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Research article

Using ePortfolio to Foster Interdisciplinary Thinking and Effective Pedagogical Practice across Class Boundaries

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This work describes a project using ePortfolio as a medium to facilitate effective pedagogical strategies in the context of a group-based research paper assignment spanning class boundaries. Small groups of students were required to complete a scaffolded, semester-long project culminating in a group research paper based on some topic of relevance to the fields of biology and chemistry. Each group consisted of students from a chemistry class and a biology class. Our aim was to enhance student understanding of scientific concepts, while exercising critical thinking, writing, and reflective skills in an interdisciplinary context using ePortfolio as the medium for work and feedback. We describe the nature and development of the assignment, its implementation and challenges encountered in the process of developing and refining the project. This work was implemented with two cohorts of students. The first attempt revealed a series of shortcomings centering around lack of student interactions and unresponsive group members. These issues were largely alleviated in the second implementation. Our basic framework can be adapted by educators in any discipline seeking to implement multiple pedagogical approaches simultaneously through using ePortfolio. Our experience suggests that the pedagogical strategies we utilized can be successful given adequate instructor engagement and feedback.

Keywords: Interdisciplinary, reflection, integrative learning, ePortfolio, science education.

INTRODUCTION

The dizzying pace of technological advance and information accessibility over the past several decades has opened the door to exciting educational possibilities. However, these new possibilities are accompanied by challenges, which require rethinking of traditional approaches to higher education. (Gumport **and** Chun,1999). Prominent among these challenges are the need to equip today's students with the ability to think outside the boundaries of any one discipline and make connections among seemingly disparate areas of inquiry. Effective interdisciplinary pedagogical strategies encourage students to incorporate their own academic and personal experiences into a larger mode of learning and thinking that transcends individual classes or disciplines. Furthermore, interdisciplinary pedagogy, often referred to as "Integrative Learning" (Miller, 2005), incorporates student experience outside the classroom and instills the ability to work in collaboration with other people from diverse disciplinary and socio-cultural backgrounds (Jones, 2009).

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The need for a new generation of interdisciplinary thinkers is particularly pronounced in the sciences where the significant issues facing humanity often transcend the expertise of any one discipline. Traditional models of higher education may obscure this reality from today's undergraduate students (Haynes **and** Leonard, 2010). Students may easily fall into a pattern of thinking where they "go to this class to hear an expert talk about a specific field of study then go to another one to hear a different expert talk about something else" while failing to see the connections between various academic disciplines. When coupled with pedagogical practices of known effectiveness, efforts to foster interdisciplinary thinking among college students can result in a particularly powerful, holistic, educational experience.

In the United States, community colleges offer the first two years of college education in addition to technical or medical certificate programs at a reduced price as compared to traditional, four-year colleges. The environment at LaGuardia Community College offers an excellent framework in which to explore techniques for fostering interdisciplinary thinking and facilitating novel implementations of established pedagogical approaches due to its exceptionally diverse student population and commitment to educational innovation. LaGuardia's engagement with connected, integrated learning includes recognition that a holistic learning process should connect not only the capabilities and knowledge acquired by students in each of their courses, but should also embrace the socio-cultural and experiential diversity represented amongst them (Eynon, 2009; Bhika et al., 2013; LaGuardia Community College, 2014). In this context, Electronic Portfolios (ePortfolios) can serve to foster interdisciplinary collaboration among students by establishing a venue for communication, reflection and ongoing feedback from both peers and course instructors.

The ePortfolio field has expanded and evolved rapidly in recent years with many colleges worldwide implementing the technology in a variety of contexts (Dahlstrom et al., 2013). r Examples of various ePortfolio applications can be found on the websiteshttp://electronicportfolios.org/ and http://ncepr.org/as well as in the book entitled: Electronic Portfolios 2.0: Emergent Research on Implementation and Impact, 2009). For over a decade, LaGuardia has pioneered the utilization of ePortfolio and many highly successful initiatives and programs have been implemented at our institution (for example, seehttp://www.eportfolio.lagcc.cuny.edu/; LaGuardia Community College, 2014; Eynon 2009; Bass, 2014).

ePortfolio promotes a framework for students to make connections with peers andincorporate knowledge and views from inside and outside the classroom, while providing a platform for reflection on their learning in an iterative cycle in response to self and peer evaluation (Wickersham and Chambers, 2006; Matthews-DeNatale, 2013). All these aspects of effective teaching can be implemented within a social pedagogical framework comprising individual, group, class or interclass, interdisciplinary hierarchies (Bass, 2014b; Eynonet al., 2014; Richards-Schuster et al., 2014). These key uses of ePortfolio reinforce student participation and engagement in the learning process and have been demonstrated to be effective methods for improving student satisfaction, retention and graduation rates (Barrett, 2007, Arcarioet al., 2011; Eynonet al., 2014).

This report describes the workof two faculty members in the Natural Sciences Department at LaGuardia who collaborated in the development, implementation, analysis and evaluation of a group-based assignment that spanned the chemistry and biology classes taught by these faculty. The development of an ePortfolio was a key requirement of this assignment where it served as a multi-dimensional medium for students to write their research paper, reflect upon the work they conducted, and connect with peers and group members in both of the classes involved in the project. This integrative aspect of learning was critical for the project as it encouraged students to synthesize information and concepts learned in one domain or discipline withlearning in a distinct domain (Richards-Schuster et al., 2014; Karstenet al., 2015). The idea for this project originated during professional development training at LaGuardia, where both participating faculty were enrolled in the yearlong "Connected Learning" seminar which exposed participants to effective pedagogical practices as well as the use of ePortfolio to foster their implementation.

METHODS

The work conducted by the authors in this project centered around the use of ePortfolio to implement a scaffolded group-based research paper assignment that incorporated reflective writing, interdisciplinary thinking, and social pedagogy. Each group consisted of two to three students, including members from a chemistry class and a biology class taught by the authors. The formal project work was preceded by an experimentation semester during which the authors independently explored ePortfolio-based pedagogy in their own classes. This experimentation period was followed by two more ambitious implementation semesters wherein the authors worked on one combined interdisciplinary project spanning both classes. Details of the project methodology are discussed in the following sections.

Courses Involved and Early Experimentation

The structure of the "Connected Learning" professional development seminar involved one semester of faculty education and classroom experimentation followed by a full implementation of pedagogical approaches or

assignments developed in the first half of the seminar in a subsequent semester The following section briefly describes the courses taught by the authors, initial experimentation efforts in these classes, and the rationale for eventually including these endeavors in the larger-scale effort described in this work.

Topics in Chemistry (SCC 101). Topics in Chemistry serves as an introduction to chemistry within the City University of New York general education Pathways system and is designed specifically for non-science major students requiring a science course in order to transfer to a four-year College. It is based on the standard model of interactive classroom lectures, discussions and laboratory sessions. The course emphasizes the application and connection of chemical concepts and principles to real world issues, particularly those with important environmental, social, economic, and ethical implications.

Topics in Chemistry students write a research paper followed by an oral presentation as an integral part of the course. The purpose of this assignment is to allow students the opportunity to explore some area of interest within chemistry which has larger societal implications such as pollution, nutrition, and climate change. Topics in Chemistry research paper assignments deepen student knowledge and understanding of their chosen topic while enhancing their research, writing, and presentation skills. Topics in Chemistry students often demonstrate a reasonable grasp of the key societal and chemical concepts related to their topic when giving their oral presentations, but fail to effectively communicate the same level of understanding in their research papers. In keeping with the Connected Learning faculty development seminar model, the Topics in Chemistry instructor focused his experimental semester on addressing this issue. A project report guidelines document was produced to serve as a template for the format and content of the written paper. Subsequently, some improvement in the general quality of student writing was observed. However, student written communication ability still required significant enhancement.

General Biology I(SCB 201). General Biology I is the first semester of a two semester general biology for majors sequence offered at LaGuardia. The course follows a fairly traditional science class model with student grades based on a combination of quizzes, tests and laboratory participation. Though the lecture portion of the class does not include any formal written assignments, student performance on short essay test questions suggests that they struggle with articulating scientific concepts in a written format even when other measures of performance suggest a reasonable grasp of the material. Initial experimentation was thus geared towards improving student scientific writing skills by using ePortfolio as a venue for reflective writing assignments related to course content.

During the experimentation semester, low stakes extra credit assignments were offered which asked students to reflect upon how well they felt that they understood concepts introduced in the class and to discuss concepts they found challenging. Students were also asked to use the ePortfolio comment feature to comment on fellow student's statements. The class instructor also commented on student's reflective statements. Overall participation was close to fifty percent and no major issues arose with the use of ePortfolio in general. General perceptions seemed to suggest a successful outcome of this experimental phase.

Interdisciplinary Assignment Design and Implementation

Following the experimental semester efforts in both classes, a more ambitious project was attempted in the subsequent implementation semester. Thisproject sought to implement pedagogical strategies introduced during the Connected Learning seminar while fostering across-class, interdisciplinary collaboration. ePortfolio provided an ideal platform for the project that would not only improve student scientific writing, but would also take advantage of the known benefits of social pedagogy and interdisciplinary thinking, while simultaneously offering students the opportunity to work collaboratively across class boundaries. It was determined that this could be accomplished by having students from General Biology I and Topics in Chemistry work together in small groups to generate an original research paper on a topic of their choosing so long as it had relevance to the fields of biology and chemistry.

Group formation and ePortfolio establishment. During the first week of classes, students in General Biology I and Topics in Chemistry were presented with a brief survey asking them to report their major, Grade Point Average (GPA) and reason for taking the course (Appendix 1). Students were then subdivided into small groups, diversified according to GPA and major, such that each group comprised at least one member from each class. Most students in the biology class were either biology majors or liberal arts math and sciences majors (science students who have yet to commit to a specific scientific discipline) while Topics in Chemistry students represented a more diverse population as the course is usually taken by non-science majors to fulfill a general science requirement. Topics in Chemistry student majors include: Computer science, theater, business management/administration, writing and literature, secondary education, paralegal, fine arts, liberal arts social science and humanities, psychology and mentalhealth. The diversity of these majors allowed the authors to generate research groups consisting of two or

three students with a wide range of backgrounds and interests. Students were also asked to establish an ePortfolio for use in the project during the first week of the semester. Some students were already familiar with ePortfolio and had used it in other classes, while approximately half had not used ePortfolio previously.

Application of ePortfolio. The use of ePortfolio, hosted by Digication, which provides a customizable layout and design, is well established at our institution. A significant ePortfolio infrastructure exists, including support offices, ePortfolio staff and student technology mentors trained in ePortfolio use. In order to create an ePortfolio at our institution, students simply create an account using their existing email login credentials. At the time of our project, many classes used ePortfolio as an integral part of their curriculum, while others did not. A variety of discipline-specific first year seminars have been implemented for students at LaGuardia, although not all disciplines required them at the time our project was undertaken. Faculty and students had varying degrees of familiarity with ePortfolio technology depending on what classes or professional development seminars they had participated in previously. Not all the students participating in our project had used ePortfolio prior to this work.

ePortfolio was designated as the communication medium for this interdisciplinary group-based assignment. Each student was required to make their ePortfolio accessible to the members of their research group and the instructors of the two classes. Students were also requested to write something about themselves and what it means to be a member of a team, as well as to comment on their partner's "About Me" statement to initiate cross-class communication. After establishing this interaction, group members were subsequently expected to work together to decide on a project topic of mutual interest, write the project outline, reflect on each other's contributions and produce a combined final project paper that encapsulated both chemical and biological perspectives on their research topic. Several possible topics were suggested to students, however, our experience was that superior project reports were produced by students who chose a unique topic based on their own interests.

Students were advised to 'meet' regularly, at least once every two weeks, either face-to-face or online with their group member/s in the other course to discuss and exchange feedback. ePortfolio provided an ideal platform for such group work and it also allowed us to examine student work as it proceeded over the course of the semester. If students chose to meet face-to-face, it was required that they write a brief summary on ePortfolio. We felt that it would be inappropriate to require students to exchange personal emails, phone numbers, and social media information though some chose to do so. Each group submitted one combined final paper, although each group member was responsible for writing a draft of each section and posting it to their ePortfolio. In order to ensure equitable student contributions, each group was asked to itemize the contributions of each group member. In the chemistry class, students were also required to give a short presentation based on the final written project report in the final week of the semester. Our hope was that this group work would foster connections between students across disciplines in a manner similar to scientists collaborating on a research manuscript. This assignment was implemented with two different student cohorts in the Spring I, 2014 and Fall I, 2014 semesters. Tables one through four present general assignment guidelines (Table 1), timeframes (Table 2), assignment point breakdowns (Table 3), and an itemized point breakdown for the report itself (Table 4).

RESULTS

Ensuring a high level of student communication in practice, particularly in the across-class group scenario, was clearly a critical aspect of this project. Stimulating such student collaboration proved to be nontrivial among the first student cohort. Furthermore, as observed in previous studies (Landis et al., 2015), the students limited experience in conducting reflective practices represented another key challenge in the course of this work. In this context, we incorporated several modifications to the project format and associated student activities in subsequent implementations of the project. These changes were based upon reflection, student feedback, evaluation and assessment of the challenges encountered in the first implementation, and through discussion with leaders and peers in the Connected Learning professional development seminar... Such feedback mechanisms proffered several enhancements and improvements to the project during its evolution after the first implementation in Spring I, 2014. The progression of the project and its outcomes are detailed in the sections below.

First Implementation. We encountered several difficulties during our first implementation of the assignment. The main problems concerned the integrative aspects of the project and the utilization of ePortfolio for interdisciplinary communication and interactions. Students typically claimed that they could not access the ePortfolios of group members, or contact them, due to technical issues and, thus, could not progress with the collaborative aspects of the project. In retrospect, this lack of ePortfolio accessibility is not necessarily surprising and might have been alleviated by having both classes receive official ePortfolio training at the beginning of the semester. The relative ease with

Table 1. General assignment description and key points provided to students.

Research project general guidelines

Students are required to develop collaborative, communicative processes using ePortfolio across the class boundary to generate a common project report, based on a scientific topic of current interest and relevance to the fields of biology and chemistry. As part of the larger assignment, students will respond to periodic reflective writing prompts and post their thoughts on ePortfolio in order to encourage them to think about the process, their interactions with peers and how their actions and performance may be improved.

During the course of this project students will:

- Create an ePortfolio or add a section to their pre-existing ePortfolio for use during the project.
- Collaborate extensively with their group members using ePortfolio.
- Write a brief autobiographical “About Me” sketch and post it to their ePortfolio.
- Write approximately biweekly guided reflections concerning the progress of the project and post them on their ePortfolio. These will initially be in response to prompts and guided questions from the instructor, but will become less guided and require more student independence as the project progresses.
- Collaborate with team members to generate one final paper. However, each group member will write a draft of each section and post it to their ePortfolio. The final paper will represent the sum of this work as a group through a collaborative effort.
- Receive feedback from both professors in the form of ePortfolio comments.
- Note: Topics in Chemistry students will give a class presentation of their findings while General Biology I students will not present.

which students used ePortfolio in his experimentation semester led the biology instructor to believe that he could adequately instruct students in the use of ePortfolio himself. In contrast, chemistry students received official ePortfolio training during the second week of the semester. The chemistry class experienced fewer ePortfolio usage issues and the authors realized that this training would greatly facilitate the progress and success of the project in subsequent implementations.

Another communication difficulty encountered centered around the fact that many students claimed that their partners were non-responsive, even in the absence of ePortfolio related technical issues. This problem impacted virtually all groups and lasted for a significant period of time. The amount of points assigned for the completion of early steps in the project (setting up an ePortfolio, writing an “About Me” section, writing the initial reflection, etc., seemed to provide insufficient incentive for students to complete these aspects of the work in a timely manner or to seek out the necessary assistance.

The communication issues mentioned above significantly disrupted our planned assignment schedule. Students had to be given repeated extensions for various stages of the overall project and, as the semester progressed, the ePortfolio aspect of the project was largely abandoned, thus, compromising much of the pedagogies we were hoping to implement. Students were still required to submit a research paper but most ended up doing it on their own rather than as part of a group. Hence, this implementation failed to take advantage of the known benefits of reflective writing, interdisciplinary thinking, and social pedagogy that we had hoped to implement.

Lessons learned from the first implementation. The first attempt at implementing the ePortfolio-based, collaborative research paper assignment was largely unsuccessful. While students did succeed in writing a research paper, the social pedagogy, reflective writing and collaborative aspects of the project failed to reach their potential. We noted several possible areas for improvement.

Table 2. Assignment steps and timeframes (for a twelve-week session)

- By the end of week three:
  - Create an ePortfolio (if not already done so for other classes) including a section for your project.
  - Write an 'About Me' introduction section. This section should provide your team members and your instructors with a brief autobiographical background about yourself including your academic interests and future plans.
  - Comment on the "About Me' pages of the other group members. You can mention anything that you found particularly interesting or inspirational about your partner's "About Me" section.
  - Write an initial reflection on the qualities that are important when working in a group towards a common goal.
- By the end of week four:
  - Post the topic your group has chosen to investigate on ePortfolio.
- By the end of week seven:
  - Post an outline of your research paper on ePortfolio. Your outline should include the same sections as your final paper with a few brief statements or bullet points in each section.
- By the end of week ten:
  - Your initial draft should be posted to your ePortfolio by this time at the latest. Please keep in mind that your instructor may have many suggestions. The earlier you post your first draft, the more time your instructor will have to provide feedback and the more time you will have to make changes.
- By the end of week twelve:
  - Post your final draft to your ePortfolio.
  - Topics in Chemistry students will also give their oral presentation during this week.

Table 3. Research Project Point Breakdown

Task	Due date	Points
Create ePortfolio with appropriate sections	Week three	5
ePortfolio reflections	Biweekly	10 points (total)
Agree upon topic and post to ePortfolio	By week four	5 points
Post outline on ePortfolio	By week seven	5 points
Post draft paper on ePortfolio	By week ten (earlier is encouraged)	5 points
Post final group paper on ePortfolio	By week twelve	15 points (see table 4 for breakdown)
Presentation (Topics in Chemistry students only)	Week twelve	5 points
Total points		45 (General Biology I) 50 (Topics in Chemistry

Provide more initial ePortfolio training. The biology instructor's decision to explain ePortfolio himself rather than have students attend official training may have wasted more time than it saved. The first several weeks of class involved taking a few minutes out of each session to address recurring ePortfolio technical issues that might have been avoided by a more "expert" initial introduction to ePortfolio. These recurring problems also

Table 4. The Report Evaluation (15 of the total possible points mentioned above) is Based on the Quality of Each of the Following Sections:

Title and Background	3 points
Discussion	7 points
Conclusion	3 points
References and format	2 points

led to deadline extensions which threw the two classes out of synchrony and caused much confusion among the students.

More rigorous oversight. Students often failed to meet project deadlines, particularly for ePortfolio contributions. More rigorous oversight of student ePortfolio work involving a more hands-on approach with the authors more frequently providing comments on the student ePortfolios might have helped alleviate the problem (Eynonet al., 2014).

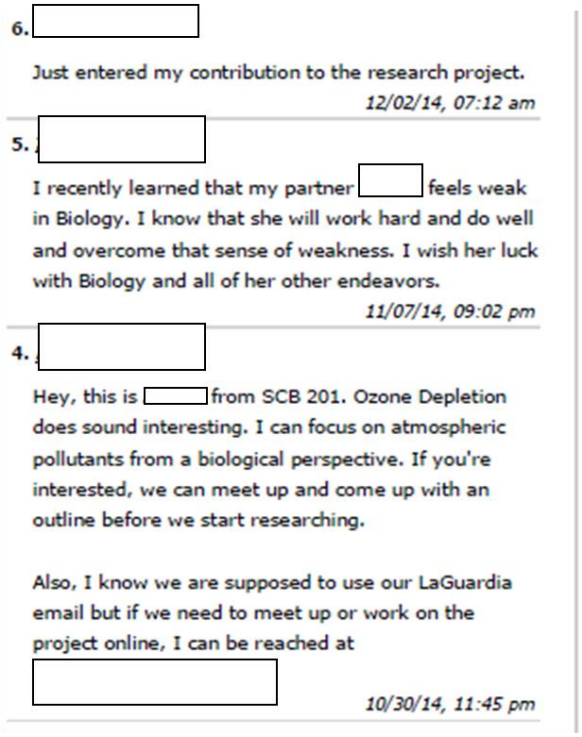
Incentivization: Increased point values for the earlier stages of the assignment, particularly for the initial reflections, might have encouraged students to complete the various steps of the project in a timelier manner.

Improvements for the 2nd Implementation

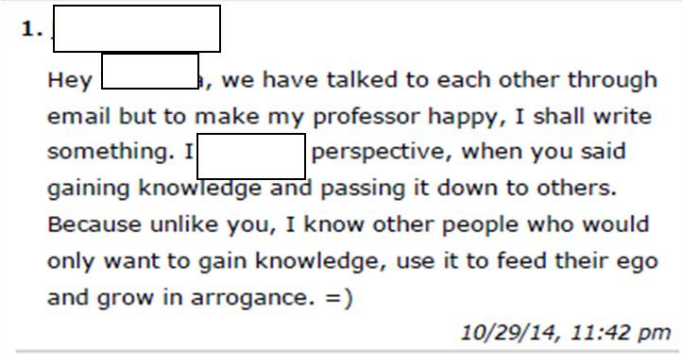
The failure of the initial implementation of such an ambitious project provided a keen learning experience for the authors. Subsequent discussions and interactions with colleagues generated key ideas to improve our strategy and overcome the above difficulties in subsequent implementations. Critical modifications for the second implementation included: more frequent input from the instructors using the ePortfolio comment feature with required responses to said comments from students, more formalized ePortfolio instruction in the biology class, dissemination of an ePortfolio template to illustrate the design, format and content of the project ePortfolio (see Appendix 2), and more clear and rigidly enforced grading criteria for early aspects of the project facilitated by the incorporation of a more explicit rubric/project guidelines document to give students clearer information regarding our expectations of the project overall and its component elements.

Improved communication. To improve communication between group members in the second implementation, we were much more pro-active with the idea that students would become more engaged in the project if they felt that their instructors were as well. Increased instructor engagement took the form of more frequent commentary and feedback on student work using the ePortfolio comment feature. These relatively simple modifications had a positive impact as virtually all groups interacted, posted comments and reflections on each other's ePortfolios, agreed on a common project topic, and worked together to produce integrated outlines and final papers. Snapshots of student ePortfolios that illustrate these interactions are depicted below:

Example 1:



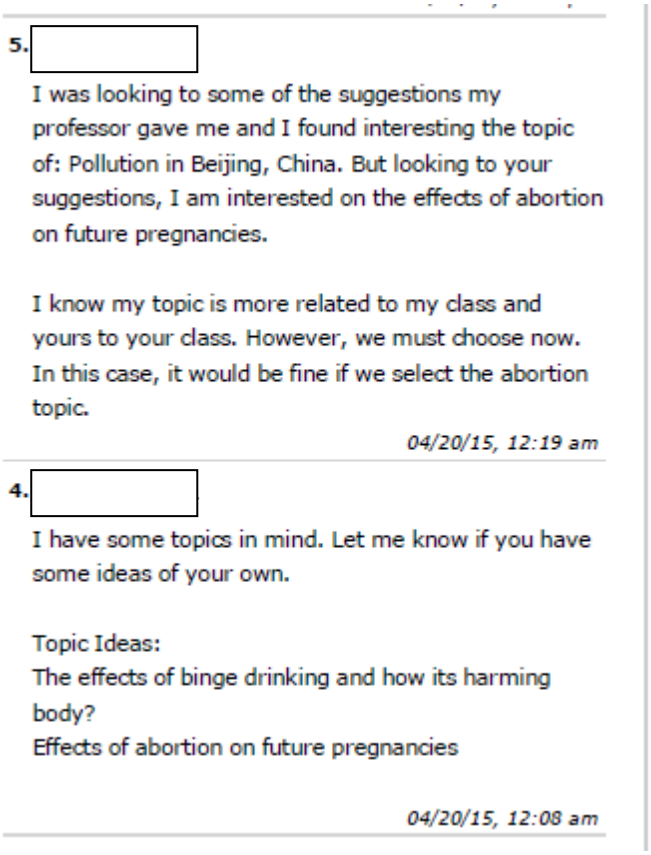
Example 2:



Example 3 (leading to the paper in Appendix 3)

For the research paper, I am focusing on the chemical aspects of substance abuse. My partner is working on the biological side of things and how drug or alcohol abuse can affect the human anatomy, specifically on a cellular level. They intersect because with addiction, the body as well as the brain become severely dependent on whatever substance it might be. It affects the body on both physiological and psycological levels as well.

Example 4 (from first implementation semester):



5. [redacted]

I was looking to some of the suggestions my professor gave me and I found interesting the topic of: Pollution in Beijing, China. But looking to your suggestions, I am interested on the effects of abortion on future pregnancies.

I know my topic is more related to my class and yours to your class. However, we must choose now. In this case, it would be fine if we select the abortion topic.

04/20/15, 12:19 am

4. [redacted]

I have some topics in mind. Let me know if you have some ideas of your own.

Topic Ideas:
The effects of binge drinking and how its harming body?
Effects of abortion on future pregnancies

04/20/15, 12:08 am

Improved outcomes. The more motivated and engaged student cohort observed during the second implementation semester led to improved interactions between group members in the different classes, enhanced team work, more consistent, regular effort on the project throughout the semester and, thus, significantly improved final project paper quality. We believe that these positive outcomes were largely a consequence of the refinements to the second implementation discussed above.

Importantly, many papers exhibited clear signs of collaborative interactions across the chemistry and biology classes as they explicated chemical reactions or structures and detailed the biological impacts related to the topic to a greater extent than was observed in the first implementation. The content of student papers in the

second implementation also more frequently went beyond the issues discussed in class or the material in the course textbook. An example of a relatively high quality final project paper from the second implementation is presented in Appendix 3. The paper incorporates many of the expectations from our research paper guidelines and shows clear signs of inter-class collaborations as it encompassed both chemical and biological perspectives of the specific research topic.
Examples of student "About Me" sections, student-student dialogue, instructor feedback and other excerpts from student work can be found in Appendix 4. These examples illustrate the level of collaboration and interaction between group members spanning the chemistry and biology classes, as well as faculty encouragement.

Student feedback

As mentioned previously, student surveys were conducted at the beginning of the semester prior to embarking on the project, and at the completion of the course (see Appendix 1) in order to ascertain student viewpoints on the project and on the course as a whole.

Examples of student survey responses can be found below.
In the pre-assignment surveys, students generally thought it would be straightforward to use ePortfolio:

"Yes, it was for an English course -> World Lit. However, we only submitted a final essay on the site. Seems like an interesting experience, easier than printing out work."
"I don't really know anything about it yet honestly."
"ePortfolio is another way to show people your learning, knowledge, opinion of a certain course."
"Yes, I used it for ELL101, which is English as a language. We created a very basic ePortfolio. I didn't enjoy using it in a previous class, but I'm open to it in this one."
"I really enjoy using the website, it's like an online resume of your learning experience."
"It can show our work and communicate with other."
"It will be good since it will teach me how to expand my learning options and I could use it in future assignments."

In the course evaluation surveys, many students expressed a positive attitude towards ePortfolio:

"ePortfolio was a good way to be creative"
"It lets us engage with our partner, good idea"
"It was interesting, but not the online group activities"
"ePortfolio is a great way to express your thoughts and I find it helpful"
"Its good to work online with peers from other classes. At the same time is a good experience to get evaluation from the professors on ePortfolio."

However, some students expressed more negative viewpoints:
"I did not like the group effort idea outside of the class. I never liked the layout of the website"
"I do not get the point why we would use it "
"I dont really think it helped me enhance learning, made it more difficult for me."
"I personally dont like it. It was hard to get in touch with my partner."

DISCUSSION

In this work, we present an example of how technologies such as ePortfolio can facilitate and enhance the implementation of effective pedagogical strategies while bridging boundaries between disciplines. Our work successfully integrated reflective writing practice (Epp, 2008), peer-learning and interdisciplinary thinking into one scaffolded assignment. ePortfolio provided an excellent and indispensable platform for achieving this goal and, despite a variety of challenges, we feel that our efforts were ultimately successful. We also believe that the model assignment presented here will be of interest to college educators in any discipline who wish to implement multiple pedagogical improvements, while simultaneously using ePortfolio to improve the efficiency and efficacy of their efforts, particularly in a cross-disciplinary context. We acknowledge the qualitative nature of our results and the lack of explicit, quantitative data, therefore, we feel that this work should be viewed as a model rather than a quantitative study, which can be refined as appropriate in future implementations and by other educators.
Our initial efforts during the experimentation semester were largely geared towards improving student writing by using ePortfolio in each class separately to capitalize upon the established benefits of reflective writing practice in science education. While our small-scale efforts conducted during the experimentation phase were largely successful, our failure to experiment with many aspects of the larger scale interdisciplinary project contributed to the difficulties we encountered upon attempting to execute the cross-class collaborative writing assignment described here. Our first "implementation" semester was really "experimental" in many ways. A semester of experimentation with smaller elements of the larger cross-class project would have likely revealed shortcomings in our approach and made the first true implementation much more successful.
A key problem encountered during our first implementation was a failure of students to adequately interact with each other. This compromised most of the novel elements of what we were trying to accomplish. In the end, students successfully produced research papers but the social pedagogy, reflective writing and interdisciplinary learning elements of the work were

largely absent. This problem appears to have been a consequence of inadequate student training in the collaborative aspects of the project and student perceptions of faculty engagement. We also failed to adequately foresee the degree of guidance in ePortfolio usage that students required. Biology student use of ePortfolio during the experimentation semester suggested a degree of familiarity and confidence with ePortfolio utilization that was unrealistic. The lack of ePortfolio related problems encountered during the biology instructor's initial experimentation may have reflected a self-selection phenomenon where students who were comfortable with ePortfolio did the extra credit assignments, while those who were less experienced with the technology did not. The changes made in our second implementation largely resolved the technical challenges presented in the first implementation. More formalized ePortfolio training was introduced in both classes and anePortfolio template was produced that provided clear, visual guidance of the design and content requirements of the student ePortfolios for the project (Appendix 2).

During our first implementation, students also struggled to work as teams and the integrative, ePortfolio- based aspect of the project largely failed. Students complained that their teammates were non-responsive to their communication overtures, that their team members didn't have an ePortfolio or that they could not view their partner's portfolio, etc.… These problems persisted over most of the semester despite stop-gap efforts to remediate the situation. The enhanced ePortfolio training and the ePortfolio template helped alleviate some of these issues in our second implementation, although technical issues were not the sole cause of this problem.

Our first implementation also revealed that students were much less likely to be engaged and display enthusiasm for the work if they perceived that they were not seeing the same motivation and involvement from their instructors. Although we did provide feedback and commentary in the first implementation, it apparently was not adequate to encourage full student engagement in the project. In the second implementation, we put much more emphasis on frequent instructor interaction and feedback and were more rigid with timelines and point values for the various sub-components of the larger assignment. Our increased feedback was often as simple as "Nice work" or "Great About Me section" but it made a significant difference in student engagement and motivation and complaints about partners being incommunicado were much less frequent. A relatively small increase in instructor engagement and effort reaped significant dividends!

Future Initiatives: Ideas and Suggestions

While our second implementation was largely successful, we feel that there are still several opportunities for strengthening the pedagogical impact of the approach we have presented. It is our hope that this work will be of use to other college faculty regardless of discipline and we look forward to seeing how other academics may capitalize upon our experiences. In this section, we present ideas for improving upon the model we have discussed in this project.

At the time of our implementations, the ePortfolio platform had yet to incorporate shared document utilities, such as Google drive. Providing students with the opportunity to work on one shared document, which would illustrate their modifications in real-time, would likely facilitate and encourage collaborative writing to a larger degree than that allowed by the ePortfolio comment feature alone. Though mentioned in the assignment guidelines provided to students, a more explicit explanation of the interdisciplinary nature of modern scholarly and professional work in all fields of human inquiry might have further enhanced student motivation. A presentation of how faculty collaborate both in and out of their discipline, with accompanying examples from academic or professional writing collaborative efforts, might be particularly informative for students. For example, having each instructor speak to the other instructor's class regarding their own experiences with academic or professional collaboration and publication might further motivate students by providing a personalized real-life context for the assignment. Others who build upon our work might find these to be fruitful areas to explore.

In terms of communication between group members, many students took advantage of exchanges through face-to-face meetings, phone calls, social media, etc., which occurred outside the parameters of the assignment and were voluntary and informal. At the time of our implementation, ePortfolio itself did not allow for the integration of such features. In future implementations, we will request students summarize such interactions on their ePortfolios and provide links to social media chats, and they will be awarded extra credit for such efforts.

A more in depth exploration of the value of collaboration and some of the other pedagogies presented here might be particularly appropriate for less content heavy classes, which focus more on processes such as general writing, technical writing, communication, etc. The courses involved in this project have densely packed syllabi, which make it difficult to spend significant class time discussing such issues to a greater extent than was possible here. ePortfolio allowed us to implement pedagogies rarely encountered in traditional science courses though the amount of content we had to cover placed upper limits on the amount of time spent discussing the processes themselves. A particularly effective application of our model might involve pairing students from science courses with students from writing oriented courses. Science students could write research papers which could then serve as review or proof-reading assignments for their peers in the writing oriented course.

The work presented here also highlights the importance of ongoing professional development training for college faculty, particularly in the sciences (Brownell et al., 2012). The authors would not have been exposed to the pedagogical practices implemented in this assignment or the ePortfolio platform were it not for their involvement in the LaGuardia Connected Learning professional development seminar. Interactions with the seminar leadership and fellow seminar participants greatly enhanced the development, implementation and subsequent refinement of our project.

Student feedback proved especially informative as this work progressed. Many of the changes we made for the second implementation were based upon such feedback following our first implementation. The pre- and post-survey questionnaires distributed to students helped us diversify student research teams, gauge student attitudes and identify problems with our approach. An additional mid-semester informal student survey might prove particularly useful to those seeking to build upon our experience. While we did not distribute such mid-semester questionnaires, doing so would have required a negligible time commitment and might have helped resolve problems prior to the end of semester time crunch.

The model presented here opens many avenues for more quantitative analysis of projects such as ours. In the future, we would like to accompany similar projects with assessments that will provide quantitative evidence of learning. In our case, it was clear that our second implementation successfully implemented a variety of effective pedagogical strategies. However, the use of standardized, published assessment surveys, which utilize scaling methods, rather than the qualitative custom ones presented here might allow more quantitative comparisons to similar projects. This would also allow us to statistically analyze student perspectives and ideas concerning the interdisciplinary team-based project. In this context, in future implementations, we will also exploit our institution's evolving high impact practice core competency rubrics to provide more quantitative measures of success and learning outcomes.

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REFERENCES

Arcario P, Eynon B, Lucca L (2011). The power of peers: New ways for students to support students. In *Making teaching and learning matter* (pp. 195-215). Springer Netherlands.

Barrett HC (2007). Researching electronic portfolios and learner engagement: The REFLECT initiative. *Journal of adolescent and adult literacy*, *50*(6), 436-449.

Bass R "Social pedagogies in ePortfolio practices: Principles for design and impact." (2014).

Bhika R, Francis A, Miller D (2013). Faculty Professional Development: Advancing Integrative Social Pedagogy Using ePortfolio. *International Journal of ePortfolio*, *3*(2), 117-133.

Brownell SE, Tanner KD (2012). Barriers to faculty pedagogical change: lack of training, time, incentives, and… tensions with professional identity? *CBE-Life Sciences Education*, *11*(4), 339-346..

Cambridge D, Cambridge BL, Yancey KB (Eds.). (2009). *Electronic portfolios 2.0: Emergent research on implementation and impact*. Stylus Publishing, LLC.

Dahlstrom E, Walker JD, Dziuban C (2013). *ECAR study of undergraduate students and information technology*.

Epp S (2008). The value of reflective journaling in undergraduate nursing education: A literature review. *International journal of nursing studies*, *45*(9), 1379-1388.

Eynon B (2009). It helped me see a new me": ePortfolio, learning, and change at LaGuardia Community College. *Academic Commons*.

Eynon B, Gambino LM, Török J (2014). What difference can ePortfolio make? A field report from the connect to learning project. *International Journal of ePortfolio*, *4*(1), 95-114.

Gumport PJ, Chun M (1999). *Technology and higher education: Opportunities and challenges for the new era*. National Center for Postsecondary Improvement, Stanford University, School of Education.

Haynes C, Leonard JB (2010). From surprise parties to mapmaking: Undergraduate journeys toward interdisciplinary understanding. *The Journal of Higher Education*, *81*(5), 645-666.

Jones C (2010). Interdisciplinary Approach-Advantages, disadvantages, and the future benefits of interdisciplinary studies. *ESSAI*, *7*(1), 26.

Karsten K, Coddington DM, Lehman RM, Pierce C, Tom M, Gallo-Silver L (2015). Facilitating Interprofessional Collaboration Through ePortfolio: A Pilot Study. *International Journal*, *5*(2), 181-188.

Landis CM, Scott SB, Kahn S (2015). Examining the Role of Reflection in ePortfolios: A Case Study. *International Journal of ePortfolio*, *5*(2), 107-121.

Matthews-DeNatale G (2013). Are we who we think we are? ePortfolios as a tool for curriculum redesign. *Online Learning Journal*, *17*(4).

Miller R (2005). Integrative learning and assessment. *Peer Review*, *7*(4), 11.

Richards-Schuster K, Ruffolo MC, Nicoll KL, Distelrath C, Galura JA (2014). Using e-portfolios to assess program goals, integrative learning, and civic engagement: A

case example. *International Journal of eportfolio*, *4*(2), 133-141.Wickersham, L. E., and Chambers, S. M. (2006). ePortfolios: Using technology to enhance and assess student learning. *Education*, *126*(4), 738.

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Appendix 1

Initial Student Questionnaire Survey (a similar survey was given in the General Biology I class)

SCC101 Topics in Chemistry
Initial Survey to Enhance Your Learning Experience

Background Questionnaire
Print Name:_____
Please briefly answer the following questions. This will really help me to do a better job as your instructor this semester. It will also help us assign your research project groups. Thank you.

1. What is your major and why did you choose it?

2. What is your GPA?

3. Why are you taking this Chemistry course?

4. How do you feel about taking this Chemistry course? Excited, interested, apprehensive, nervous? Please explain

5. Have you used ePortfolio before?
If so, what course did you use it in and what did you do?

6. What are your thoughts about using ePortfolio to enhance your learning experience?

7. What do you think I can do to make this course enjoyable and enhance your learning experience?

8. What do you think you should do to enhance your learning and enjoyment in this course?

Course Evaluation Student Questionnaire Survey

Dr. Ian Alberts **SCC101 Course Evaluation** **LaGuardia** **Date:**

Reflecting on THIS chemistry course, please answer the following questions as honestly as possible. This will really help me do a better job for the remainder of this semester and beyond. Please make detailed comments. You do NOT have to write your name (unless you want to).
Questions:
1. Have you enjoyed the lectures? Can you follow them?

If not, please can you give the reason?

2. What do you think I can do to enable you to learn better?

3. What do you think you can do to learn better?

4. What did you think about the exams?

5. What do you think about the online Homework?

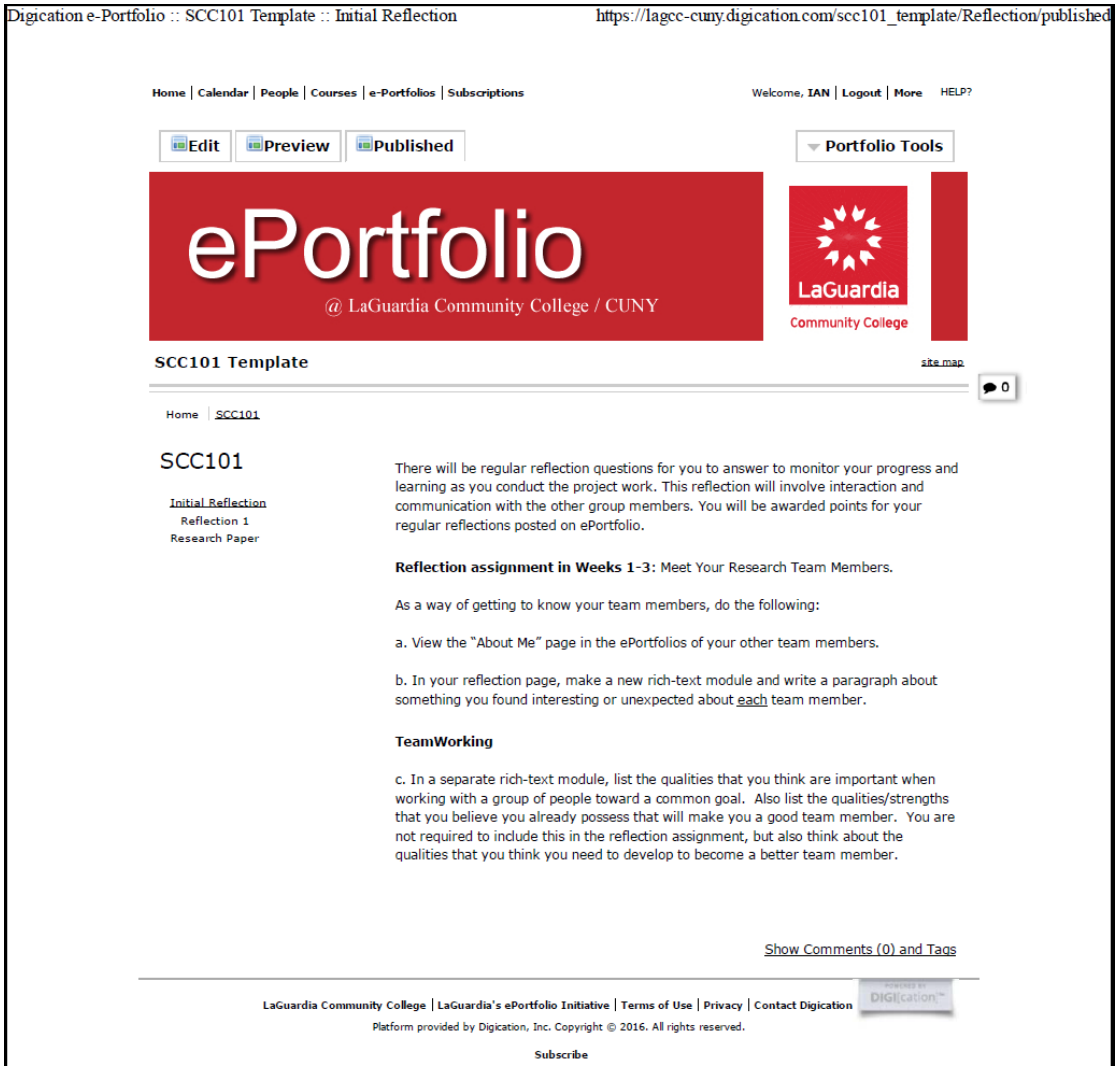
6. What are your thoughts about using ePortfolio in the project to enhance your learning?

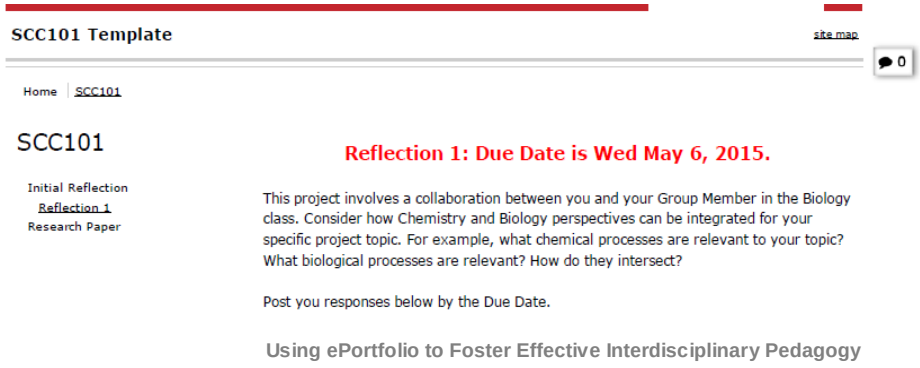
Have your thoughts on ePortfolio changed since the start of the semester?

7. Did you find the Pre-Exam Review sessions useful?
Please explain:

8. How has your interest and curiosity in Chemistry changed as a result of taking the course? Please explain:

Appendix 2
ePortfolio Template used in the second Implementation





Appendix 3
Example of High Quality Final Research Paper from the second Implementation

Chemical Dependencies of the Brain during Drug Use

There are many different forms of addiction, whether intentional or not. With advances in accessible medicine and the use of recreational drugs, addiction has become harder to combat, both for the individual and as a society. Most drugs were first endorsed for their medicinal uses, later to emerge on the black market scene. In the past, it was believed that the younger generations gained access and became addicted primarily through friends and peer pressure. However, it is apparent that is not the case anymore. Though this still is a cause, the medical community is also to blame for being too quick to prescribe unnecessary drugs to patients, especially those with a high addiction rate, as well as the method of replacing drugs with more drugs to assist in rehabilitation. All of that aside, what is happening in the brain and is it at a fault for creating a dependency?

II. Background Information

First, a brief description and history of drug use using a few examples such as cocaine, marijuana, and LSD. As stated before, many drugs were first discovered and used either for health reasons or medicinally. Cocaine's chemical structure is $C_{17}H_{21}NO_4$; once it enters the brain, it increases the release of dopamine and causes a euphoric high. It intensifies pleasure, increases alertness, and will cause a jump in pulse. In the 1800's, Sigmund Freud suggested it be used as a local anesthesia during operations. It was also prescribed to soldiers in combat to fight fatigue and put in 'medicinal tonics,' until the high addiction rate caused its use to become illegal.

Hemp from marijuana plants has been used for decades to make numerous objects including rope, and usage was encouraged in place of alcohol for years. Marijuana's molecular structure is $C_{21}H_{30}O_2$ with the most active part beingtetrahydrocannabinol, or more commonly called THC. It is one of the most consumed drugs around the world. Users can experience mild euphoria, hallucinations, and difficulty judging time and space. Once its usage grew more common in America, it became illegal in most places. Humans have a THC-related chemical in the brain which acts similarly to marijuana, which increases with intake.

The molecular formula of lysergic acid diethylamide, more commonly known as LSD, is $C_{20}H_{25}N_3O$; it is an extremely potent hallucinogen that stimulates the sympathetic nervous system, causing an increase in body temperature and pupil dilation. It also blocks the neurotransmitter serotonin ($C_{10}H_{12}N_2O$), which affects our moods and impulses. When LSD was discovered on accident by a Swiss chemist in 1943, it was passed around among psychiatrists and then used as a 'truth drug' to get prisoners to talk. It was also thought to be used for psychiatric patients suffering from various mental disorders. LSD deals with the serotonin receptors in the brain causing sensory changes and possible hallucinations.

III. Discussion

A. An Outline of Chemical Reactions

Drugs are able to affect the brain mainly because their chemical structure is very similar to the neurotransmitters in the brain. Neurons are able to recognize the chemicals in drugs and then redirect messages. For example, dopamine is a neurotransmitter that controls our pleasure and rewards center in the brain. The chemical structure of dopamine is $C_6H_3(OH)_2$-CH_2-CH_2-NH_2 and resides in the basal ganglia region of our brains. It is absolutely necessary for our brains and bodies to function properly, such as the cardiovascular system, proper hormone secretion, renal system, as well as cognition, endocrine regulation, and emotion. However, because of its involvement in the pleasure region, extra dopamine released in that area of the limbic system will cause pleasure, in turn creating a potential craving in the future. One study at the University of Michigan Health System showed why addiction can happen at any point. Studying twenty five healthy men and women, doctors induced pain in their jaw muscles to view which regions of the brain would respond; "The more a person rated the pain as causing emotional distress and fear, the more dopamine was released in the area known as the nucleus accumbens - the same region implicated in drug addiction" (Science Daily 2006), hence why people are more prone to developing addictions in times of immense stress. There are quite a few drugs that increase the dopamine levels in the brain, risking higher levels of abuse. The levels of dopamine are shown in the charts below:

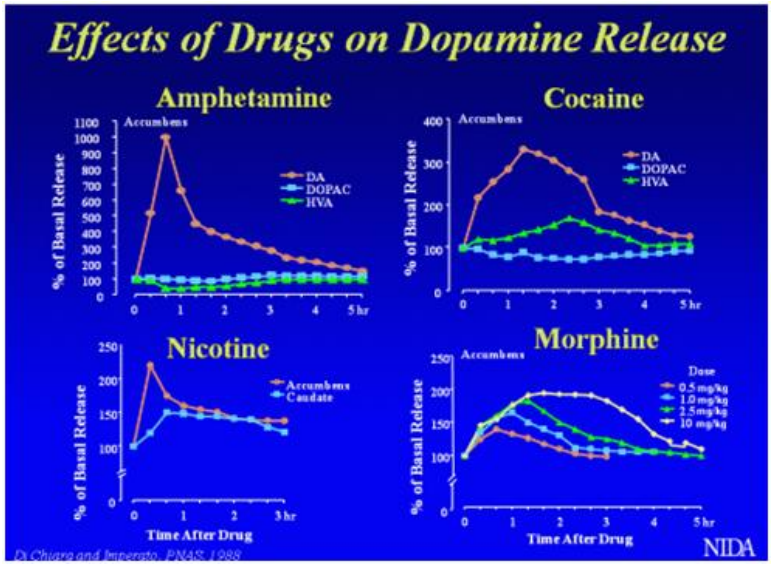


Figure 1, Effects of Drugs on Dopamine Release (NIDA, 2010)

Drugs interrupt the normal communication between neurons; if a certain drug enters the brain that contains dopamine, it will intercept the synapse (the connection between neurons) and will cause the receiving neuron to accept more dopamine than it normally does, effectively creating the high that comes with many stimulants. Drugs, especially those containing dopamine, access the rewards center of our brains. As humans are designed to be conditioned through the outcomes our actions, once the rewards center is triggered, we desire to repeat the action and then a possible addiction can form (West 2007).

We are born with plasticity in our brains, which expands as we learn and experience. As more synapse connections are made, other die off with more experience. While abusing drugs, it is said that the neural connections can reorganize themselves in such a way that would promote addiction (Robinson and Kolb 2004). This means that any changes long-term drug use does to a synapse may be for life in terms of behavior and how someone is psychologically. As children, our brains are able to learn and expand without a life-long effect, but as we age we tend to be set in our ways, so to speak, based on our experiences. As said before, since drug use can mimic the chemical data in our brains, it is very possible that long-term drug users will modify their behavior permanently. Beyond that, it is possible for psychological damage to be permanent as well, affecting our moods and personalities, which is of course problematic. While the damage may be reversible, that may not be the case after years of drug abuse.

B. Current Issues with Drug Use

Besides the issue addicts face with potentially altering their brain chemistry for the worse, there is also the problem with using drugs to combat pain or mental health. First, there is the issue with health practitioners prescribing drugs, specifically pain killers such as oxycodone, to patients that may not necessarily need them. If it is necessary, there may not be enough monitoring during use. If not taken in moderation, most of these prescribed pain killers run the risk of being highly addictive and could cause a problem after treatment is finished. The abuse of pain pills has also said to spark a rise in heroin addiction (Engel 2014). Similarly, when placed in a psychiatric hospital, especially against his/her own will, one can have medication forced on him/her. As with pain killers, doctors are quick to prescribe anti-depressants and other mood stabilizing medications. Anti-depressants work to block the absorption of serotonin in the receptor and increase the concentration. While many taking anti-depressants and anti-psychotics need it because of a chemical imbalance in the brain, some people can never pinpoint the problem and are masking it by taking these drugs.

C. Current Solution to Remedy the Problem

A current solution to drug use that remains controversial is the rise of methadone clinics. The molecular structure of methadone is $C_{21}H_{27}NO$ and was created in 1937 in Germany to help opiate addicts wean by reducing their intake. The structure of methadone is similar to that of other opiates, such as heroin which is $C_{21}H_{23}NO_5$, and interacts with the same opioid receptors in the brain. However, it lessens the intensity of the highs and lows one can experience during opiate use. Once in treatment, the methadone will help minimize cravings and symptoms of withdrawal. The higher the dosage, the better chance it will block any euphoric sensations associated with other opiate use resulting in reduction in opiate abuse, however it must be closely monitored as addicts can soon relapse.

This type of replacement therapy has shown to be a helpful and affordable way to somewhat minimize drug use. However, due to the extremely high relapse rate, these methadone clinics may not actually be doing an effective job. According to a study done on three different groups; one only receiving a lower dose of methadone, second receiving methadone and the normal required counseling services, and the last receiving the above plus therapy and help with employment, it was apparent more assistance is needed. The first group consistently used opiates and cocaine throughout and had to be “protectively transferred” post-trial. The last group had the highest success rate (McLellan, Arndt, Metzger, Woody, and O’Brien, 1993).

IV. Conclusions

Drug use comes in myriad forms; whether it is though addiction of recreational drugs or is used to aid in the balancing of brain chemicals to approve mental health and disorder. Through long-term drug use, the brain will create dependencies on the drug in play. Since the chemical structure of drugs so closely resembles the chemical structures of the neurotransmitters in our brains, there is no doubt where and why addictions form so easily. Replacement of drugs with other drugs is the possibly the easiest way to reduce drug intake, but may not be the most effective. Our brains are meant to grow with us and change as our experiences change, but years and years of drugs abuse, the chemistry may not be able to rectify itself.

V. References

www.britannica.com

en.wikipedia.org

West, C. Scientists say addiction changes brain chemistry http://addictionstudies.org.accessed Oct. 17, 2007.

Engel, P. Why Heroin Use Is Skyrocketing Across The UShttp://www.businessinsider.com/why-heroin-use-is-skyrocketing-across-the-us-2014-1#ixzz2xfXVBh49. 14 Jan 2014.

Robinson, T.; Kolb, B. Structural Plasticity Associated with Drug Abuse. *Neuropharmacology*. 2004, *47*, 33-46.

McLellan, A.; Arndt, I.; Metzger, D.; Woody, G.; O’Brien, C. The Effects of Psychosocial Services in Substance Abuse Treatment. *Journal of Addictions Nursing*. 1993, *5*, 38-47.

National Institute on Drug Abuse Home Page.http://www.drugabuse.gov/ (accessed 2010).

University of Michigan Health System. Pleasure And Pain: Study Shows Brain's 'Pleasure Chemical' Is Involved In Response To Pain Too. ScienceDaily. ScienceDaily, 19 October 2006. <www.sciencedaily.com/releases/2006/10/061019094148.htm>.

May, P. Lysergic Acid Diethlamide – LSD. School of Chemisty.http://www.chm.bris.ac.uk/motm/lsd/lsd1_text.htm. December 1998.

Appendix 4

Examples of student "About Me" sections, student reflections, student interactions, and instructor feedback:
General Biology I Student "About Me" section:
"For as long as I can remember, I knew that I wanted to be part of the healthcare field. I've always wanted to be the person that people relied on for their well being, which led me to the decision to pursue a degree as a Physician Assistant. This decision has actually shocked those who are close to me as the general assumption was that I would be an artist/illustrator due to the fact that I can often times be found doodling in my down time. As much as I do love drawing, I feel like the challenge of working in the healthcare field is one that I am greatly looking forward to.

My goal is to complete my pre-requisite classes here at LaGuardia Community College in order to transfer into a Physician Assistant program and attain a Bachelor's degree. To achieve my goal, I must put in the effort required to absorb the material I am taught in class, not just in the memorization sense, but in truly understanding the topics and their applications in the world.

Science courses, despite their often mentioned difficulty, always seem to be the highlight of my semester. There is just something about deconstructing and reconstructing the world around us and understanding the way things really work that make taking a science class an exciting and revealing adventure, if you will. Considering the fact that I will be pursuing a career in health care, I feel like having an understanding of how Chemistry and Biology affect our daily lives will help give me a stepping stone into applying my knowledge in to real world applications."

Student comment on above "About Me" section:
"Hey ***** it is interesting that you have a passion for helping others. I myself am a EMT and know how the medical field could be best of luck in becoming a PA. By the way I gave you access to my page so you can take a look at it whenever you can."

Topics in ChemistryStudents:
"About Me" contribution from the Second Implementation:
"My name is s *****, I am 20 years old. I was born and raised in Brooklyn, New York in an appartment with my parents and two older sibilings. I attended Williamsburg Charter High School where I graduated June 2012. I attnededLongisland University 2012 for one year I transfered into Laguardia Community College in the Fall 2013 semester as a Psychology major. I will continue my dreams of becoming a psychologist in a four year college of my choose.
Science is a very intersting topic. I like to learn knew things and learning knew things that can help change the world is great. It's always great to learn something and also pass it down which means informing others about things they didn't know."

Student comment on the above "About Me" section:
Hey *****, we have talked to each other through email but to make my professor happy, I shall write something. I like your perspective, when you said gaining knowledge and passing it down to others. Because unlike you, I know other people who would only want to gain knowledge, use it to feed their ego and grow in arrogance. =)

Examples of Student comments about working as part of a team:
"I'll leave a brief thought about working with a team here. I have no problem working with a team so as long as all team members pull their own weight. I have no problem helping those who may struggle because we may all struggle at times. It is motivational however to at least see some kind of effort from a struggling team member. I know what it is to serve as a team member and as a team leader. I have no problem taking the lead in the absence of leadership. I'm ambivalent when it comes to the thought of working in a team. At the end of the day, I'm a D (task oriented person) and will ensure that the task is complete even if I have to complete it alone."

"Teamwork is work done by several associates with each doing a part but all subordinating personal prominence to the efficiency of the whole. Each of group member needs to work toward the same goal with their enthusiasm. However, everyone has his/her own strong and weak points. Therefore, if a group wants to achieve a same goal, members have to combine their strong points together. In addition, communication is an important part of a group as well. Poor communications may cause mistakes and faults. I think that group members can calm down first, even though having any conflictions."

Some Examples from Reflection 1 in the second Implementation are shown below:
This guided Reflective exercise encourages students to consider how Chemical and Biological perspectives, which are key for this interdisciplinary exercise, can be integrated into the final project paper.

“Global Warming is an interesting topic, it relevant to both of chemistry and biology aspects. In chemical aspect, it includes how the greenhouse effect works, the resons why global warming, etc. In biological aspect, it includes the influences of global warming for our environment and how to improve this situation. Those things are connected together, it is a cause and effect circularion.”

Examples of Faculty comments:

Charles Keller
Hi *****. So your draft is a good start. The content looks good but some of the writing needs to be refined a bit (I highlighted a few passages and suggested alternatives but I didn't do it for everything). Also, the draft is a bit short. That's ok but you will want to elaborate on some of your points. Also, it would be good to divide it into sections (Intro, discussion, etc....).

Hi *****. Now you need to say something about your partner and what your topic is. Also, please post on your partner's portfolio. Thanks!

Ian Alberts
Hello *****,
Well done for setting up your ePortfolio and writing a very good Welcome and About Me sections. You can also write the Initial Reflection about Team working.
We will try to set things up with your team member in the Biology class next week.

Hello *****,
Excellent work so far on the Reflections, and good interactions with your group member. I see you have chosen the project topic. Looks good. Now please work with your group member on the project outline.
There is also the new Reflection. See the SCC101 template for more details.