

As our society is transformed into a knowledge-based economy, higher education institutions are exploring ways of ensuring students have knowledge and skills needed for

Investigating Online Teaching of Employability Skills: The Bridging Online Program at Simon Fraser University

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Abstract

Student co-op programs are being increasingly developed to enhance employability skills of college and university students. While most of these programs are taught face-to-face, some universities and colleges are now offering co-op programs online. This article investigates the implementation of a pilot online co-op program, the Bridging Online (BOL), at the Simon Fraser University, in Burnaby, B.C., Canada. A research methodology, based on transcript analysis of participants' messages and interviews, was used to address the research questions. Participants in the pilot project found the online version to be a valuable tool to support co-op students in learning and developing employability skills, including problem defining and solving, planning and goal setting, improved interpersonal communication skills and self assessment, and peer feedback skills.

the workplace of the new economy. Many universities have implemented "co-op programs" to help students develop employability skills through experiential learning in workplace settings. Students alternate periods of full-time school with periods of paid work as they complete their degrees.

While it is clear that co-op programs play an important role in the development of students' employability skills, a systematic and comprehensive understanding of the learning that takes place in these programs is an ongoing challenge (Johnston, N., 1996) and is complicated by the fact that valid and reliable data collection is often difficult to obtain. The challenge is further complicated by the emergence of innovative approaches to cooperative education. In particular, the relatively recent introduction of Web-based training and knowledge to co-op students represents a departure from traditional-based programs where the instruction is provided in a brick and mortar environment. As such, what we know about learning in a traditional environment may or may not translate to online programs. If we are to further our understanding of the nature and effectiveness of cooperative education programs, additional research is needed in this

emerging area. The purpose of this study, therefore, is to investigate the online teaching of employability skills through a qualitative analysis of a program that was developed and implemented at Simon Fraser University.

We begin with a brief review of prior research in the area of online cooperative education programs. From here, we introduce the "Bridging Online Program" (BOP) and describe its background and general features. We then present the research questions, describe the method used in the study and present the results. We conclude with a series of recommendations for the development and implementation of online programs. A post-script describing changes that were made in response to the results of this study is also presented.

Review of Research in Online Co-op Education

Some initial research has been undertaken with online programs to support co-op students. For example, Northeastern University (in Boston) launched a pilot project for 86 electrical and computer engineering freshmen and sophomores who started their first co-op experience at one of 53 employment work sites across ten states. The Internet was used to provide students with structured learning assignments during the work period. Students communicated via email with their co-op coordinators and with their classmates through a computer conferencing system. Findings show that students reinforced work skills and work processes and developed insights into engineering fields and trends (Canale, R. and Duwart, E., 1999).

The University of Victoria (in Victoria, British Columbia, Canada) developed a curriculum

to prepare students for their first work term. The curriculum included 10 modules on topics such as Market Trends, Self-Assessment, Resumes and Cover Letters. The curriculum was then placed online and was accessible by students as a self-paced model to learn the curriculum. An evaluation found that the program met all curriculum objectives: it was generic, yet customizable to meet specific program needs; it was not paper-dependent; it could be easily updated; it had a consistent structure; it was based on students' self-directed learning and was not program or resource dependent; and it resulted in logical measurable outcomes that enabled the evaluation of student learning (McRae, N., 1999).

Simon Fraser University (SFU) developed a skills transfer focused curriculum in co-operative education to help students understand employability skills. The program was originally developed for face-to-face delivery and two years later was converted for online delivery (Johnston, 2002). Unlike the co-op employment preparation programs previously described, Simon Fraser University's Bridging Online Program (BOL) has a different focus. The student handbook for the BOL Program describes the program focus as follows: "[BOL will] help you see how all your experiences, formal and informal, can contribute to your learning and enhance your performance. The program helps you better understand your existing skills, as well as how to develop and mobilize new ones" (p. 3). Also, some of the studies published in the literature, such as the one conducted in Northeastern University's Co-op Program, took place when students were already in the workplace. The Bridging Online Program, however, is offered before students enter into the workplace.

Background: The First version of the Co-op Bridging Program

The Simon Fraser University Co-op Bridging Program was created in 2000 and has been offered to students and practitioners of Co-op Education throughout British Columbia. The program has steadily gained recognition since its inception when it was offered four times to a total of approximately 500 students.

The objective of the program is to help students "identify and use their skills and knowledge beyond those places where they were learned. Specifically, the program focuses on helping the student use what s/he has learned in school effectively in the workplace and vice versa" (See: Student Handbook and Learning Guide – Bridging Online Program – p.7.) Students apply for various co-op positions offered by employers and, if successful, they work there for four to eight month terms. Students return to

their academic studies after completion of the working semester. This cycle may be repeated 3-4 times over the students' academic career.

The Bridging curriculum developed in 2000 consisted of four modules: Skills Transfer, Personal Management, Effective Communication, Workplace 101. The Skills Transfer module prepared students to better understand their skills and how to transfer them between school and work. The Personal Management module addressed the role of self-assessment and self-direction in career planning. The Effective Communication module shared techniques for effective communication and offered general guidelines for preparation of cover letters, resumes, and interviews. The Workplace 101 focused on office etiquette and ethics, rights and responsibilities, and on how to succeed in the workplace.

Each of the four modules was originally offered in a two to three hour face-to-face workshop with a maximum of 25 students and taught by Co-op staff. The Bridging Program had two full time co-op staff, which, in addition to teaching the workshops, also developed and monitored the work experiences of co-op students. Once students completed the Program they typically demonstrated more effective transition between the university and the workplace, i.e., obtained interviews, received job offers.

Over the past several years student demand for co-op has been growing steadily; however, resources for the continuation and enhancement of the Bridging Program did not grow accordingly. Co-op program staff was exploring other means by which they might offer the program to a greater number of students while maintaining its unique qualities. As well, staff worked to improve access, offering the material any time and any place students were available. There was also a desire to reduce instructor workload and spread the co-op intake period over a larger window of time, giving students increased access to the program and reducing peak load periods for staff.

From Traditional to Online: The Transition from the Face-to-Face to the Online Version of the Bridging Program

As a result of these considerations, the four modules of the Co-op Student Program were reshaped and developed as an online pilot project with a variety of learning tasks, peer-to-peer online interaction and a final face-to-face wrap-up session with an instructor. This new pilot version of the program was launched in November 2001 to test its quality and how it would be received by selected students and staff members of the co-op program. Twenty four (24) participants in the pilot were staff members from the SFU co-op program and 22 were students who volunteered to be involved in the pilot. The original

four modules of the Bridging Program were redesigned for online delivery, each module lasting approximately one week, for a total of four weeks for the entire program.

The pilot project of the BOL Program used only online activities to teach students transition skills for the workplace. Students utilized the WebCT conferencing system to partake in the program discussions. Online, students had the support of mentors (university co-op coordinator) and employer “experts”, and peers. Instructors had a facilitative role and only accessed designated online areas (i.e., Facilitator’s Office and Peer-to-Peer) to read and to respond to student messages.

Each online module included content, self-reflection exercises, portfolio activities, and Web resources to be explored by participants. Students were expected to actively help and support each other online. Each of the four modules of the BOL Program had three areas for online interactions and discussions: Peer-to-Peer conferences, a facilitator’s office, an Ask an Expert Forum. The Peer-to-Peer conference was designed as a discussion area for reflections on specific tasks assigned throughout the module and to provide peer feedback and support. The Ask an Expert area provided students with options to gather information from people who were already in the work force, as well as some of the graduates of the co-op program. The Student Portfolio was designed as a repository for assignments and discussion between each student and the module facilitator but due to technical problems it was cancelled during the program offering. The Facilitator’s Office was an open discussion area for all students to deal with questions regarding assignments, to make comments and to clarify issues with the facilitator.

As students completed the program they were expected to have become more confident self-directed learners, to have acquired an understanding of their skills and how to transfer them across various contexts, and to have created a personal portfolio consisting of a resume, cover letter, interview preparation materials and self-assessment examples.

The Need for Research into the Teaching of Employability Skills Online

While there have been many studies conducted on the delivery of online courses, few studies have been conducted on the use of this delivery approach to teach employability skills to co-op students. Employability skills’ training involves a unique combination of formal, non-formal and informal education. Students learn to investigate their own past experiences for both formal and informal skill development and position these for a future employer. At the same time they have to learn – or

improve – their presentation skills including resume development and how to prepare for, and conduct interviews with potential employers.

In BOL, these skills had to be developed through study, peer-to-peer interaction, and support from mentors. But can this model applied in an online environment effectively support the development of these skills? To test this hypothesis we have to investigate whether students taking such an online program interact with their online peers, to study the nature of this interaction and at the same time obtain student facilitators’ views about the effectiveness of the online program to support the development of employability skills.

Research Questions

The objective of this preliminary investigation was to determine whether an online version of the Bridging Co-op Program could help students achieve the co-op program objectives. In the present study, the following research questions were investigated:

How participants in the Bridging Online Program perceive the implementation of an online version of Bridging Program to teach employability skills?

Which patterns of cognitive and interactive acts were developed in the Bridging Online Program online?

Data collection was conducted after participants completed the four-week pilot program in November 2001.

Methodology

To investigate the research questions, a methodology consisting of three steps was developed, consisting of: (1) content analysis of conference transcripts to identify interaction patterns and types of cognitive and interactive activities taking place in the online environment; (2) organization of focus groups with selected participants; and (3) interview with selected co-op staff members.

In order to increase the reliability of the findings, the study utilized a multi-method approach to data collection and analysis. Data analysis, in the form of conference transcripts of participant messaging, provided information concerning the nature of participant learning and the types of interaction that occurred in the program and of participants’ views of their experience based on focus groups and interviews. Focus group and interview data were analyzed using content analysis methodology (Weber, R., 1985) and online interaction of participants (Harasim, L., Hiltz, R., Teles, L., and Turoff, 1995). Through content analysis and participants’ interaction of the messages the nature of the online discussion can be studied and patterns of

communication identified. Conference transcripts were analyzed according to a methodology of discourse analysis developed by Harasim and Bakardjeva (Harasim, L. and Bakardjeva, M., 2002).

According to these researchers, participant utterances in online educational conferences can be classified as either cognitive speech acts or interactive speech acts, or both. Cognitive speech acts operate on the subject matter of a discussion and serve such functions as clarifying, summarizing and analyzing information, supporting the learning process. Interactive speech acts serve to establish relationships among conference participants. Acknowledgement, support, and the disclosure of personal information are examples of interactive speech acts. In the present study, the researchers were also interested in both the cognitive and interactive nature of participant discourse. A slightly modified version of the Harasim and Bakardjeva (2002) taxonomy was utilized to analyze conference transcripts.

Table 1 shows the various categories of Cognitive and Interactive Acts used for transcript analysis (see Appendix A for Table 1).

Transcript Analysis

Transcript analysis is an innovative research methodology and is based on the text-based analysis of messages exchanged in computer conferencing systems. Two graduate research assistants who had prior transcript coding experience conducted transcript analysis of all participant messages independently. Analysis of the messages was conducted for two groups of participants: staff and students.

A modified version of the Consensual Qualitative Research (CQR) methodology was also used (Hill, C., Thompson, B., & Williams, E., 1997) to enhance reliability in coding messages. At each step in the data analysis procedure, the researchers met to clarify their understanding of the coding methodology. They then proceeded to code the data independently and followed up with one another to ensure that they were accurately applying the coding scheme. In utilizing this approach, the researchers achieved a percent agreement of more than 80% for all of the conference modules.

Focus Groups with Selected Participants

Focus groups with available participants were conducted at the end of the Bridging Online Program to provide additional program evaluation data. Participants were asked to respond to eight questions and discuss their own views and experience of the BOL Program.

Results and Discussion

Both the nature of the program (i.e., that of being a pilot project) and of the participants themselves impacted the results as we discuss below. For this pilot project, participants began the program in the first week of November 2001 and were to complete it sequentially by the end of that month: a period of four weeks. Each of the four modules of the program was to be completed in one week.

Participation for both staff and students, however, diminished over the course of the four-week program. Due to technical problems experienced with the connection to the Portfolio server, access to it ceased during the delivery of the BOL program. As revealed by data collected in the focus group discussions, participants, particularly staff members, became too busy with their own work and could not continue to participate as they did at the outset. Also, as participants were aware of the pilot nature of the project, they did not feel as committed to completing all the work as if they were taking the program on a regular basis.

We analyzed the online conference data for both staff and student participants. Table 2 shows the number of messages, for both staff and students. When data from all of the other program modules were combined, staff participants submitted, on average, 3.55 messages. (See Appendix B for Table 2).

Figures 1 and 2 provide a graphic representation of the patterns of cognitive and interactive acts for both staff and student participants (see Appendix C).

Overall, these findings suggest that participants who submitted more messages in each of the modules, also tended to provide more factual information (PIC) in response to facilitator questions or conference tasks, personal information and/or reflections (PRI), indications of their feelings (PFI), use more symbolic icons (ICI) and identify themselves in their messages (SII).

Focus Group Data

After participants completed the BOL Program, a Focus Group of participants was organized to evaluate the program. Their comments are summarized below.

Question 1: Based on your experience in taking the first offering of the BOL Program, do you believe that the instructional approach used in the program supports the achievement of the goals of the SFU Co-op Program?

Most participants believed that the instructional approach did support the goals of the SFU co-op program. One participant noted, in addition, that it helped students to become "smart e-workers." Another participant felt that the content was more

valuable than the delivery mechanism. A third participant noted that the self-based learning approach was beneficial along with the peer-to-peer forums and the 24/7 availability of the program.

Question 2: Do you find that the user interface facilitates navigation?

Focus group participants indicated that the BOL Program was, for the most part, easy to navigate. Some participants indicated that the font type used on some screens (San-Serif) should be changed to an easier-to-read font type.

Question 3: How do you perceive the benefits and disadvantages of the online version of the BOL Program compared to the face-to-face version?

The benefits of BOL, as noted by the participants, include the following: the program is self-paced and provides technical and academic support; it is accessible anytime; it is convenient for student schedules; greater learning opportunities are afforded through the online discussions; it helps to overcome traditional barriers to participation such as shyness.

The disadvantages of the program include the following: some people may learn best from an instructor in a face-to-face environment; there is no incentive to complete the exercises or read the materials if one is pressed for time; clarification and feedback may be better received in a face-to-face environment; this form of instruction takes some time to get used to.

Question 4: Has BOL taught you to transfer skills from the university to the workplace?

Each participant indicated that BOL had taught him or her to transfer skills from the university to the workplace. Two students noted, in addition, that their understanding of skills transfer was greatly enhanced after completing the program. Another student commented that the online interaction with the program moderators was very beneficial in this respect.

Question 5: Do you have any additional comments that might help to improve the BOL Program?

One student felt there should be more opportunities for peer-to-peer conversations, but that, overall, it was "a great pilot course and [s/he] would recommend others to take it." Another student indicated that it was difficult to keep up with all of the conference messages. This student suggested setting up the conferences as closed newsgroups that can be accessed via email. A third student suggested that more information should be provided in the module focusing on the rights and responsibilities of both employees and employers. A fourth student commented that the success of the BOL Program would depend, largely, on the quality of the online moderators.

Conclusions

Based on data analysis, participants of the BOL Program have found the online program to be a valuable tool to support Co-op students in learning and developing employability skills. Most participants stated that the program helped them in developing various skills, including: problem defining and solving, planning and goal setting, improved interpersonal communication skills and self-assessment and peer feedback skills.

Participants in the BOL Pilot Project, while benefiting from the program content and the self-directed learning approach afforded by the online system, tended not to engage in direct interaction with one another. Direct interaction among the participants (i.e., where they engaged in direct conversation with one another) occurred on fewer than ten occasions. There were however, many more instances of indirect interaction, where participants referred to the contents of another's message or provided some indication of agreement with a message writer. Each of the program modules was structured in such a way as to require participants to complete a number of tasks. As it turned out, participants spent much of their online time completing only what was asked of them. In this case, perhaps the perceived inflexibility of the program modules as well as time constraints discouraged more direct peer-to-peer interaction. Figure 1 tends to support these observations.

It is apparent that much of the cognitive act activity involved providing information (PIC): in other words, providing factual information in response to facilitator or participant comments or queries. Most of interactive moves activity centered on providing personal information or reflections (PRI), providing some indication of one's feelings and, to a lesser extent, providing information unrelated to the program module (PCI), identifying oneself in one's messages (SII), offering words of greeting or appreciation to participants (GRI), using various symbolic icons (ICI) and asking a variety of technical questions (TCI).

Some participants also mentioned that they see some disadvantages in the offering of the BOL program as compared to the face-to-face format. Some of the perceived disadvantages include the fact that some students may learn best from an instructor in a face-to-face environment; there is no incentive to complete exercises or read the materials if one is pressed for time; clarification and feedback may be better received in a face-to-face environment; and this online form of instruction may take some time to get used to.

Overall, however, participants seem to support the viability the BOL Program as an effective and

valuable tool for identifying and developing employability skills.

Recommendations

Several recommendations were made regarding the packaging of the program. It was felt that the BOL program was too long and too content heavy. As well, facilitators found the workload fairly high, especially in providing online feedback.

There were also a number of technical problems that arose with the BOL Pilot, as some participants could not logon to the program, while others could not access their Learner Portfolio area. This caused some frustration for some participants in the beginning, but the technical difficulties were eventually resolved. Participants recommended that technical support should constantly be provided to BOL students.

The Learner Portfolio was created as an online folder where students could place some of the materials produced during the course of the program, such as their personal resume to be reviewed by a BOL facilitator. As it was accessible only by the student and the instructor, it implies a substantive amount of work for the facilitator having to logon to each of the participants learner portfolios. Participants in the pilot suggested a different format be found for the portfolio. In the BOL version offered in September 2002, the learner portfolio has been eliminated from the online version and is now part of the face-to-face review meeting with the BOL facilitator.

As the Ask an Expert discussion was not available in the pilot project, participants emphasized the importance of that discussion area when the program is implemented. In the Ask and Expert area, employers, alumni, or co-op staff offers support and mentorship to BOL students.

A final recommendation in this preliminary review of the pilot program is that the "Student Handbook" of the BOL Program was perceived to be a valuable resource and should be made available in both hard copy and online.

Post Script

Since this initial research was conducted, the Bridging Online program at SFU has undergone some significant changes in response to both the pilot study feedback, and an opportunity to partner with the SFU e-learning and Innovation Centre (eLINC). Major changes are outlined below along with an update on BOL developments and further research. As of September 2003, over 1300 students have participated in the BOL program at SFU.

The following changes to the Bridging Online Program have been made based upon initial pilot feedback reported in this chapter.

Feedback: The course was too long and too content heavy.

Change: The four-week course was separated into two, two week long modules. The first (BOL I) is required as part of the application to co-op. BOL I content includes Skills Transfer and Effective Communications, including the development of a resume and cover letter and interview preparation. The second module, BOL II, focuses on Personal Management, Self-Direction, Our Portfolio and Workplace 101 (ethics, first day on the job, rights and responsibilities, etc.). BOL II must be completed prior to the student's first work term.

Feedback: The load for moderators/facilitators was too high

Change: Facilitators no longer provide personal feedback on student resumes and cover letters. Rather, students are directed to produce a draft using the course content and feedback to related questions from peers and the expert. This draft is included in their portfolio and presented in a face-to-face meeting with a co-op coordinator once they are accepted to co-op.

Feedback: Technical issues related to hosting the online portfolio resulted in minimal use of this function.

Change: Students now are encouraged to store their portfolio items on their own file space and create a hard copy version that they submit to coordinators as part of the acceptance criteria. Efforts are being made to address the online portfolio issue.

Feedback: Some participants, mainly staff that were less Internet accustomed wanted a hard copy of the course.

Change: Produce a one-year supply of courseware, handed out to students upon application to co-op. We are currently investigating the option of having a current version of the course available to past students.

Feedback: There is a need for more peer-to-peer interaction.

Change: Re-tooled the Review and Reflection exercises to enhance greater interaction (e.g. instructed students to respond to two other student posts, directed students to ask for peer feedback, etc.).

These changes address the major critical feedback elements received through the pilot. Overall there was high satisfaction with the content, ease of navigation, interest in the discussion groups, and appreciation of the accessibility of the course from anywhere, at anytime. As well, students reported

appreciating the self-paced aspect of the course and informally a number of students who have English as a second language (ESL) have since expressed their appreciation of being able to return to difficult concepts in the module or areas in which they need more study. This is not always the case in face-to-face offering where those students more fluent in English tend to respond more in class and the workshop leader progresses at a set rate.

A comprehensive review of the new BOL II and I was conducted in the summer 2003 surveying over 1,000 students, course facilitators and employers. The results of this research were compiled and serve as a basis for even more detailed revisions and course refinement. Currently the SFU co-op program is developing a series of follow-up "On Demand" employability-related modules, which will reside in the SFU Online Co-op Learning Community (to be launched in the fall 2004), available for students to access when, and wherever, they need them. Topics include: Workplace Trends You Need to Know, Interview Skills to Get Your Dream Job, How to Exceed Employer Expectations, Print and Electronic Career Portfolios, Effective Networking With Potential Employers, Corporate Governance and Social Responsibility/Ethics, and Consulting, Contracting, and Pitching Proposals. These will be short, un-moderated modules containing current topical information, with many links to related sites as well as video-streaming and discussion areas.

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APPENDIX A
Table 1. BOL Coding Scheme

<u>Cognitive Acts</u>		<u>Interactive Acts</u>	
<u>Category</u>	<u>Code</u>	<u>Category</u>	<u>Code</u>
1. Identifying problem	IPc	1. Support asking	SAi
		2. Support giving	SGi
2. Exemplifying problem	EPc	3. Encouragement	ENi
3. Introducing related problem	RPc	4. Acknowledgement	ACi
4. Linking problems	LPc	5. Building on	BOi
5. Analyzing problem	ANc	6. Negotiation	NEi
6. New perspective to problem	NPc	7. Partial agreement	PAi
7. Defining concept	DCc	8. Disagreement	DIi
8. Providing information	PIc	9. Challenge	Chi
9. Arguing position	APc	10. Personal info/reflection	PRi
10. Providing evidence to justify position	JPc	11. Revealing personal feelings	PFi
11. Comparing positions	CPc	12. Personal address	ADi
12. Questioning position	QPc	13. Coordination	COi
13. Opposing position	OPc	14. Metainteraction	MIi
14. Meta-cognitive act	MAc	15. Phatic communication	PCi
15. Drawing conclusion	CDc	16. Self-introduction	SIi
		17. Greeting	GRI
16. Offering solution	OSc	18. Closure	CLi
		19. Jokes	JOi
17. Challenging conclusion/solution	CCc	20. Symbolic Icons	ICi
		21. Technical comments	TCi

APPENDIX B
Table 2. Number of Messages by Module

	Module 1	Module 2	Module 3	Module 4	Portfolio	Total
Staff	100	38	13	0	19	170
Student	72	19	14	27	23	155
Total	172	57	27	27	42	325

APPENDIX C

Figure 1. Patterns of Cognitive Acts for Staff and Student Participants

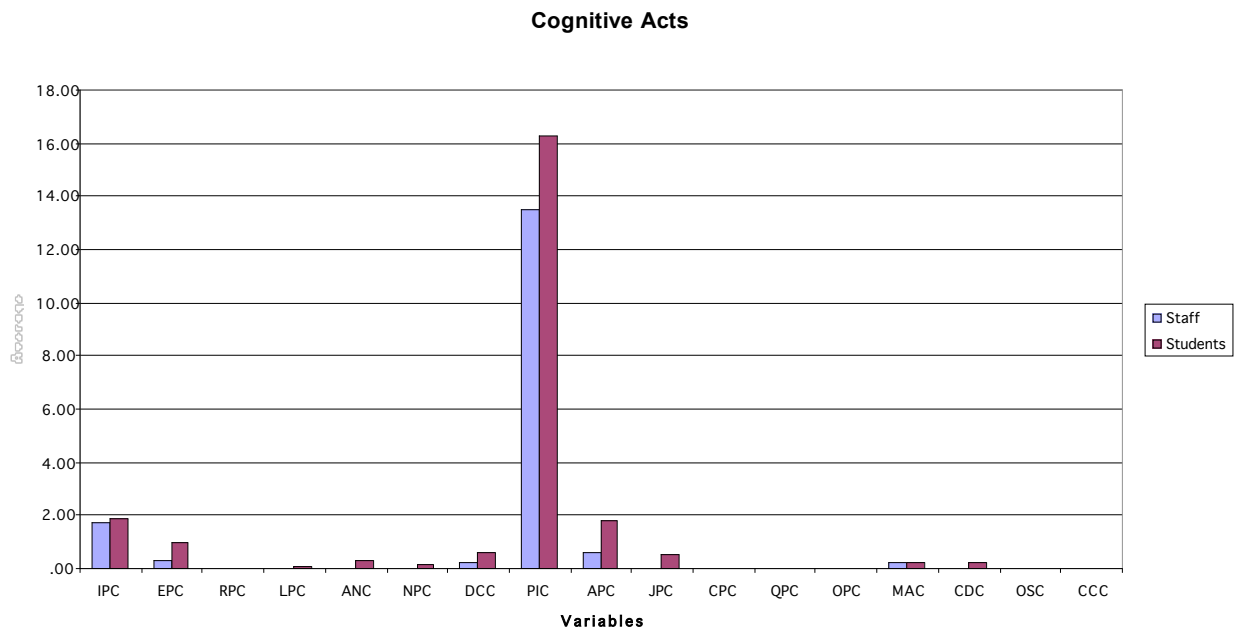


Figure 2. Patterns of Interactive Acts for Staff and Student Participants

