Philosophy 2.0

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> *'What struck us as interesting though was that as individuals with different majors were placed into groups, they had better results. This is due to the fact that different majors means different ideas and as different ideas collide they create great results.'*
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> Group 13, Student 'AeroJet' Project conclusion, SUNY Stony Brook

> *But could we conceivably change the terms of the competition, put learning rather than amenities at the center of the arms race, spend less on making students more and more comfortable at college and more on making them more and more curious?*
>
> Diana Chapman Walsh

The issue I want to focus on in this essay is the issue of how new knowledge practices– namely transdisciplinarity, context-application and collaboration – are being explored and utilized in the philosophy classroom. Using results from my own data collection from the 'Student AeroJet Project' administered by Prof. Gary Mar in a Logic & Critical Thinking course at SUNY Stony Brook in the Spring of 2011, I demonstrate the ways in which such projects contribute to new and important ways of doing philosophy in the era of '2.0'[1]. Through researching the effects of their own collaboration *within* the context of a specific set of problems, I show how project groups employ a transdisciplinary critical approach to problem-solving. These elements constitute a fruitful model of teaching and 'learning research' in which both are integrated in and enrich one another. Most importantly, such a model combines practices of knowledge production – transdiciplinarity, context-application and collaboration – as an introductory approach to philosophy as reflexive critical thought, or what Michel Foucault described as the cultivation of "curiosity".

INTRODUCTION

According to Gibbons (2003), there are several distinct characteristics of 'Mode II' knowledge production in contrast to 'Mode I' knowledge production, three upon which I will concentrate. First, there is the principle of 'context-application', which refers to "…the total environment in which scientific problems arise, methodologies are developed, outcomes are disseminated, and uses are defined." (186) Rather than a theoretical 'top-down' model which applies a certain theory or methodology *to* a specific problem ('pure' science), Mode II knowledge operates *within* the context of a specific set of problems, constructing its methodology and theory-laden practices of investigation within the context of those problems. Secondly, there is the characteristic of 'trans-disciplinarity' which refers to "…the mobilization

[1] I am greatly indebted to Gary Mar for organizing and creating the AeroJet project for class implementation. This paper and most of its insights would not be possible were it not for Prof. Mar's work on this project.

of a range of theoretical perspectives and practical methodologies to solve problems." (ibid) However, unlike inter-disciplianrity or multi-disciplinarity, transdisciplinarity

> is not necessarily derived from pre-existing disciplines, nor does it always contribute to the formation of new disciplines. The creative act lies just as much in the capacity to mobilize and manage these perspectives and methodologies, their 'external' orchestration, as in the development of new theories or conceptualisations, or the refinement of research methods, the 'internal' dynamics of scientific creativity. In other words, 'Mode 2' knowledge is embodied in the expertise of individual researchers and research teams as much as, or possibly more than, it is encoded in conventional research products such as journal articles or patents. (ibid)

Thirdly, there is the characteristic of open, collaborative research. This last characteristic refers both to the opening up of research and research tools to a much wider audience (via the web), and the intensification of communicative interaction across disciplinary and academic boundaries (via ICT)[2]. Whatever one's position might be regarding the 'modal' knowledge debate - instigated by the 1997 publication of Gibbon's book titled *The New Production of Knowledge: the dynamics of science and research in contemporary societies* – one thing remains quite certain: these three practices – context-application, transdisciplinarity and collaboration – are quickly becoming new and useful tools for students, teachers, and public humanities constituencies. I now wish to turn to the research conducted during the 'Student AeroJet Project' in Prof. Gary Mar's Logic & Critical Thinking course at SUNY Stony Brook during Spring 2011. Using data collected by myself and student group findings and conclusions, I demonstrate the ways in which this class project contributes to these new practices of knowledge production, and thus new ways of doing philosophy in the era of '2.0'.

BACKGROUND

The AeroJet group project was organized and administered in the context of an undergraduate logic course in which students are guided to think in 'problem-oriented' terms. Students were encouraged to re-think practical life problems which they might not have previously considered objects of critical problem-solving. After a brief introduction to critical problem solving heuristics, the AeroJet project was introduced. In groups of different sizes, groups were to compete for a contract with 'AeroJet', a space exploration company planning a trip to the moon. Students were given a hypothetical situation in which they were stranded on the

[2] It should be noted that Lyotard (1984) anticipated this general transformation well before the current 'modal' knowledge debate: "…it is common knowledge that the miniaturisation and commercialisation of machines is already changing the way in which learning is acquired, classified, made available, and exploited. It is reasonable to suppose that the proliferation of information-processing machines is having, and will continue to have, as much of an effect on the circulation of learning as did advancements in human circulation (transportation systems) and later, in the circulation of sounds and visual images (the media). Lyotard, Jean-Francois. The Postmodern Condition: a report on knowledge. 1984. p. 4

moon, and had to rank in order of importance what items they would include in a survival pack. Each student filled out the ranking sheet individually, followed by a group ranking which came about through a deliberative intergroup process. These scores – both individual and group – were then compared against the 'official' NASA ranking. This data was then collected and distributed to the students through blackboard. Utilizing this data, the groups were then to create a presentation to the 'AeroJet representatives' to compete for the contract. The presentation was to include the presentation of data, methodology, hypotheses, conclusions, assumptions, conclusions, and any meta-insights the group might have arrived at in the process. The groups were specifically asked to address the relationship between successful results (individual and group) and the size, gender, and major distribution of groups. On the basis of their analysis and deliberation, groups were to make conclusions regarding the relationship between these variables. After all groups submitted their projects through blackboard, three finalists were selected to make a final presentation in class for the contract bid. After each of the three groups presented their project, a class vote was taken to select the final winner.

GROUP 5 CONCLUSIONS

One of the most interesting conclusions reached by this group was reached through the recognition of internal group dynamics by the members themselves. Through struggling with internal dialogue between group members, this group formulated a hypothesis based upon this internal problem. Indeed the parameters of the project implied that groups deal not only with the problem of combining the knowledge of the group, "…but also overcome the sociological dynamics imbedded within it. For example the most educated student in this field may not have been the one to speak up, or even not listened to by the other members. The presence of multiple people and their relationships with each other is where our group did majority of our theorizations." As the group explains in their presentation, "(T)he original logic to this theory is that everyone has his or her own perspective on problem solving. By adding in all the perspectives, in theory, that would produce the biggest 'brainstorm'." This hypothesis was reached, quite interestingly, through the following recognition:

> As our group struggled to find original ideas that reflected patterns within the data, we found it easier to discuss what problems we had individually with our past groups, to see if the numbers reflected those issues. For example, Shan Zhang brought up that all the men in her group neglected (to) acknowledge her input. After hearing this we tried to find that correlation within the data and came up with graph number two. After hours of debating, the best theories that can be related to the data were basic, but they were the ones that could be proven best.

Because of this development, the group was led to formulate an additional hypothesis regarding group dynamics and results. The group turned their attention to the question of gender diversity and productivity, hypothesizing a positive relationship between the two. Indeed, this was the conclusion reached: "(G)roups with a gender ratio of 1:1 on average did better than groups of unequal genders, with an exception on group 'O'. This knowledge can produce many

other conclusions including, but not limited to, theories about communication skills increasing with an equal gender ratio." The correlation the group makes here is interesting for several reasons. First of all, the group associates better group communication with a more equal gender ratio. Secondly, this hypothesis was based upon the process of actually trying to formulate hypotheses themselves. Lastly, the group ended up concluding that, in general, the variable of ''variety' – defined as variety of major and gender - within groups produced on average the best results.

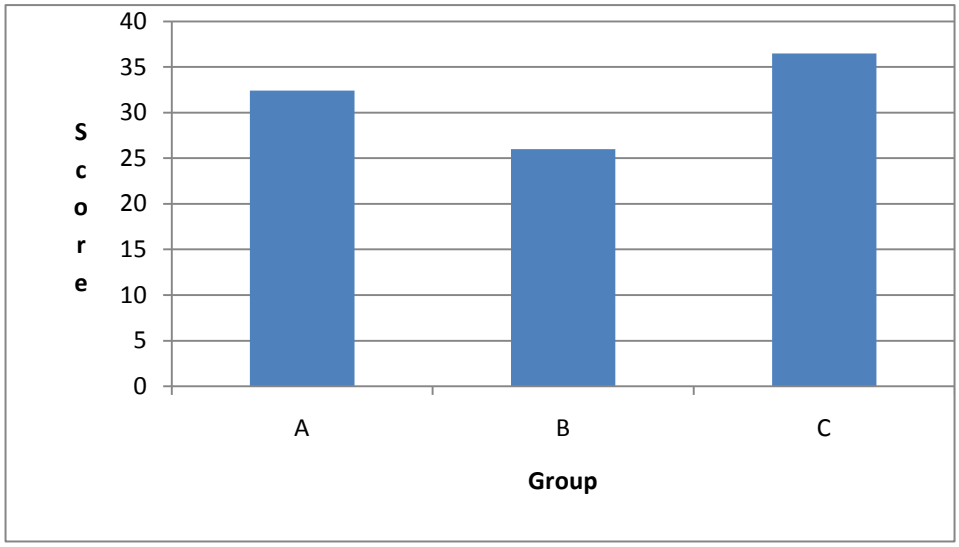

Figure 1, G5

GROUP 13 CONCLUSIONS

Similarly, this group found a positive relationship between accurate results and group collaboration, noting that, "(T)he average for all groups was 25% more accurate than the average score of a single person. It would seem brainstorming leads to more and better ideas, and by extension, better scores." Additionally, this group's hypothesis that science majors would individually out-score liberal arts majors was not upheld, a result consistent with nearly all of the groups' conclusions. Most significantly however, the group formed a hypothesis to test directly the effects of major distribution (science vs. liberal arts) on score improvement. By isolating the data on groups with a majority of science majors on the one hand, and groups with a majority of liberal arts majors on the other, the group compared this data with groups with an equal number of science and liberal arts majors. By doing so, the group tested which group achieved the greatest improvement from individual score to group score. In their conclusions, the group states that, "(W)hat struck us as interesting though was that as individuals with different majors were placed into groups, they had better results." The group then goes to explain this by offering that "(T)his is due to the fact that different majors means different ideas and as different ideas collide they create great results.'" This group's conclusions are interesting for several reasons. First, unlike other groups, 13

isolated the data on science v. liberal arts majors in order to directly compare these results with those of groups with a more equitable distribution of majors. Secondly, the group explained their conclusions by associating better ideas with inter-disciplinary collaboration. Finally, the group reached the same results with the issue of gender, as shown in Figure 3. Thus, 13 reached a similar conclusion regarding 'variety' as did Group 5, namely that "…different majors means different ideas and as different ideas collide they create great results."

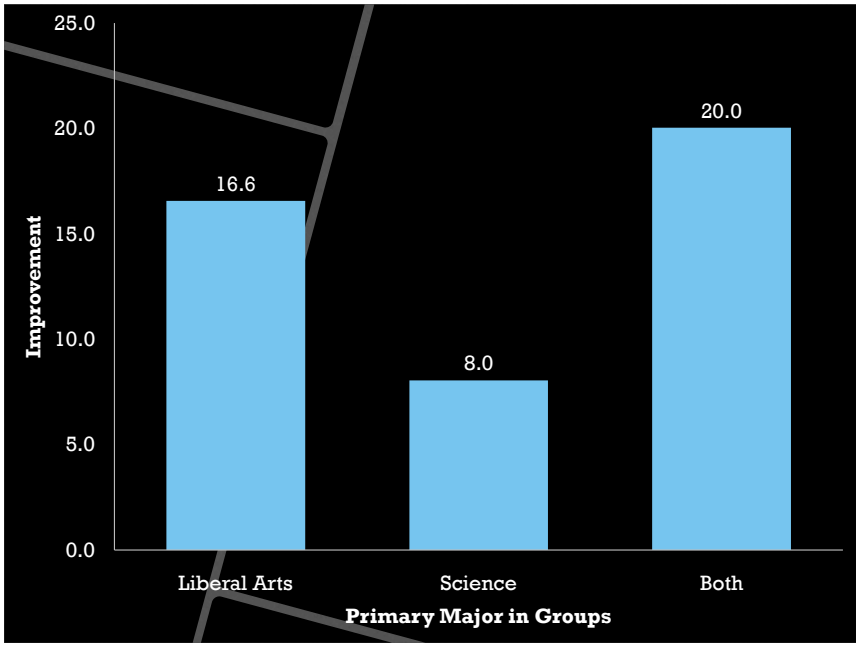

Figure 2, G13

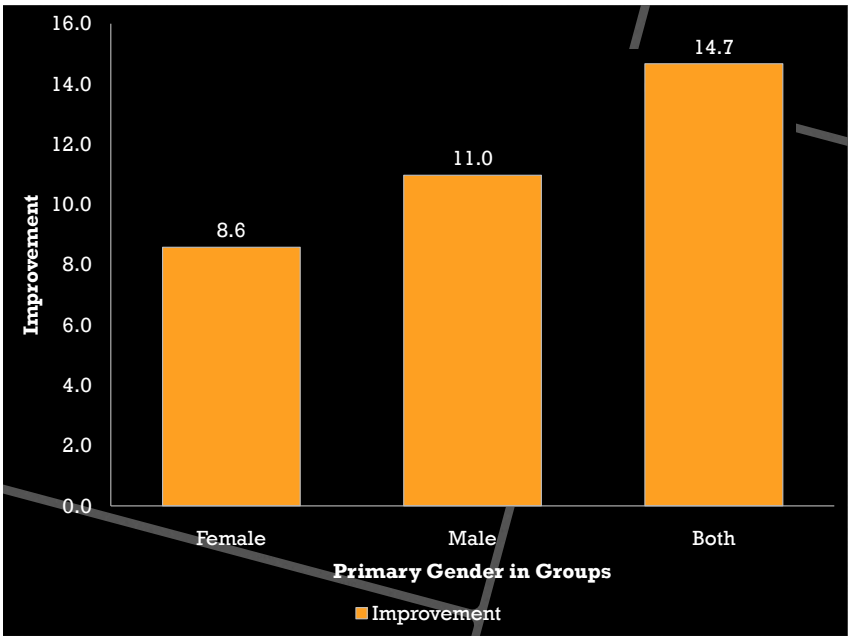

Figure 3, G13

PHILOSOPHY 2.0

Trans-disciplinarity. The AeroJet project is an interesting case study of transdisciplinarity, not simply because conditions were such that different disciplinary majors had to work together for a common goal (inter-disciplinary). Rather this project was trans-disciplinary in that in the formulation of their methodology and approach to the problem, groups took into account the different theoretical (and personal) backgrounds of each of the group members. That is, their methodology and problem approach reflected the deliberative process by which a common methodology was formulated. Rather than each individual member contributing to the problem approach *qua* individual, the problem approach itself became a problem that transcended disciplinary boundaries, requiring collaboration in order to come up with a common approach. This approach allowed groups to identify hidden assumptions, internal group problems, and to formulate hypotheses based upon these identifications. Thus, as groups themselves concluded, a problem-solving orientation which begins with identifying a common methodological approach among different disciplinary majors and personal backgrounds produces the best results. As this project makes clear, trans-disciplinarity necessarily requires a complementary practice, which is of course collaboration.

Collaboration. In the context of the AeroJet project, collaboration turned out to be the condition of possibility for not only good presentations, but useful and intriguing meta-insights about the project dynamics themselves. For example, Group 5's observation that their own conclusions suggested other relevant and important conclusions concerning the relationship between communication skills and gender showed the importance of collaboration to the degree of insight that such knowledge practices have. And while group dynamics (size, gender, major distribution) varied greatly across groups, the interesting thing to note is that students not only took this into account, but used this insight to formulate hypotheses based on this information. Thus, collaboration itself became an object of group's analyses not just in the effects it had on results, but in the way collaboration affected their hypotheses *about* the effects of collaboration. In this way, groups became self-critical by examining the dynamics of collaboration itself and how it affects the formulation of questions and hypotheses. It should also be noted that, as Gibbons et al make clear, there is a distinction between collaboration and cooperation, where individuals are merely 'operating in concert' with one another to achieve some common goal. Collaboration, on the other hand, requires a degree of critical and theoretical skill that cooperation does not, since collaboration requires a transcending of one's own theoretical framework in order to find a common approach to question formulation. In this way, collaboration is intimately tied to trans-disciplinarity.

Context-application. One of the most important features of the AeroJet project is precisely that, by presenting a problem with a specific set of questions, it provided the conditions for group collaboration and trans-disciplinarity that were needed to achieve results. However, instead of handing down a set of methodological guidelines or theoretical principles which to apply to the problem, it was largely left up to the groups themselves to construct their own

collective set of methodological guidelines to solve the problem. In other words, the theoretical tools which guided most groups ended up being products of the internal dialogue and deliberative process of the groups themselves. In this way, the theoretical approach of the groups was constructed within the specific context of the individual groups and the problems they faced. Instead of applying an external set of principles to guide their investigation into the problem, groups more than not began by identifying a rubric for what would constitute a good problem approach given the internal dynamics of the group. In this way, the reflexivity of the groups showed through in examining the context of their own group and how this might affect the application of theoretical guidelines and question formulation.

PHILOSOPHY AS CRITICAL REFLEXIVE THOUGHT

By utilizing these knowledge practices, the AeroJet class project creates the conditions that make possible a critical approach to thought that is both reflexive and that bears heavily upon the question of knowledge itself. For these reasons, such a model is extremely relevant as a way of introducing philosophy in the classroom. One of the ways in which to think about the merits of introducing philosophical inquiry or investigation in this way is the notion of "curiosity". Michel Foucault, speaking of the need to cultivate more curiosity in normalizing Western society, connected in an intimate way what he saw as the task of philosophy (the critical work of thought upon itself) to the task of instigating curiosity. Speaking of what motivated his own philosophical inquiry, he said that

> As for what motivated me, it is quite simple…*it was curiosity*…not the curiosity that seeks to assimilate what it is proper for one to know, but *that which enables one to get free of oneself*. After all, what would be the value of the passion for knowledge if it resulted only in a certain amount of knowledgeableness and not, in one way or another and to the extent possible, in the knower's straying afield of himself? There are times in life when the question of knowing if one can think differently than one thinks, and perceive differently than one sees, is absolutely necessary if one is to go on looking and reflecting at all…*what is philosophy today- philosophical activity, I mean- if it is not the critical work that thought brings to bear on itself*? *In what does it consist, if not in the endeavor to know how and to what extent it might be possible to think differently, instead of legitimating what is already known?* There is always something ludicrous in philosophical discourse when it tries, from the outside, to dictate to others, to tell them where their truth is and how to find it, or when it works up a case against them in the language of positivity. *But it is entitled to explore what might be changed, in its own thought, through the practice of a knowledge that is foreign to it*.
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> (Foucault, Michel. The History of Sexuality, Vol. 2: The Use of Pleasure. New York: Vintage. 1990, pg. 8-9, my emphasis)

Foucault's succinct remark makes an interesting point about the task of philosophy, namely that it is involved in the 'critical work of thought upon itself.' For Foucault, this is the function and merit of 'curiosity' – it allows a thinker to 'get free of oneself', to be able to 'think otherwise', and to pursue multiple and divergent lines of thought in lieu of such critical reflection. In this

respect then, philosophy is synonymous with the instigation of curiosity. To the extent that the practices of knowledge production involved in the AeroJet project and projects similar to it are concerned precisely with creating the conditions required for critical thought upon itself, such projects provide a good model for philosophy as instigating curiosity. As Diana Chapman Walsh has said of higher education, instead of focusing on the competition for students' enrollment or tuition "…could we conceivably change the terms of the competition, put learning rather than amenities at the center of the arms race, spend less on making students more and more comfortable at college and more on making them more and more curious?"[3]

[3]'Toward a Science of Learning'. Diana Chapman Walsh. Inside Higher Education. Feb. 14, 2011. http://www.insidehighered.com/layout/set/print/views/2011/02/14/essay_on_need_for_colleges_to_develop_a_science_of_learning

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