Community College Students and Applied Research

Dr. Sabrina Faust Zúñiga

*Co-Founder and Former President of
the Toronto Film College*

Abstract:

Student participation in applied research as a form of experiential learning in community colleges is relatively new. Ontario Colleges today participate at different levels with different numbers of projects and faculty involved. A few colleges in Ontario are more established in doing applied research including having basic infrastructure for research and having defined in which disciplines they will conduct research. This study took place in a college with a more established applied research program with the study goal of hearing and listening from the students and their teacher/research leaders as to their perceived benefit from the research program. The findings showed that the students found the program very beneficial and that student learning in areas considered important for the workplace was occurring that would not have been possible in the regular classroom.

Introduction:

In universities, undergraduate students have a long history of being part of professors' research projects. Many studies have explored this phenomenon, looking for benefits for the student and the professor (Bauer, 2001; Campbell, 2002; Chapman, 2003; Gregerman, 1999; Hu et al. 2008; Kremer & Bringle, 1990; Lanza & Smith, 1988; Nagda et al., 1998; Rogers, 2003; Seymour et al., 2004; Siebert, 1988; Wray, 2000). The consensus is that the experience is valuable to the student and may or may not be valuable to the professor. In support of the value to undergraduate students of conducting research, the Natural Science and Engineering Research Council of Canada (2008) offers a scholarship specifically for undergraduate students who work on a professor's project. The University of Toronto offers a specific course for undergraduate students, to receive credit for their participation in faculty-led research and to

formalize the expectations of students and professors (University of Toronto, 2008).

The consensus as to the value of university undergraduates participating in research projects speaks not only to the ability of the experience to stimulate students intellectually, but also to the ability to attract more students into the field of research. However, this is still being studied, since there remain questions as to how correct the assumptions or conclusions are. Guterman (2007) said, "The belief that undergraduate research attracts students to careers in science – and makes them better candidates for such work – has gained almost universal acceptance in academe. But until recently, few researchers have studied whether or not that's actually the case" (p. A12). She goes on to describe the general results for studies of students in science fields. The studies "found that undergraduates learn and grow significantly from their research experiences, but require a strong mentor relationship to do so"(p. A12). The question of attracting students to careers in science is unclear, because it could be that students self-select in order to apply for a research project position (Guterman, 2007; Seymour et al., 2004).

The general consensus on the benefits to students is reflected in a joint statement issued in 2005 by the Council on Undergraduate Research (CUR) and the National Conference for Undergraduate Research (NCUR, 2008) supporting the recommendations of the Boyer Commission on Educating Undergraduates in the Research University (1998) that institutions of higher education need to engage undergraduate students in research to a greater extent than they currently do. Hu et al., (2008) point out that CUR and NCUR believe undergraduate research is "a comprehensive curricular innovation and major reform in contemporary American undergraduate education and scholarship" and "the pedagogy for the twenty-first century." Even with such a strong endorsement, Hu et al. point out from the work of Karukstis and Elgren (2007) that "a systematic understanding of the causes and effects of undergraduate student engagement in research and creative activities is still lacking" (p. 2). Another example, and another view on the value of undergraduates' participation in research projects, comes from Ellis (2006). He states that the purpose is not necessarily to drive every student to become a scientist but to "create a culture for innovation by immersing … students in intellectually stimulating projects" (p. B20). He also states that research "promotes critical and creative thinking, the habits of mind that nurture innovation: creates a sense of intellectual excitement and adventure: and provides the satisfaction of real accomplishment." Ellis advocates for all undergraduates to conduct research "to create knowledge."

In the Boyer Commission report (1998), there was a call to reexamine just how undergraduate students are taught in their classes and how they are used in research projects.   As stated in the report, in the preface to his 1990 study, *Scholarship Reconsidered*, Boyer wrote, "The most important obligation now confronting the nation's colleges and universities is to break out of the tired old teaching versus research debate and define, in more creative ways, what it means to be a scholar"(p. 2). A similar debate is happening now in community colleges, including Ontario colleges: to redefine what it means to be educated for the workforce of today. The talents found while conducting research, such as creativity and innovation, are needed. The challenge and debate in the community colleges is the reverse of the universities, in that the colleges must maintain their strong focus on teaching while branching out to provide new and expanded experiences for their students.

The phenomenon of community college students participating in applied research projects led by a teacher is similar to university undergraduate students participating in a professors' research projects in such areas as: time constraints to fit research time into a week of classes, often the student's first exposure to research and the reality of what the process entails, and research leaders (professors and teachers) who inspire the students and help them learn beyond the classroom.   These factors among college students have not been studied to the same degree as among university undergraduate students. Even without such a body of research, because of the similarities between the two situations, there are many who believe the research experience is valuable for the college student and the college community.

Polytechnics Canada is a strong advocate for the value of applied research for students and the economy. The student focus is described in their website (Polytechnics Canada, 2007) thusly:
Polytechnics Canada's research is primarily motivated by the creation of direct and indirect benefits for students. Applied Research provides students with practical learning opportunities and produces outcomes that further economic success and employment opportunities.

This study sought to explore the extent to which students saw participation in applied research projects as a benefit to them personally.

This study incorporated the ideals of the "learning college" (O'Banion, 1997) in exploring the student experience in the out of class environment of a teacher-led applied research project. If the ideals of the learning college were followed, then this experience should have had students learning more than they did inside the regular classroom.

This study also looked to see if students, through their participation in research, gained skills and knowledge that are considered necessary for the workplace of today and tomorrow. Items such as greater creative skills are sited as important for workers and entrepreneurs (Pink, 2006; Slaughter & Leslie, 1997; Patterson, 2005). It is interesting to note that Hu et al., (2008) discuss research and creative activities together. To them creative activities refer to performing arts, visual arts, humanities, and the like. These activities are often presented elsewhere as almost opposite to research, yet Hu et al. present them in the same light. They imply that research is as much a creative endeavour as writing a novel or poem.

Context:

This study was conducted at one medium-sized Ontario college, with campuses located in Southern Ontario, that has an active research program. This college has been conducting applied research in a formal way since 1999. The college has also been ranked number one in student satisfaction across Ontario for four consecutive years including the year of this study (Key Performance Indicators, 2008).

The study college currently conducts approximately 20-25 projects per year through its research office, with the goal of expanding the number of projects to 30 by 2010. This college also has a well-defined research vision, mission, and objectives that include statements for the betterment of students. The research conducted by the college is clearly applied rather than basic.

The college conducts research in eight specific areas through industry partnerships and/or external grants. Some research areas have more research activity than others, reflecting the availability of external funding, the interests and use of the opportunity by small and medium enterprises, and the interests of faculty. At the time of the study, the number of faculty involved was approximately 10% of the total college faculty, higher than the Ontario average of about 3% (Colleges Ontario, 2006). The percentage of students participating in applied research, compared with those who were eligible, varied across research areas and was not quantified by the college.

Research Methodology:

This was a mixed-methods case study with the guiding research method being interviews with students, their teacher/researchers, and a research program administrator. This qualitative method was supported by a quantitative questionnaire for the students and an analysis of college documents. Field notes were also written and college paper documents collected. These different types of data were integrated during data analysis.

Selecting Participants

Five groups of participants were needed for this study. The first was teacher/researchers (hereafter

called teachers). The college studied does not have lead researchers who are not also teachers, although on occasion a teacher may by freed from teaching for a term. Teachers who were either currently conducting applied research or had recently were chosen for this group.

The second participant was an administrator of the research program. For this group, only a key research program administrator was interviewed.

The other three groups of participants were students: groups of current students and one of graduates. Students were full time and 18 years of age or older. The three groups of students were:

• *College student A* – each student was currently participating in, or had very recently participated in, an applied research project on campus, but was not a graduate.

• *College student B* – each student was currently a student and had just started participating in an applied research project for the summer: a week of training and a day of work before the interview.

• *College student C* – each student was a graduate of the study college who had participated in an applied research project while completing their degree or diploma.

Total Number of Participants:

```
        Administrators              1
        Teachers:           8
        Category A Student:  12
        Category B Student:  7
        Category C Student:  2
        TOTAL            30
```
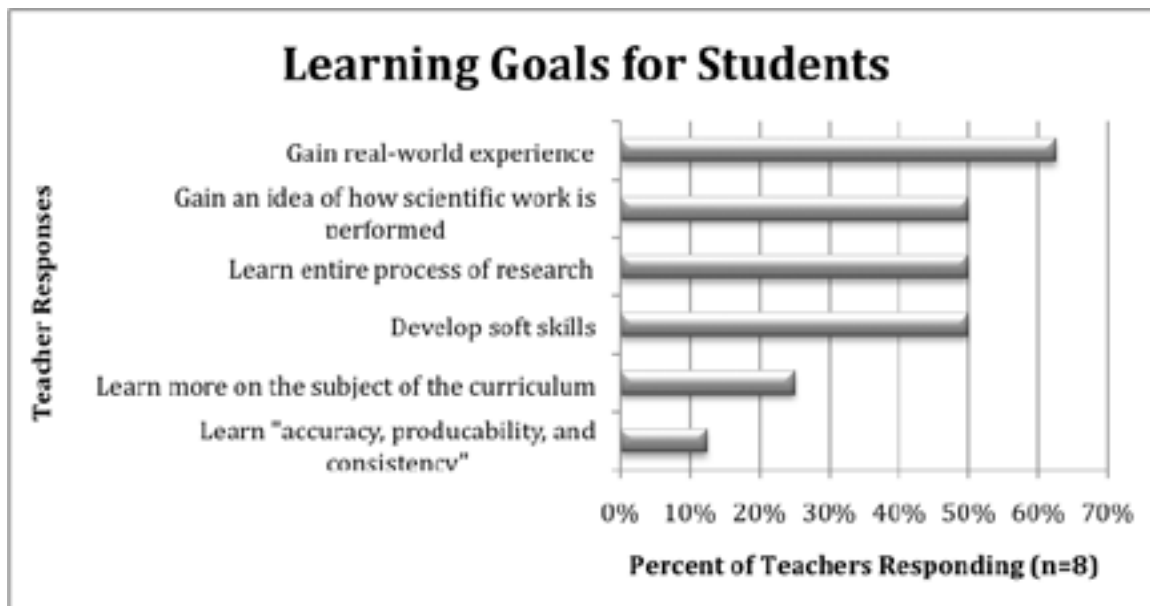
Research Questions

1) What does the college hope to gain by the involvement of students in research?

2) What learning goals do teachers have in place for students and why?

3) What do the students hope to gain by their involvement in research?

4) What skills and knowledge do students perceive themselves to have gained by their participation?

5) Are students learning what research is and how to do research?

6) What is the overall impression students take away from the experience of participating in applied research?

Research Findings:

Questions 1, 2, 3: When looking at what the college hoped to gain by the involvement of students in applied research and what learning goals teachers had for the students, there was consistency in what was stated. Both groups of participants were expecting students to learn about research and develop skills that would be useful to the students in future jobs.

As displayed in the table below, the top learning goals expressed by the teachers were: having

students "gain real world experience," "gain an idea of how research is conducted," "learn the process of research," and gain soft skills related to the work of research. Soft skills mentioned were critical thinking and analysis skills, working independently and being creative at the same time, and communicating ideas to industry partners and other people. These responses were self-generated by the teachers, not choices supplied to them.

Learning Goals for Students

Teacher Responses

- Gain real-world experience
- Gain an idea of how scientific work is performed
- Learn entire process of research
- Develop soft skills
- Learn more on the subject of the curriculum
- Learn "accuracy, producability, and consistency"

0% 10% 20% 30% 40% 50% 60% 70%

Percent of Teachers Responding (n=8)

In her interview the college administrator described what the college hoped to gain as "sending out students to the workplace best prepared to be effective employees and entrepreneurs." She mentioned this as the overall college "student success mandate." The vision, mission, objectives, and principles for the research division align with this type of mandate. . The passages relative to students are:

Research Mission
"Support the development of applied research skills of our students."

Research Objectives

"Encourage opportunities for the college staff and students to work with business, industry, and the community to conduct research."

Research Principles

"The college's research activities support the college's strategic objectives and goals of providing an excellent environment for teaching and learning."

To get a broader picture of what the college hoped the students would gain to meet the student success mandate, the student training manual was examined. A list of soft skills the department hoped students would leave the experience having gained (listed below) was found. The list encompasses skills that are widely noted as important for success in the workplace.

- •The ability to conduct applied research with skill and integrity;
- •The ability to manage client relationships;
- •The ability to work through others and make them more productive;
- •The ability to manage time horizons and deadlines;
- •The ability to earn other people's trust and confidence;

•The ability to give advice without being assertive or patronizing;

•The ability to deal with conflict (among your own team or a client's);

•The ability to manage meetings;

•The ability to supervise others, so they will want to work for you again;

•The ability to get someone in a more senior role to want to help you; and

•The ability to say "no" with skill. (p.30)

When the responses of these two groups were compared with the student's own goals of what they would like to gain from their involvement in research, the responses were similar. When asked about their reason for doing research the students reported three top reasons. These were to "learn more" and "be challenged," because students felt it was "good for a future job," and because they "wanted hands-on" applicable work. When reasons for doing research were separated based on the student's form of participation (Co-op Placement or College Employment) and category (Categories A, B, & C) there was no major difference in percentages of responses. These data are shown below. These responses were self-generated by the students, not choices supplied to them.
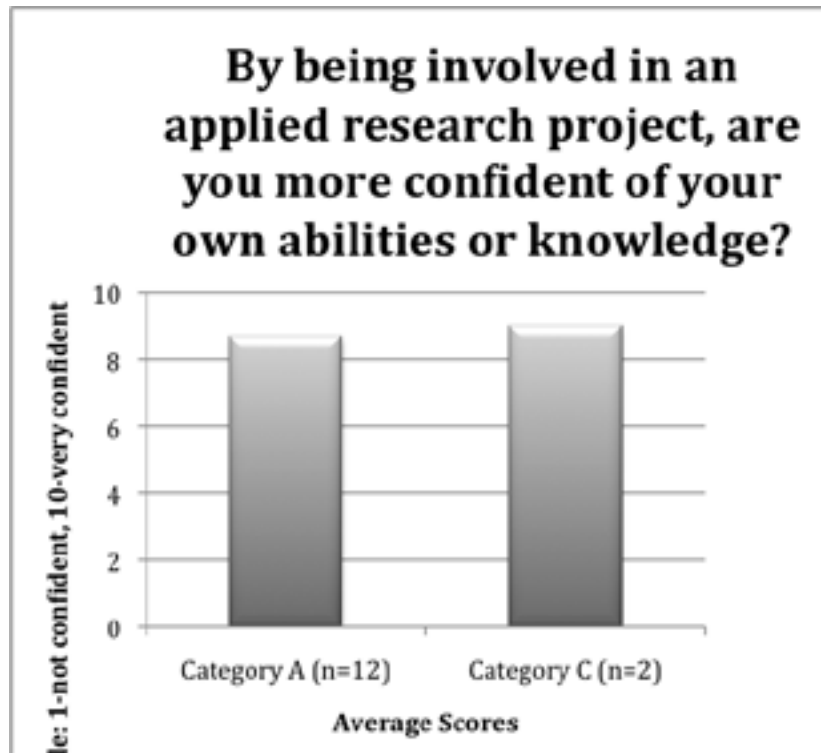

Reasons for Doing Research
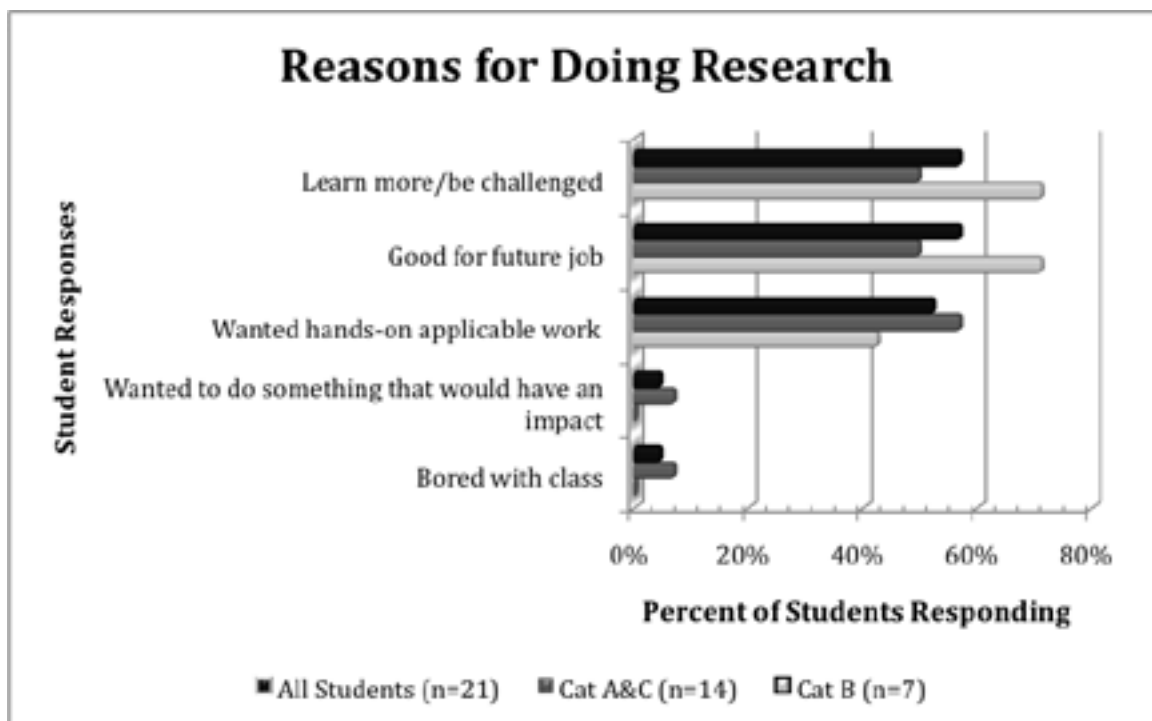
A sample of individual student responses showed the student's thought process. Student B said that she had not worked in her subject area before and she "wanted to do something where I can actually apply myself to what I learned in the classroom … so I was extremely interested." Student E compared his research opportunity to those of students in a different environment, where someone "could start getting people coffee, but here it's research." He further stated that he was excited to be "doing some actual work" related to his future potential job. Student P had a university degree but was told when applying for jobs that he needed experience related to the job he wanted, so he attended the college program and chose the applied research experience. And Student A, an Environmental Studies student, was attracted to research because she wanted to work on something "that will have an impact," rather than consulting work, where "you don't necessarily see an outcome of your work."

Question 4: When looking at what skills and knowledge students were gaining from participation in research three key items were examined: understanding research, communication skills, and intellectual creativity. Overall, students expressed expanding these skills and being able to expand their skills much more than would have been possible in the regular classroom.

To explore students' perceptions of their ability to do and understand research, the student questionnaire responses were very positive in this direction. Two pertinent questions are graphed below. (These questions used the following Likert scale: 1 – not confident, 5 – somewhat confident, 10 – very confident.) It is noticeable that the students just starting their research experience report a slightly lower level of confidence in their abilities, and students report a very high confidence level in their own abilities because of their involvement in research.

By being involved in an applied research project, are you more confident of your own abilities or knowledge?

When exploring the potential to improve one's oral and written communication skills, not all students reported this benefit. This seemed to be due to the nature of the research project, as well as how the teacher involved the student in the project. For instance, in the participant group of teachers, three out of eight did not have students communicate directly with the industry partner for the reason that the teachers did not feel the student would present a professional front to the industry partner.

As shown in the data below, the means of improving communication skills included both written and oral tasks and not all students reported improving both skills. One student talked of learning to represent the college well and professionally while improving these skills. All twenty-one students talked of writing progress reports for the college though this was not expressed as really improving written skills except for the longer reports sometimes required. Fourteen students talked of improving oral skills through communication with their research team and the need to fully explain themselves and share their ideas. Twelve students talked of wanting to improve their oral skills because it is something valued in the job search. It is interesting to note that two of the three students who liked their independence on the research project did not report improving their communication skills.

Communication Skills Developed
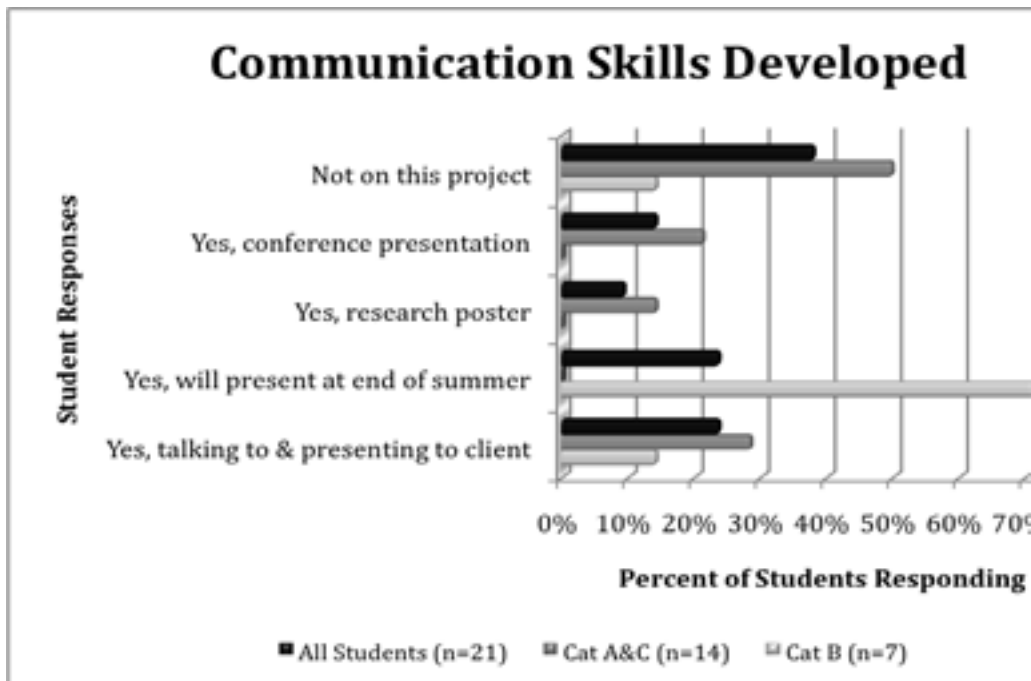
For intellectual creativity, every student (100%, n=21) reported feeling more creative by participating in research. It is interesting to note that in interviews with the students many had not considered that creativity was indeed part of research and that they had improved this ability. By talking out their answer during their interview, the students did feel that had improved their creative skills. One student, Student N, felt that he was already creative but that this experience helped focus his creativity. Student G said he would not have been able to explore his creative ability without the research experience. He explained further that the classroom work did not offer much room for this exploration. Student I said, of research, "there's a lot of innovating that you have to do. If something doesn't work, that's when the creativity starts, you have to find another mode of doing stuff." Student H spoke of his mind being open to more possibilities, saying that "now I'm able to look at a problem from more than one perspective, rather than when I was just a student taking all the information and just kind of like regurgitating it."

Question 5: An important question in this study was what students were learning about research and the research process. Due to the study methodology student learning was assessed indirectly and shows a snapshot in time for the students. Knowledge looked for was understanding the entire research process commonly defined as: gathering background information, developing an hypothesis, designing experiments, and collecting and analyzing data.

The students reported participating in research, to varying amounts, in the following categories of participation: all areas of research, collecting data, and collecting and analyzing data. The smallest response was those students reporting having participated in all areas of research. Furthermore, less than half of the students (42.8%, n=21) seemed to know the full scope of their project. This level of participation could have impacted the number of students who seemed to understand research.

A relatively small percentage of students seemed to understand the research process well as represented in the graph below. Students struggled to talk about the hypothesis they were using as they researched. Also, many students spoke of background information gathering as research rather than as initial background research for the main research project. There did not seem to be an advantage

in understanding for those with university experience, which was unexpected. Only two of the five university graduates in the study understood research well. It was not surprising to find that three of the students who did not understand well were just beginning their research experience.

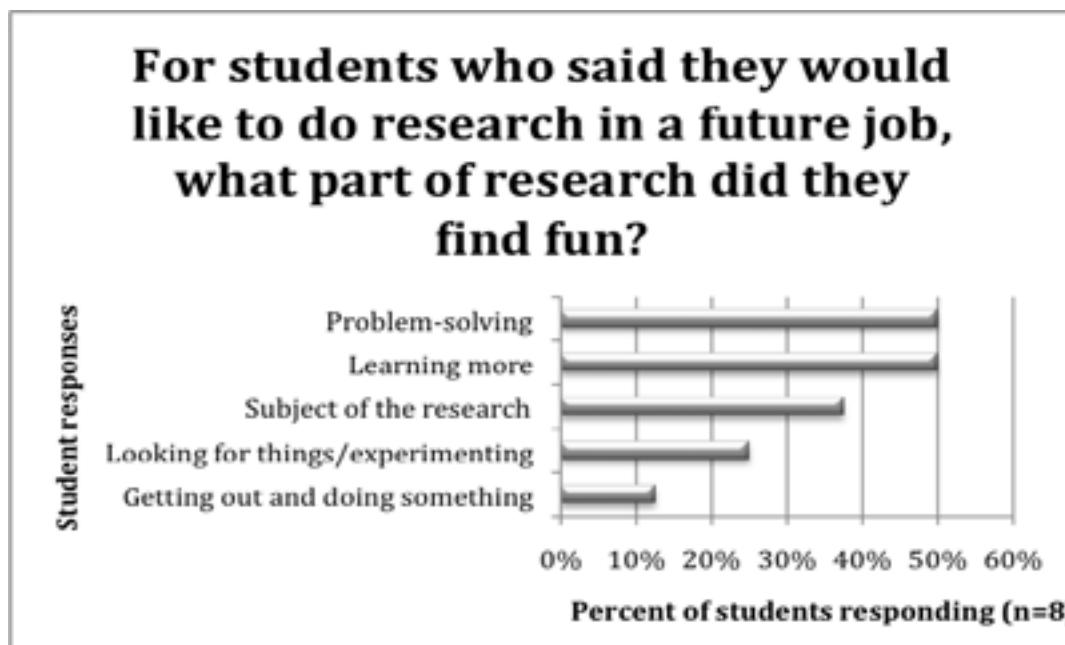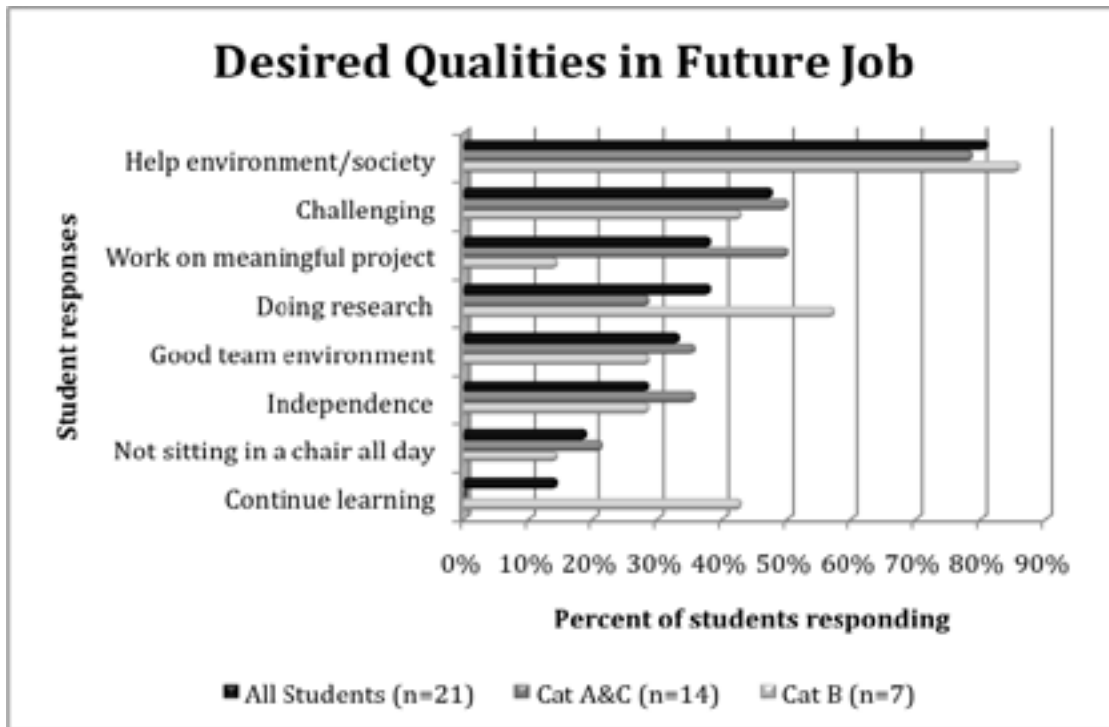## How Well Did Students Understand the Research Process?
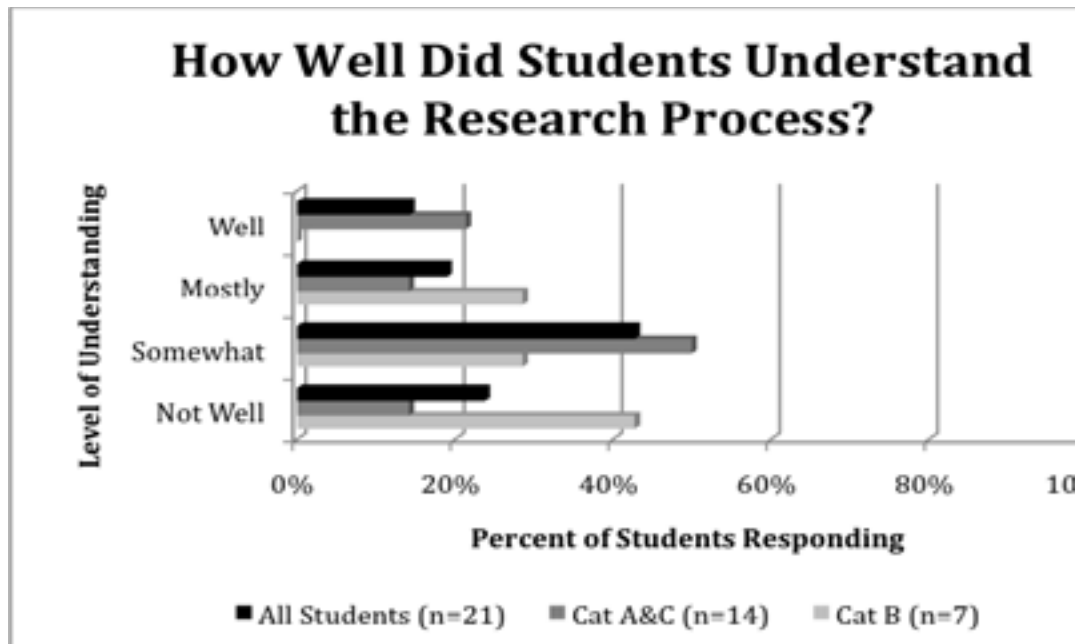
Question 6: When looking at the overall impression students take away from the experience of participating in applied research the students were asked if they found research fun, if they would recommend this experience to others, and what they sought as characteristics of a future job.

All the students interviewed (100%, n=21) found research fun and answered this emphatically. A follow-up question was asked to find out why the students found research fun. The top responses were: the enjoyment of "problem-solving," being able to "learn more," and the subject of the research. Many students described how their problem-solving skills had improved and linked this to their creativity skills improving, too. When divided into category of students the percent of responses was very similar.

What Part of Research Was Fun?
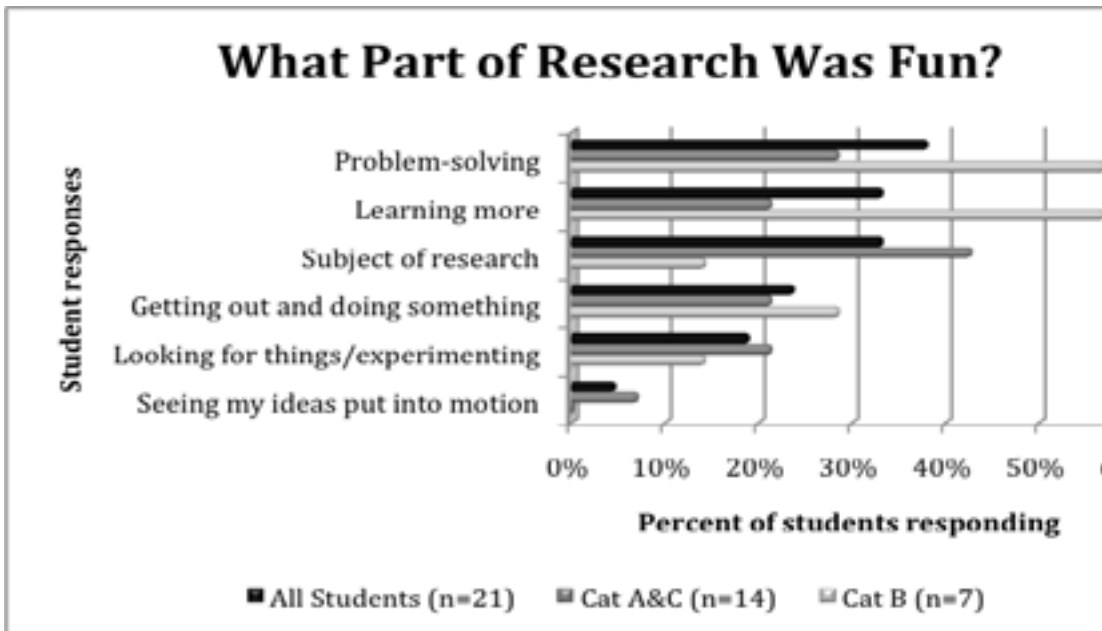
When asked to consider the research experience overall, some students (42.8%, n=14) reported that the research experience was as they expected, others (35.7%, n=14) felt it was better, and all the students (100%, n=21) would highly recommend the experience to someone else. Many students found in the research experience qualities that they would find desirable in a future job as shown in the table below. These qualities remained about the same when the students were divided into those with more research experience versus those just starting their research project.

Also compared were the qualities reported as desired in a future job with the reasons listed earlier that research was considered fun. Two of the three students who wanted a job where they could continue learning said that learning was what made research fun. Those who indicated they would like a job doing research stated "problem-solving" and "learning more" as key things that made research fun.

Desired Qualities in Future Job

Student responses

Help environment/society
Challenging
Work on meaningful project
Doing research
Good team environment
Independence
Not sitting in a chair all day
Continue learning

0% 10% 20% 30% 40% 50% 60% 70% 80% 90%

Percent of students responding

■ All Students (n=21)   ▣ Cat A&C (n=14)   ▱ Cat B (n=7)

For students who said they would like to do research in a future job, what part of research did they find fun?

Student responses

Problem-solving
Learning more
Subject of the research
Looking for things/experimenting
Getting out and doing something

0%   10% 20% 30% 40% 50% 60%

Percent of students responding (n=8)

One question asked of students in the interviews was if they would like, and had considered, a job that had a positive impact on the environment and/or on society; 81.0% (n = 21) responded yes as shown in the table above. All of the Environmental Studies students said yes, but also students from other topic areas. Student R, a Web Designer, spoke of wanting to create more open-source software. Student F, from the Photonics program, stated, "It's a good feeling to create things that are beneficial." Student K, an Environmental student, said that he felt "more rewarded knowing that I'm helping somebody." Student N, a Computer Programming student, said that he would "prefer to do something that is really useful for society than just games or that kind of stuff." These comments seem to support the idea that students involved in applied research find intrinsic reward in their efforts.

When the students' responses to qualities in a future job were divided into groups, there were some differences in response frequency of the various responses, but overall, no major difference. The differences were in the number who answered "independence;" Cat A & C responded this way more often, perhaps reflecting the learning that had taken place during their time in research and the confidence they gained, or perhaps simply reflecting the difference in how far along the students were in their programs. Students further along in their programs may have felt more confident in their abilities and wanted to be independent.

Another difference was found in the desire to continue learning with their job, where students in Cat B responded this way more often than Cat A & C. The reason for this difference could be similar to the last example; it could reflect the difference in how far along students were in their program or the fact that students in Cat B were just beginning their research experience. The latter noted that they did not know everything about the topic, wanted to learn more, and saw that as good for a future job as well.

A final thought is to emphasize just how excited students were to talk about their research projects and the entire experience. The 21 students interviewed were not mildly happy with the experience, but amazingly positive and thrilled with it. There could be some bias in that the happiest students were the ones who volunteered to be interviewed, but given the number of students interviewed, that critique is balanced. Overall, this was a great learning experience for students and therefore, fulfilled the ideals of the learning college, too.

Discussion:

A driving question for this study was whether students perceived themselves as benefitting by participating in a teacher-led applied research project. The study college, the teacher/researchers, and organizations such as Polytechnic Canada have as goals for college students to benefit from a research experience. Polytechnic Canada (2007) has as goals the "creation of direct and indirect benefits for students" and of "practical learning opportunities." So, the question is: Do students report achieving these goals? The answer is yes. The study found that students did see participation as beneficial to them for learning, gaining real world experience, gaining communication skills, and improving their creativity. And, quite importantly, the students reported that these benefits would not have been attained in the regular classroom.

Students engaged in activities to improve their communication skills, such as meeting with the industry partner, giving a presentation, preparing a research poster, even discussing the topics with classmates, were enthusiastic about these opportunities when talking about them during the interview. More than one student spoke of learning how to talk to the industry partner through regular meetings; one student specifically mentioned learning how to present himself well, while being cognizant of the fact that he was representing the college.

Problem-solving skills were so successfully improved by the research experience that students stated that these skills were part of what makes research fun. One teacher specifically mentioned students gaining critical-thinking and analysis skills as a learning goal.

Many students had not considered creativity before I talked with them. Of those, most seemed surprised that they had improved this ability. Wheatley (2005) and Pink (2006) point to both the need to develop creative skills and the fact that everyone is capable of being creative, though perhaps in different ways. It was not surprising, therefore, to find that students perceived that they had become more creative, but it was surprising that students had not thought of themselves that way before. This is

an important workplace skill and one the students should add to their resumes and be able to talk about during interviews. Perhaps, given the chance during a period of reflection, the students could realize just how creative they were.

An area of the research program that needed improvement was making an effort to specifically teach the students the process of research. For example, understanding how to develop a hypothesis is not as difficult as it is often made out, and can be addressed with small steps rather than expecting students to develop a grand hypothesis. Similarly many students are eager to tackle designing an experiment, though not immediately as they begin researching. The students in this study spoke highly of their desire to learn more and be challenged and of how much they enjoyed problem solving; all of which are great to see in someone conducting research. The students in this study were smart, capable, and ready for even more challenge.

The findings of this study would be applicable to other Ontario colleges that choose to engage in applied research to the extent that this case study college does. Ontario colleges experience the same funding climate for research grants, operate under the same provincial charter, and operate with the same unionized teacher contracts. Differences are found between Ontario colleges in the individual college resources allocated to research, and the placement of the research division within the college management hierarchy. These differences, however, are unlikely to affect the conduct of research as it affects the learning experiences of students, which is the main focus of this study. As other community colleges continue to build applied research programs for the purpose of enhancing student learning, the findings of this study may be instructive to them as well.

References:

Bauer, K.W. (2001). *The effect of participation in undergraduate research on critical thinking and reflective judgement*. Paper presented at the annual forum of the Association for Institutional Research, Long Beach, CA. June.

The Boyer Commission on Educating Undergraduates in the Research University. (1998). *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Stony Brook, NY: Carnegie Foundation for the Advancement of Teaching.

Boyer, (1990) *Scholarship Reconsidered*

Campbell, A.M. (2002). *The influences and factors of an undergraduate research program in preparing women for science careers*. Unpublished doctoral dissertation, Texas Tech University.

Chapman, D.W. (2003). Undergraduate research: Showcasing Young Scholars. *Chronicle of Higher Education*, p. B5.

Colleges Ontario. (2006). *Catalysts of Economic Innovation: Building on the Applied Research Capacity of Ontario Colleges*. Association of Colleges of Applied Arts and Technology of Ontario.

Gregerman, S. (1999, December). Improving Academic Success of Diverse Students Through Undergraduate Research. *Council on Undergraduate Research Quarterly*, 54-59.

Guterman, L. (2007). What Good is Undergraduate Research, Anyway? *The Chronicle of Higher Education*, *53*(50) A12.

Hu, S., Scheuch, K., Schwartz, R., Gaston Gayles, J., & Li, S. (2008). *Reinventing Undergraduate Education: Engaging College Students in Research and Creative Activities*. San Francisco, CA: Jossey-Bass.

Karukstis, K.K., & Elgren, T.E. (Eds.) (2007). *Developing and Sustaining a Research-Supportive Curriculum*. Washington, DC: Council of Undergraduate Research.

Kremer, J.F., & Bringle, R.G. (1990). The Effects of an Intensive Research Experience on the Careers of Talented Undergraduates. *Journal of Research and Development in Education*, *24*, 1-5.

Lanza, J. & Smith, G.C. (1988). Undergraduate research: A little experience goes a long way. *Journal of College Science Teaching*, *18*, 118-120.

Nagda, B.A., et al. (1998). Undergraduate Student-Faculty Research Partnerships Affect Student Retention. *Review of Higher Education*, *22*, 55-72.

National Conference for Undergraduate Research. Retrieved August 20, 2008 from http://www.ncur.org

National Science and Engineering Research Council Undergraduate Student Research Awards. Retrieved September 8, 2008 from http://www.nserc.ca/sf_e.asp?nav=sfnav&lbi=1a

O'Banion, T. (1997). *A Learning College for the 21st Century*. Phoenix: American Council on Education/ Oryx Press.

Patterson, D. J. (2005). *Interorganizational Collaboration: The Case for College – Auto Industry Partnerships in Ontario*. Unpublished doctoral dissertation, University of Toronto.

Pink, D. (2006). *A Whole New Mind: Why Right-Brainers Will Rule the Future*. New York: Berkley.

Polytechnics Canada, Retrieved November 15, 2007 from http://www.polytechnicscanada.ca

Rogers, V.D. (2003). Surviving the "Culture Shock" of Undergraduate Research in the Humanities, *CUR Quarterly*, *23*, 132-135.

Seymour, E., et al. (2004). Establishing the Benefits of Research Experiences for Undergraduates in the Sciences: First Findings from a three-year study. *Science Education*, *88*, 493-534.

Siebert, E.D., (1988). Undergraduate Research: It is really worth it? *Journal of College Science Teaching*, *18*, 92-97.

Slaughter, S., & Leslie, L. (1997) *Academic Capitalism: Politics, Policies, and the Entrepreneurial University*. Baltimore: The Johns Hopkins University Press, pp 23-63.

University of Toronto, Retrieved August 14, 2008 from http://www.utoronto.ca

Wheatley, M. (2005). *Finding Our Way: Leadership for an Uncertain Time*. San Francisco, CA: Berrett-Koehler. pp 75-76.

Wray, D.D. (2000). *The Effectiveness of undergraduate research and the effect of undergraduate research on the student*. Unpublished doctoral dissertation, Idaho State University.

-contacting author:

Dr. Sabrina Faust Zúñiga can be reached at sfz@mac.com.

CSSHE Professional File

The CSSHE *Professional File* describes and analyses current issues in higher education policy and practice. It offers a critical assessment of the issue under consideration, it suggests alternatives for policy and practice, and identifies directions for further research. The *Professional File*'s objective, compared to the CSSHE's *Canadian Journal of Higher Education*, is to be timely and to accommodate manuscripts and reports that may be too long or too complex for normal journal publication. Submissions consistent with the purpose of the CSSHE *Professional File* should be submitted to the editor, who arranges prompt peer review. Submissions may include working papers, reports, critical bibliographies, case studies, and other academic or applied studies that may be too long for conventional journal publications, and proceedings of scholarly conferences. Unless alternative arrangements are made, the Canadian Society for the Study of Higher Education retains the copyright of *Professional File* publications.

CSSHE *Professional File* is published up to four times per year and are distributed free of charge to CSSHE members (as PDF files by email).

Manuscripts should be submitted to:

Professor Daniel W. Lang
Department of Theory and Policy Studies in Education
OISE of the University of Toronto
252 Bloor Street West
TORONTO ON M5S 1V6
dan.lang@utoronto.ca

Membership and other information:
Canadian Society for the Study of Higher Education
260 Dalhousie Street
Suite 204
OTTAWA ON K1N 7E4
csshe-scees@csse.ca
www.csshe-scees.ca