responses from the first survey to the second survey. Mean difference refers to the statistically significant positive growth in responses from one survey to the next.

A correlation was run to examine the relationship between responses to question one and question ten. The relationship was compared at all three time points. The correlation on the first survey was .341. At time two, the correlation was .514, a large increase. The correlation at time three was .372. All correlations were significant at the .01 level. While causality cannot be inferred from a correlation, there is a large correlation between the two questions at the time the first survey was collected. At time two, the correlation increases significantly.