"The Curiosity Project":
Re-igniting the Desire to Inquire through Intrinsically-Motivated Learning and Mentorship

STACEY L. MACKINNON
University of Prince Edward Island

Abstract

"The Curiosity Project" encourages students to engage in intrinsically-motivated, inquiry-based project learning, investigating topics that interest them and following them down long and often winding roads, where U-turns, hidden side roads, and venturing off the map are a cause for excitement not a distraction from the destination. These inquiry-based, semester-long, student-led projects incorporate proximal goals of weekly learning logs and peer group meetings and in-depth feedback from peers and senior student facilitators. There are no page/word limits or minimum/maximum number of resources, just students' burgeoning sense of what constitutes "high-quality work". Community-oriented projects round out this experience. In this paper, I outline the structure of "The Curiosity Project", its theoretical underpinnings, and present both quantitative and qualitative data that suggest that not only are the project's basic goals being met but that there are unexpected transformational properties stemming from student engagement in this project.

Keywords: curiosity, inquiry, project-based learning, intrinsic motivation, transformation

Albert Einstein once said, "It is a miracle that curiosity survives formal education." Recent research and anecdotal findings, however, suggest that for many students, it does not. For example, Kim (as cited in Bronson & Merryman, 2010) suggests that children's questioning has been in steady decline since 1990 despite a steady increase in their use of reading and writing skills. As young people stop inquiring, they become less engaged in learning. This suggests that the more anonymous, structured, standardized and mark-driven our formal education system becomes the less chance curiosity has of inspiring original or independent thought.

This can be seen in conversations with teachers and professors who more and more often are hearing from students and administrators alike "just teach what's on the test so we can get good marks. "Many students, including some of our brightest, have become obsessed with "getting the right answer" as defined by an authority figure as opposed to focusing on how to learn, investigate, evaluate, understand and question, life skills that would serve them well throughout their future (Mussel, 2013).

The implications of this in a world that is in a state of nonstop change and where we are constantly bombarded with what seems to be a never-ending flow of new information are sobering (Berger, 2014). Bottino (as cited in Berger, 2014) suggests that as our world becomes

more complex and dynamic, the value of questions, critical and creative thinking increases as the value of "right" answers decreases due in large part simply to the accessibility of information. This suggests that we need the skills to be able to sort through the morass of information available at our fingertips, to question them, to put them together in new ways, and to deconstruct them to determine their continued usefulness. Indeed, employers indicate that the ability to ask questions, gather information, and solve problems are three of the key characteristics they are looking for in future employees (Coplin, 2010) but which recent graduates are lacking.

If we acknowledge that the success of our current society is predicated on well-thought-out innovation, creativity, problem-solving, lifelong and lifewide learning in everyone from ditch diggers to research scientists (Berger, 2014), then we have to create an environment where students can learn to question, explore possible answers, see the big pictures and try things without constantly being afraid of being "wrong" (Adams, 2004). To do that, students need to feel invested in their learning, believe they have the support to learn the appropriate skills, and come to understand that persistence and resilience in learning are more important life skills to develop than getting 100% by memorizing definitions verbatim.

"The Curiosity Project" combines the structure of project-based learning (e.g., Blumenfeld et al., 1991) with the focus of inquiry-based approaches (Friedman et al., 2010) to offer undergraduate students an opportunity to explore their own interests in both traditional and non-traditional ways with the support of their peers, senior undergraduate learning facilitators and their professor. Everyone in the classroom acts as a learner, collaborator, and teacher. More specifically, the goals of this project are to:

1) Model and foster independent and collaborative inquiry and project-based learning

2) Allow students to exercise their intrinsic curiosity by choosing a topic from any area to investigate

3) Encourage students to think about what they already know or believe about this topic and why, as well as what they do not know, valuing this information as a positive starting point for curiosity as opposed to a personal intellectual shortcoming

4) Demonstrate the value of using multiple methods of formal and informal inquiry/resources

5) Encourage students to think critically about what and how they are learning

6) Encourage students to appreciate the ambiguity and complexity inherent in their topic and in the learning process itself, viewing it as a positive sign of intellectual growth and curiosity.

In this paper, I describe the project itself as it unfolded in a single semester, second-year university social psychology course. I also report the results of a comparison between two sections of this course, one of which included the Curiosity Project and the other which included the traditional professor-directed, course content focused writing assignments. Lastly, I have included a qualitative analysis of the reflections of Curiosity Project students as they pertain to their experiences of personal transformation over the semester.

Choosing Their "Curiosity Project" Topic

This class of 50-60 students met for 50-minute sessions three times a week over a single semester. Mondays and Wednesdays focused on text material and involved lectures and in-class activities. Friday sessions were dedicated to the semester-long "Curiosity Project". In the first Friday class of the semester, students were asked to take the weekend to decide the topic for their Curiosity Project. This approach to topic choice capitalized on Ryan and Deci's (2000) observations that learners who are intrinsically motivated, that is guided by curiosity, exploration, spontaneity, and personal interest, are more content in their learning processes, acquire knowledge in a more differentiated and more coherent form, show a long-term retention of what was learned, apply their knowledge more often than others, show higher academic achievement, and perceive themselves as more competent.

Weekly Learning Logs

Once they decided on a topic, students wrote their first informal learning log discussing what they already believed or knew about their topic, questions they had about their topic, and ideas for ways to learn more about their topic. Each week, the students' goal was to ask a question and learn something about their topic. This could be accomplished by reading journal articles, books, popular media, watching documentaries, TED talks, conducting interviews, surveys and in a few select cases even conducting experiments. In an informal, conversational learning log each week after that they discussed in detail what they learned, how they found the information, their assessment of the validity of the information, their ideas, questions and potential answers to questions concerning their topic.

The weekly submission structure of this project was based on Bandura and Schunk's work on proximal self-motivation (1981) which demonstrated that when children were given proximal rather than distal goals they experienced rapid progression in self-directed learning, increased mastery of mathematical operations, and an increased sense of self-efficacy and intrinsic interest in learning the subject matter. In designing "The Curiosity Project" then it was my hope that the proximal goals of weekly learning logs would result in similar improvements in self-directed learning and mastery of subject material as well as increased perceived self-efficacy in my students.

In keeping with this approach, there were no minimum or maximum word or page limits in the learning logs. Students were invited to write until they had nothing more to say and they felt that they had given their very best thinking. Written in the first person, the language of learning logs was very much "writing to learn" (Fry & Villagomez, 2012), a conversation with oneself and one's readers in which ideas are explored, considered, reconsidered, dissected, and put together into a meaningful whole. If they changed their mind, began to disagree with something they had written about earlier or experienced an "aha" moment, students were strongly encouraged to continue writing instead of editing or deleting their previous thoughts, in an approach similar to freewriting (Li, 2007). The metacognitive process of watching thinking unfold is a vital component of the Curiosity Project. Therefore, we celebrate students' efforts to follow their thinking where it takes them without pretending it was the destination they had in mind all along.

My expectations for these projects were very high and without having any guidelines as to "how many", "how much", and "how long" students had to learn for themselves the real world

lesson of how to gauge when they had exhausted an avenue of inquiry and needed to turn to another. This process was facilitated by their interaction with their discussion groups during the Friday sessions and through the one-on-one online feedback with their peers and senior undergraduate learning facilitators.

In-Class Discussions and Online Feedback

The weekly learning logs formed the basis for the Friday small group discussions. These involved up to five students and one senior undergraduate learning facilitator. These facilitators were themselves former students in "The Curiosity Project" who volunteered their time to support the learning of the current social psychology students in the course. Because they originally experienced "The Curiosity Project" primarily in their second year, they were not all psychology majors, which brought a wonderful variety of knowledge and experience to their feedback and mentoring. The point of this regular interaction was to get feedback from others on the topic the student had chosen to learn about, to debate points of contention, to consider possible intersections between students' areas of interest, and to share ideas about ways to collect and understand information and opinions. This allowed the facilitators to not only moderate the conversation but more importantly to model the curiosity, tolerance for ambiguity, and flexibility in learning that is the cornerstone of this project. Each student was also a member of an online feedback group that differs in composition from their in-class discussion. Each week, the posted learning logs were read and detailed feedback given to the student by at least one other peer and a second learning facilitator.

The rationale for the weekly in-person and online feedback from both peers and facilitators is based on guided discovery learning during which the course of inquiry is directed by the students' interests and the input from others (Brown & Campione, 1994). It is valuable in that students have the opportunity to learn more about their topic and those of interest to others and see first-hand how seemingly disparate topics and ideas can link together, contradict or build upon one another, laying the foundation for more advanced multidisciplinary thinking.

The Final "Curiosity Project" Submission

At the end of the semester, each student created a final submission that integrated or applied what they learned all semester in a format geared toward the general public. The rationale for this "no academic research papers" requirement stemmed from my students' observations that they have many opportunities to hone their formal research dissemination skills but that most of them would likely be going on to positions in the workforce that required experience in producing high quality but less formal dissemination tools. To create this final submission, students: a) reflected on all that they've learned during the semester and distilled from it the key points or larger message they felt the general public (or target audience) needed to know, b) considered the best way to share this information with their target audience so that they would be maximally receptive and willing to consider their position, and c) got creative. The students then shared this final project submission at a "Curiosity Project Fair". This allowed them to see how others dealt with their topics, ask questions, catch up with the progress of former in-class group members and share their findings with the general public.

The Final "Curiosity Project" Reflection

At the end of the semester, the students also wrote a detailed final reflection paper where they discussed both the content of their project and their experience in the Curiosity Project. Part one of this reflection focused on their justification for the approach they chose to take for their final submission (both in terms of content included and mode of delivery), conclusions they felt they could or could not draw about their topic, any initial ideas they found not to be valid and questions that remained unanswered or new questions that formed. Part two of this reflection focused on "the good, the bad and the ugly" of learning, examining the challenges they faced, overcame, and/or wished they had tried to overcome, lessons learned about themselves as a student and as a person, as well as things they were proud of and things they regretted during their experience in this project.

Research Questions

While the Curiosity Project is well-grounded in established theory on project-based and inquiry-based learning, interested instructors have expressed concern that time spent "off-topic" (i.e., not on directly testable material) would result in a decrease in students acquisition and retention of other more course-specific information. As a result, I was interested in determining whether or not students' experience in this project would have any significant impact on their scores on non-project content multiple choice tests. Contrary to my colleagues concerns, it is possible that by engaging in their Curiosity Projects students would also be motivated to pay closer attention to the other topics covered in the class and feel more confident in asking questions about other course material, thereby resulting in higher scores on the final exam. However, it is also possible that given the intrinsic motivation components and freedom of learning that are at the heart of the Curiosity Project, there might not be a spillover effect on such "other-directed" learning such as that necessary for this type of testing.

I was further interested in examining the investment component of this project to determine if, in fact, students were spending more time on it than more traditional professor-driven writing assignments and if so, whether they believed that additional time was well spent. This type of project involves a large investment of time and energy on the parts of the professor and learning facilitators as well as the students, so insight into its effectiveness is key to its continuation and spread into other areas of inquiry.

Lastly but most importantly, I wanted to explore the extent to which the shift to intrinsically-motivated, project-structured, inquiry-focused learning might result in transformations in how students viewed themselves and the learning process. Rather than relying on top-down designed questions, I chose instead to give students an opportunity to discuss what mattered most to them openly and with very little guidance.

To examine these research questions in greater detail, I arranged to teach two sections of the same social psychology course, one which mirrored the traditional way I taught the course before the emergence of The Curiosity Project and one which included the Curiosity Project and compared their experiences quantitatively. I was also able to qualitatively analyze the written descriptions of the experiences of the students in the Curiosity Project class.

Method

Participants

Fifty-four undergraduate students took part in the 9:30 am Social Psychology class that included "The Curiosity Project". Fifty undergraduate students took part in the 11:30 am Social Psychology class that completed the traditional professor-directed content-focused writing assignments I had used previously in teaching this course. This second section was comprised completely of students whose names appeared on the waitlist for the 9:30 am class. When they registered, they were unaware that they would not be completing "The Curiosity Project" and did not, therefore, self-select into or out of the project. After final marks had been submitted, 21 students from the 9:30 am class and 19 from the 11:30 am class chose to participate in this study.

Procedure

The 9:30 am class experience in the course, including The Curiosity Project, unfolded as described in detail previously. The 11:30 am class' experience on Mondays and Wednesdays (i.e., lectures and in-class activities) was the same, but their Friday sessions were focused, not on "The Curiosity Project" but on a review of the content of the text, in particular, content that related to their written assignments. These written assignments required the students to apply the concepts from the lectures and text to explain real-life scenarios provided by the professor. As with the Curiosity Project students, there were no page or word limits on their responses. These assignments were due weekly but did not build on each other regarding content. Both classes wrote identical final cumulative exams together in the gymnasium. In essence, the 11:30 am class received one-third more class time relating directly to the material covered by their written assignments and their quizzes/exams. After the final marks had been submitted, a subset of the two classes completed an anonymous online questionnaire about their work habits and investment in their respective courses.

Measures

Cumulative final exam. The cumulative final exam for these classes was based on content from the common Monday/Wednesday lectures, in-class activities, and the textbook. It included 100 multiple choice questions designed to determine the extent to which the student understood (as opposed to simply memorizing the definition of) the concepts and could recognize and apply them in real life scenarios. There were no factoids (e.g., names, dates) or verbatim definitions on this exam. Students had two hours to complete the exam.

Work habits and investment questionnaire. In an anonymous online questionnaire, students were asked:
- What percentage of this class did you attend this semester? (out of 100%)
- How many hours per week on average did you spend working on/talking about/writing about your Curiosity-type project both in and out of class?
- How many hours per week on average did you spend working on/talking about/writing about your written assignments for this class?
- How many hours per week on average did you spend on the other parts of this

course? (e.g., reading the text, studying, etc.)
- If you had the opportunity to participate in a Curiosity-type project again, would you do so?
- Based on your experience with this Curiosity-type project, would you recommend that others take this class?

Reflective writing exercise. At the end of the semester, all students in the 9:30 am Curiosity Project class wrote a reflective piece discussing their experience in the project. Like their learning logs, this reflective piece was informal and conversational in tone. Students were encouraged to write about their successes and struggles, their challenges and learning experiences, things they enjoyed and those they did not. These pieces were then thematically analyzed for greater insight into the subjective experience of the students involved in the Curiosity Project.

Results and Discussion

An independent samples t-test comparing the two classes suggested that despite having received one-third more class time and traditional professor-directed writing assignments devoted to specific course content, the class which did not complete the Curiosity Project ($M = 63.01$, $SD = 13.50$) performed no better ($t (102) = .11$, $p = .92$) on the final cumulative multiple choice exam than did the class which did the Curiosity Project ($M = 63.30$, $SD = 14.11$). Indeed, the two groups had similar levels of attendance ($t (38) = -.81$, $p = .43$) and spent similar amounts of time studying for tests ($t (37) = -1.01$, $p = .32$). These findings are encouraging because they help to alleviate many instructors' concerns that the time and energy spent on a project of this magnitude in class may interfere with students' ability to understand and retain course specific content.

While engaging in the Curiosity Project did not take away from students' studying time it did add, on average, two and a quarter hours a week to their work time for this course (see Table 1). More specifically, the results suggest that students in the Curiosity Project section devoted significantly more time per week to their learning logs than did those who completed the traditional content-based writing assignments ($t (38) = 2.06$, $p = .047$).

Table 1 Means and Standard Deviations for Experience Questionnaire Items

	Mean	Standard Deviation
% of classes attended		
Curiosity Project	88.81	10.52
Non-Curiosity Project	91.37	9.48
# of Hours spent studying for tests		
Curiosity Project	3.30	2.62
Non-Curiosity Project	4.05	1.99
# of Hours spent on writing assignments*		
Curiosity Project	5.75	4.55
Non-Curiosity Project	3.47	1.68

Note: * = $p < .05$

Despite the increased investment of time and energy experienced by the Curiosity Project students, 90% indicated that this project should remain a part of the Social Psychology class while 100% said that based on their experience they would recommend others take the course. Perhaps most telling though is the fact that 90% indicated that they would seriously consider taking another Curiosity Project-type course in future based on their experience in this class.

In summary, despite having one-third less time focused on testable content in class and writing assignments, students who completed The Curiosity Project matched their peers on cumulative exam scores. They achieved this despite having spent no greater amount of time studying course content independently and while devoting upwards of two hours extra time per week to their written assignments (learning logs versus instructor-provided content-based assignments). Despite this additional investment, the overwhelming majority of students surveyed indicated that they would choose to undertake a similar experience again in future. Why, when many students are already feeling overloaded, would they volunteer for something that takes up more time and mental energy than the traditional approach to the course?

To better understand these students' subjective experiences of this project and the extra time it entailed over and above the traditional approach to teaching this course, I conducted a content analysis of their reflective writings. As you will see, while the ultimate experience of the Curiosity Project for these students appears to have been extremely positive, not all came into the situation initially believing this would be the case.

Students' Initial Concerns and Fears

In their reflections, students explicitly acknowledged the challenges and fears they initially faced in engaging with the Curiosity Project. These included issues with time, finding a topic, their ability to find resources, and the lack of surface structure (e.g., page limits) within the project. Fortunately, students very quickly appeared to have faced down these concerns and engaged fully. For example, students recalled being initially concerned about being able to find the time and the resources to do the Curiosity Project well. Participant 7 says it best:

"When I first started I was very intimidated and nervous. How was I going to ever find time to submit an assignment every week, and how was I going to be able to find this much information on one topic? These two questions that originally lingered in my mind were quickly changed to How am I going to fit all that I've learned this week into one assignment and how is there so much information on this one topic?"

Many students' fears stemmed from what they refer to as a lack of structure in the Curiosity Project.

"I will be honest. When I first heard of this project I was terrified. I do not do well without structure and direction." – Participant 11
"I am the type of learner that takes more from being taught, than self-teaching" – Participant 17

This is interesting because, in fact, the Curiosity Project is highly structured with clearly articulated goals, learning logs due every week, weekly online feedback from various sources, weekly group discussion meetings, and a final product. What students were really referring to was the lack of specific, black/white instructions for how to get a good mark, e.g., word limits, page minimums or maximums, of required resources, limits of types of resources to be used, and

a limited range of "approved" topics. In essence, they were uncomfortable not knowing what the "right" information was or how to present it in a specified "professor-approved" manner.

Valuing the Journey, not Just the Destination

Once they decided to trust in the process, the professor, and larger goals of the project, however, students were more than able learn. Participant 8 relates to the short-term challenges and long-term benefits of this approach to learning in ways similar to proximal self-motivation theory (Bandura & Schunk, 1981) when she says

"Throughout the process of the curiosity project it was amazing (and slightly terrifying) to see how quickly a week could pass by. The weekly learning log assignment was both beneficial in that I had to do at least a little new work on my project every week, and detrimental in that on a particularly stressful week, my work may not have been the best quality and could essentially have me waste a log on something trivial rather than have a log that could be potentially relevant….they were a major hassle in my learning sometimes as well as a blessing in the completion of this final paper as all of my thoughts were in one place and waiting to be interpreted into the 'bigger picture.'"

Getting students to focus on and value the learning journey rather than simply the final destination was indeed a challenge. Many initially found the freedom to learn in this way unnerving. In the end, however, by nurturing their desire and willingness to explore the students were able to see the value in letting go of a detailed plan and allowed themselves to "follow the learning" wherever it led. For students like Participant 28 this was a novel experience:

"This project was very interesting to do and was the first time I've ever really had free rein to do whatever I chose. Coming from a science/biology background normally my papers are extremely structured containing nothing else but what was immediately relevant to my topic. The curiosity project allowed me to go in any direction I wanted, following whatever interested me at the moment. By doing this technique, I learned and discovered things in many different ways, all different from what I am used to."

The Upside of Freedom: Content, Critique, and Self-Awareness

Many students relished having the freedom to learn from a variety of academic and non-academic sources. Academic journal articles were a component of most students' learning, though many felt as Participant 29 did that "constantly reading long articles in academic jargon was boring and exhausting, making me lose some interest in my topic at times."

Most students also branched out into other sources including documentaries, books, newspapers, magazines, and websites. Still others surprised themselves by deciding to conduct their own surveys and interviews while those who did not stretch themselves this far often wished they had.

"… started with researching published articles, reading textbooks and watching a documentary. From there the last few weeks have consisted of conducting interviews (five in total) and having conversations with anyone that would discuss the topic with me! I can say for certain that this has been the most enjoyable part of this project thus far. Listening to someone share their story, or talk to you about something they're passionate about is a truly enlightening experience." – Participant 17

"I started off with just chatting with my roommate to find a topic and then getting a base of my knowledge from the book. I then took the research further by checking out PSYCHINFO because I trust academic resources…I also went to google so that I could see what the 'average Joe' had to say about the topic." – Participant 9

This participant's observation is echoed by several students who believed that having the freedom to incorporate non-academic sources in their learning journey helped them enhance their critical thinking and theory application skills.

"I found my interview especially helpful in my research. It gave me a way to find out how the information I was getting from stuffy academic articles was applied in real life. It was really interesting to hear someone who was experienced, passionate and knowledgeable about the topic." – Participant 29

"Reading other people's opinions, or thoughts on a topic can often be very informative because it allows us to see what our preconceived judgments prevented us from seeing...This video showed me exactly how the process of consumerism works, but what I found most interesting was the comments on the video. Some people seemed to agree with what the video was trying to say, but others were claiming that this video was made by a small group of paranoid people just looking for some attention. I found this interesting because I fell pretty much right in the middle of the discussion." – Participant 32

By accessing alternative sources of information, many participants were surprised by the direction the focus of their learning took as they relinquished their need to plan out their project from start to finish up front using only academic sources:

"When I started this project I was looking at basic consumerism; people buying things that they do not need. However, once I really go into it I found myself very off-track. After a few weeks I began to look at child labour, and how much it contributed to North American markets. I realized that a lot of what these children are making are being sold to major companies all around the world. This means that every time I go to buy a new pair of jeans some innocent twelve year old child is being abused, and overworked for a small fee of about fifteen cents per hour." – Participant 32

These types of flexible learning experiences allowed students to identify their own preconceptions and biases in a way that having to follow a preconceived outline would have inhibited. For many, this was the first time they had considered any opinion save one based on their own limited experience or that which they had been taught to hold.

"Admittedly, I was biased because of my own upbringing….This experience had led me to assume that many others may have had a similar positive experience with grandparents that I had…I will admit that because of all the negative literature I had read about ageism and discrimination, I had some preconceived misconceptions beforehand. I was pleasantly proven wrong by both." – Participant 17

"My original opinion on interrogations was heavily based off false impressions from watching television shows and movies; which is probably the case for most people,

making it a common misconception." – Participant 31

"I tried to imagine going to Afghanistan for six months and trying to live the way your drill sergeant teaches you to. However, back at home I am a daughter, sister, granddaughter, girlfriend, niece, cousin, and friend. When I do come home, for example, two weeks in the middle of deployments how would it be possible for me to balance the two?" – Participant 9

Often the topic of the project wasn't where the greatest learning occurred as demonstrated by Participants 8 and 28 who initially sought to understand people's beliefs about mental illness and in the end learned the broader lesson about the unreliability of media.

"Throughout the first few weeks of my project, I wanted to gain a greater perspective on how the media really depicts mental illness. Initially, I found this to be very beneficial because I was able to look at the material presented and conclude whether I found it to be biased, or condescending, or true to life…it allowed me to realize that not everything profiled in the media is the truth, or even close to it." – Participant 8

"Learning about my topic has helped me become more aware of how I view others and myself and has increased my awareness of issues surrounding mental health." – Participant 28

Expansion of Learning Skills and Scope

This increased understanding of themselves and their views of the world grew and developed into a deeper and broader understanding of how research works and how it can be used well. While all of these students had taken or were currently taking introductory research methods and analysis courses, The Curiosity Project allowed the opportunity to put what they had learned from a textbook and a professor into practice in the real world where complexity, not simplicity, is the rule. Participant 8 noted this when discussing observations made during the campus-wide "Mental Health Week" which occurred during this semester.

"While this week was beneficial in terms of increasing the awareness surrounding well-being and mental health….for many suffering from mental illness this week could have been easily ignored as an individual who is suffering from anxiety or depression would likely not want to spend additional time on campus when even attending mandatory classes is a challenge."

Participant 9 notes that her ability to view the world through a more critical lens also was put to the test in a meaningful way during The Curiosity Project. Initially, she had chosen the topic of deindividuation simply because it was covered quite thoroughly in the course textbook. What she then came to realize as she progressed through her project was that

"…it is hard to do research on deindividuation because it is not something you can just type into google and find information about. You have to think of a concept and pick through the factors of deindividuation and see how it relates….just finding real life examples really helped me to get a better understanding…It was a good way to pick our critical thinking skills because obviously in a newspaper it is not going to say 'GIRL DEINDIVIDUATES AND YELLS AT REFEREE' but based on the situation you can

pick out things you learned yourself or find out new things and ask yourself if maybe this is something that contributes as well."

 At a more micro level, students in The Curiosity Project found this a valuable avenue to practice and expand their more concrete learning and research skills as well. At the most basic level Participant 29 talks about the impact of this opportunity to practice previously learned skills when she says "I learned how to search for adequate resources and increased my ability to adequately summarize findings." Participant 28 took this one step further and learned an important lesson concerning the relative importance of maintaining flexibility in interview protocols when:

"I got to interview a guidance counselor, which was an extremely effective way to learn because I arrived with a set of questions but by the end of the interview I had answered close to triple the amount of questions I originally arrived with."

Participant 29 may have begun her reflection by recognizing the increased ability to find resources and summarize findings but, in the end, notes that

"I also felt that learning about eyewitness testimony helped me apply and integrate different things we learned about in class throughout the year…After my research, I am able to not only know the answers to questions but also know the reasons behind them, which I believe is more important."

This desire to achieve deeper understanding was something that Participant 17 struggled with over the course of the semester but in the end she chose to view her learning with a much broader scope deciding that

"I just have to choose a path for now, and the others can be explored at a later date. Time is something that I have to contribute right now, and I have resolved to make time for this, and as I acquire more knowledge on the subject, I would like to share that with others."

Interdependent Learning

This desire to learn from and share with others was a common theme undergirding many of the students' experiences in The Curiosity Project. It is evident not only in the choice of final projects but in the students' assessments of the process of learning itself. For example, Participant 7 credits the Friday discussions with having a major impact on learning, sharing

"I learned a lot through participation in Friday discussion, not only about others topics but about mine. By explaining myself I was able to better understand what I had learned and was also able to discuss new ideas with my peers and TA's. Their opinions were very important to me and allowed me to guide myself through the project….I was also able to learn a lot by talking to my friends about my topic, telling them what I had learned and throwing ideas and concepts off of them. Questions they asked, allowed …me to investigate more."

The role of the learning facilitators and peers in the Friday discussions cannot be underestimated. Participant 9 explains this clearly

"…when I went to our peer-reviewing groups, that is when I really did my most learning about what I had written about and it always took me farther. The reason why was because I got to see it from other people's perspectives…Although they may not have given me the actual information, it always gave me a good basis to start researching."

For those who struggled with the freedom of The Curiosity Project, these Friday discussions were an essential part of the learning process. Participant 10, for example, struggled with tunnel vision saying "I seemed to keep looking up the same information. My TA's kept pushing me to explore more areas of eating disorders." Participant 11 elaborates on the value of the small group discussions saying,

"Even though I found the project hard to tackle I did really enjoy it! I liked the idea of using class time to meet with other students and TA's to build up ideas and bounce concepts off one another. Having people along with you through your research process made it less of a stressful task."

The interdependent, supportive nature of this project, in which students join together to help each other learn but without the pressure of having a group mark attached to the endeavor, appears to have made the Friday discussions a very successful and vital part of the wider learning experience."

Intrinsic Interest and Motivation

While it is clear that through the Friday discussions students were able to become curious about topics that were outside their initial realm of interest or knowledge, much of their personal learning took place because they had chosen to explore topics that linked to or helped to clarify their personal experience. This manifested in several ways.

Some students took this opportunity to explore in greater breadth and depth a topic that they had worked on more briefly in previous classes. Participant 17 wrote, "When the Curiosity Project was first announced to the class…the concept that I continuously circled back to was related to aging. I had written a short research essay in the first semester about the idea of ageism in the healthcare system…".

More often though students found themselves inspired by experiences in their own lives. Some of these were serendipitous events while others were more serious, long-term issues. Participant 9 figured out early on that there was an interesting link between a textbook definition and a personal experience

"'Deindividuation' …I had recalled an incident my roommate, and I encountered and she told me that the scenario involved this term. When I read the definition and thought about the scenario we witnessed, I knew it was going to be something that I am interested in."

Participant 10, however, had initially struggled with finding her personal interest in her topic, making her way through a plethora of facts about eating disorder prevalence and causes before a conversation with friend fired her intrinsic interest.

"Finally one day after March Break, a friend and I were talking about my project, and he went on a rant saying 'girls with eating disorders are just being selfish'. He continued to go on saying that 'it is just a quest for thinness and they should just get over themselves.' I was outraged!!! All I kept thinking was if I was someone who suffered from the illness

and I was seeking help, everything he said would cause me to continue to hide my illness and be more scared to seek help. That conversation sparked a fire and a passion for me. I started looking about the stigma against eating disorders, and just how powerful the stigmas really are."

These mid-semester "a-ha" moments are not an uncommon occurrence in The Curiosity Project and, in fact, they are welcomed as meaningful divergences from what usually begins as a standard "here is what is known about the issue" student essay. For some, the spark that lights their intrinsic interest is external such as observing the behavior or feelings of a friend, but for others the spark is deliberately re-ignited by the students themselves. For example, Participant 32 found herself losing interest in her project on consumerism after a few weeks due to an over-focus on statistics and decided to do a little personal experiment to jump start her flagging interest.

> "…I decided to go through my room, and see what I have that I do not need. I then had my friend go through my room with me because I am an unrealistic packer, and tend to hold onto things because I might need them one day if something extreme happens…I found that there were piles and piles of things that I had that I did not need. This made me think of all the money I could have if I did not buy all of this stuff…it did however get me more emotionally involved in my project once again."

The intrinsic interest that is such a key part of The Curiosity Project can also come from a much deeper and even more personal place. Participant 8's interest in the subject of mental health came from a very personal source.

> "This project was of particular relevance to my personal life as I was diagnosed with Generalized Anxiety Disorder last year and was curious to find out why I felt such a strong aversion to seeking treatment, even though I knew logically of how benefits counseling could have on my life."

Her intrinsic interest did not end here however as she experienced another life-changing moment during her project.

> "a friend and I were talking one day and the opportunity presented itself for me to discuss my experience with Generalized Anxiety Disorder. Not only did this serve as a liberating experience for me, but she then felt comfortable enough to share her experience with depression. Until that moment, I was unaware that she had endured a fairly similar experience to me and vice versa because we both masked out symptoms quite well. However, by one of us taking the leap and trusting that the other would not judge, we were able to both feel less alone in our struggles with mental illness."

It is this intrinsic interest, whether it comes from observation or personal experience, which seems to drive students forward to succeed in this project. This emerges in their discussion of their final projects and their plans for the future.

"I'm Not Done Yet": Finding Passion & Clarifying Future Goals

By the time they have completed their single semester Curiosity Project, most students seem to have a much better sense not only of what they know but more importantly of how much

they still do not know. Rather than seeing this as a "failure" they come to regard this as a cause for excitement as they begin on the path of lifelong and lifewide learning. Participant 17 apparently learned this lesson thoroughly:

> "The more I learn, the more I realize how much more there is yet to be explored. I feel as though this project is just the very tip of the iceberg, and I find myself wanting to continue to explore as much of it as possible….I was reassured that it was ok not to be done when the semester finished. This gave an immense sense of relief, and also inspiration. Without the restriction of the end of the semester in place, I felt relieved at being able to narrow my topic, and to focus on a particular aspect. It also eased the anxiety of feeling as though I was not able to complete all that I would like to do…Another regret I had was not being able to conduct an interview with a…nurse…We have plans to meet in the next few weeks to chat about the project, as I am still interested in what opinions and ideas she may have about this topic."

This was not the only case of a student choosing to continue the project after the course had ended. Participant 30 was also able to see this project as part of a larger whole while still meeting the requirements for course completion.

> "The overall idea of what I want the website to include is likely too big a project to fully complete for this course – so I will continue to refine and add to it in the coming weeks/months until it has all the information I want it to include. The framework and main sections are all there for this deadline, but I want to go further into the sections on stigma/attitudes, and what is important for non-specialist healthcare professionals to know. This will definitely be a project that I will continue and maintain even after this course is completed."

This desire to continue with learning about these intrinsically interesting topics manifests even further in many students who found through their Curiosity Projects potential future directions and possible career opportunities. Many of the participants in this study found themselves looking toward the future with a much more positive and clear view of what lies ahead.

> "I can now picture myself wanting to get involved with helping those with postpartum depression and postpartum psychosis as a potential career!" – Participant 11

> "I'm so grateful to have had the opportunity to take this class and experience the curiosity project – it has definitely strengthened my determination to pursue this topic as my eventual focus both academically and professionally. All of the work I put into this project was work I thoroughly enjoyed, which helped me answer the question of whether or not I'd enjoy it full time later on. Thank you!!" – Participant 30

> "This semester has been a real time for growth and increased awareness for me. As the semester progressed, I realized that this topic has a real draw for me. I have realized that it is something that I would like to explore further in other courses and other projects, and hopefully, as a career path….In the meantime I have made a commitment to do some volunteer work….I am excited for what I will learn in the future and to have a clearer picture of what I would like to work toward!" – Participant 15

For other participants in this study, their experience in The Curiosity Project impacted not only their career goals but their view of themselves as well.

> "The curiosity project changed me as a person. It made me go outside my comfort zone to get the information, from finding new places on the island that offer assistance with people with any mental illness, to trying to conduct a survey on campus. It made me learn things that I was interested in learning about, and by reading articles, watching youtube videos and talking to people I remember everything. I have always known that I am a person who loves to help. But this project makes me want to help those who don't understand the illness and those who have the illness. Preventing eating disorders has become my passion." – Participant 10

Participant 7 however personifies the quintessential Curiosity Project experience, bringing together all the components of what a positive learning experience can be.

> "The ability to choose my own topic for this project not only allowed me to further my learning and understanding, it also enhanced the person I am…Through the curiosity project, I developed a greater understanding of how I learn, and the skills I possess. I have learned that my personal experiences have shaped me into the person I am today, and allowed me to be passionate about subjects I never would have had the opportunity to look into…Little did I know that this class would spark a whole new area of interest for me and result in the questioning of my future career path all together….Having a better understanding of areas I am interested in, relieves stress and allows me to have a more positive outlook on my future….Overall, I am so thankful I enrolled in this class and had the opportunity to participate in the curiosity project. I gained so much more that just the credit to fill my degree requirements." – Participant 7

General Discussion

The students themselves explain why it is that opportunities such as The Curiosity Project are a necessary component of a well-rounded education. Despite spending one-third less class time on directly testable material, students in the Curiosity Project attained the same marks on factual, conceptual and applied multiple choices tests as those who spent their Fridays in content review and completed traditional "apply the theory" writing assignments. Despite spending an average of two extra hours of week on this course, students in The Curiosity Project almost unanimously agreed that this assignment should remain a part of the course and they would engage in it again in future if offered. A detailed examination of their reflections makes their reasoning clear:

> 1. Despite early misgivings about the freedom associated with the Curiosity Project, students learn broadly and deeply about their own intrinsically-interesting topics and about others' interests,
> 2. They discover the value of the journey of learning as it unfolds organically, rather than focusing exclusively on determining what outcome the professor wants them to find.
> 3. They have a safe place to uncover their own beliefs, biases, and assumptions with peers and learning facilitators who can help them discover and critique their sources and how they impact their present day experiences.
> 4. They explore their own intrinsic interests and form mutually supportive learning groups where the goal is not competition or conformity but instead to actively invest in

helping each other learn as widely and deeply as possible.
5. They experience both lifelong and lifewide learning as a real practice that can lead to positive personal and professional change and development.

It is this kind of experience that provides students with a solid basis for moving out into the world, both personally and professionally, regardless of their content area or year of study, with the confidence that they can figure out what they need to know, ask questions, find and critique answers, reflect on their own beliefs and biases, and make change.

Further evidence of the positive transformative aspects of this approach is emerging. Since the initial introduction of The Curiosity Project in 2011, enrollment in the course has doubled to 90 students a semester and the course is now taught in each of the fall and winter semesters. Over the past five years, more than 45 students who completed their own Curiosity Projects have returned to become volunteer learning facilitators for multiple semesters (some as many as six) as they complete their degrees. These students have experienced for themselves the value of developing their inquiry, communication and leadership skills to the extent that they volunteer their time and energies helping others have the same positive experience. In response to a request from these highly-invested senior students, I designed a fourth-year course called, "Curiosity: Theory and Practice" that explores in-depth the theoretical underpinnings of curiosity and inquiry-based learning and allows senior students to continue to hone their skills in mentorship, learning facilitation, inquiry, reflection, writing, and communication.

The Curiosity Project has also spread on our campus, moving from psychology into biology, English, and accounting to date. It has also become the basis of a first year Inquiry Studies course and as a result our complement of volunteer learning facilitators for a single semester has grown from last year's high of 20 to 41. Moving The Curiosity Project into the first year allows students a place to get started on the road to recognizing, valuing, developing and actively using the skills of inquiry, writing, mentorship and communication from their first steps on campus.

In the end, the success of this project in transforming the way students think about and take responsibility for their own learning and in terms of the personal transformations students experience as a result of seeing themselves in a new light is very powerful. While the current structure of the public education system may be diminishing the light of curiosity that children are born with but this research suggests that once the flame of curiosity has been reignited, it continues to burn brightly and can be transmitted from one cohort to the other by those who understand its value.

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