

Although there is little dispute about the social and economic benefits of cooperative education (Linn,

service of thoughtful action. It is referred to as reflective practice or *reflection-in-action*. Although it has a significant history in teacher education (Clift, Houston & Pugach, 1990), its contribution as a concurrent and collective practice supporting learning from work experience is more recent (Raelin, 2001). Perhaps most noteworthy has been the systematic use of reflective activities in service-learning to provide a link between community service experience and a host of learning outcomes, in particular critical thinking skills (Ash & Clayton, 2004; Eyler & Giles, 1999).

Reflection-in-action may be thought of as the public form of reflection that can be characterized as the process of inquiry that seeks to uncover and make explicit what one has planned, observed, or achieved in practice - such as might be made available through co-op-type placements. It often seeks to understand experiences that may have been overlooked. As a vehicle for learning, it can enhance understanding beyond the immediate interactive setting to applications within other levels of experience - organization and society in particular. We tend to refer to the interactive exchange in this case as a *learning dialogue*. Rather than constituting an exchange of mere points of view, dialogue surfaces in the safe presence of trusting peers the social, political, and emotional data that arise from direct experience with one another. Often these data are precisely those that might be blocking operating effectiveness (Raelin, 1997).

Reflection-in-action is also associated with the tradition of contextualized learning theory that posits that learning can occur in the midst of practice rather than more conventionally

Reflection-in-Action on Co-op: The Next Learning Breakthrough

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Abstract

Cooperative education in the past 100 years has enriched higher education by supplementing classroom education with real-world experience. In the next 100 years, using available scholarship on situated learning and reflective practice, cooperative education can make yet another learning breakthrough by encouraging students to learn from their experience by reflecting-in-action within a safe facilitated environment.

In this paper, after offering a theoretical rationale for an epistemology invoking reflection-in-action, three experiments will be shared to demonstrate this approach. In the first example, the benefits and challenges of offering a course in organizational behavior to students while on co-op will be illustrated. Next, engaging students in on-line threaded dialogues and chat room gatherings will be shown to represent a vital supplement to any reflective experiential activity. Finally, a unique peer mentoring program involving face-to-face learning teams is detailed, including a description of how such programs can be productively administered and sourced.

Index Terms – reflection, critical learning, peer mentoring, on-line dialogue

Howard & Miller, 2004), it is contended in this paper that its effectiveness as a pedagogical experience can be heightened if students are given a systematic opportunity to learn from their work experience while engaged in that very experience. Cooperative education officials recognize the value of work experience for its learning potential but, up to now, make room for learning via reflection only after the student has completed his/her placement. In other words, reflection is on the experience after it is over. Although this reflection-*on*-experience is certainly useful because it teaches students some of the critical lessons that can be derived from work, it is unfortunate that these lessons cannot be used immediately on the job. Rather, the lessons remain lodged in the student's mind to be applied perhaps at a subsequent work experience that may have to wait for six months or more. By that point, the lessons may have become distorted or lost entirely because the inherent knowledge may not have found a setting in which to use it. Would it not be advisable, consequently, to allow for reflection that takes advantage of learning in the moment?

Higher education has available a methodology that can encourage both the production and application of knowledge in

as a representation transmitted from teacher to student (Lave & Wenger, 1991). Instead of banking knowledge into one's mind (Freire, 1989), knowledge can be viewed as an interactive contention among a community of inquirers who share meanings, interpretations, and ideas (Dewey, 1916). Meaning can thus be derived by conversants in situ rather than from a fixed set of scientifically or culturally derived specifications (Garfinkel, 1967; Lynch & Peyrot, 1992).

From a contextualized learning perspective, reflection-in-action has a number of distinctive features that permit its consideration within the branch of learning known as praxis, referring to how one thinks about what one and others are learning (Raelin, 2006). First, as has been noted, it can also occur concurrently with practice rather than before or after experience. It can involve others as opposed to being an individual experience. It often requires some facilitation to help learners reframe their knowledge base but the facilitation is not equivalent to classic teaching. Finally, it is typically concerned with critical inquiry, probing into the deep recesses of experience.

In this paper, these issues and a number of pedagogical questions will be raised through an exploration of three applied experiments in reflection-in-action while on (not after) co-op. These three experiments are described next.

Teaching Organizational Behavior (OB) to Students on Co-op

Organizational behavior (OB) is a required course for all students in the College of Business Administration at Northeastern University. In the traditional approach, students typically enroll in OB during their third (middle) year, in the semester that follows their first co-op assignment. The course, which meets in two 100-minute sessions per week, addresses the *people side* of business and includes such topics as group dynamics, leadership, motivation, organizational structure, change, and culture. Class activities include lectures, discussion, videos, case studies, and exercises. The OB on Co-op section addresses the same content but meets for three and a half hours, one night a week, to enable students to attend after working all day—much like part-time MBA programs. Because it is contemporaneous with co-op and because the content of the course is business-oriented, students often “experience” the content right before or after the class session. For example, students will make such comments as: “my manager used two of the styles of influence,” or “I noticed that my company is having communication sessions to help reduce resistance to change.” There are some special features of the course worth highlighting.

Reflection: There are close links between the course and co-op experience, leading to a number of opportunities for reflection. First, three reflective papers are assigned. In one students are asked to diagnose and make recommendations for their work group applying features of group effectiveness. In the second they are asked to describe the *leadership style* of their supervisor and the impacts of this style. In the third, they produce a brochure of their organization's culture, focusing on its enacted values. To encourage reflection-in-action, groups of students discuss ideas for their paper before writing it. After papers are submitted, a general class discussion ensues that in which students are asked what they had learned and the extent to which theories and principles introduced in class applied to their workplace. Briefer assignments are given to encourage students to reflect on their work and workplace and apply their experience to class topics such as job design (“apply the five elements of a motivating job to your co-op assignment”) or organizational structure (“what kind of structure would accurately depict your organization; what are its impacts?”). The class is interactive and in the discussion students are asked to link their co-op experience to the subjects under discussion.

Challenges: There are several challenges when introducing a course while students are on-co-op. First, the course is packed due to the need to *cover* the content of the traditional class and yet provide enough time for reflection. Second, students report that they are tired after a full day of work and find it difficult to stay alert—particularly for a three and a half hour class. Third, some co-op jobs provide limited applicability on certain topics. For example, some students have not been members of work groups; others have had minimal contact with a supervisor. Fourth, students generally tend to be action-oriented and have limited experience and inclination to reflect on their experience without prompting from the professor.

Assessment: Self-reports on an end-of-class questionnaire have shown some encouraging results. Virtually every student reported that the course increased their understanding and awareness of their supervisor's style and of the organizational culture. It also enhanced their observations of several aspects of their organization (“... made me more aware of the culture...of how to develop a team...and of organizational structure...”). Most (90%) reported that their co-op activities helped them with their academic learning (“...great example of applying theory to real situations.”)

Engaging Students in Real-Time and On-line Threaded Dialogue

Encouraging students to open up and reflect on their experiences to their supervisors, to their peers, and to themselves is an ongoing challenge. Students can learn as much from each others' experiences as they can from their own, whether because hearing about others' experiences expands upon or contrasts with their experience, or because they are simply at similar stages of discovery. Technology provides several options to facilitate this process.

First, for any technological tool to work, a program such as reflection-in-action must have a private, central online meeting place which students use both as a resource and as a community meeting place. Within Northeastern's Music and Theatre Cooperative Education program, Blackboard courseware has been used to promote a variety of reflection and community building techniques. One of the first initiatives was the creation of Mid Co-op Reports. Students are asked to post an introduction of themselves and a description of what they are doing in their co-op on a discussion board. They are then asked to read the reports posted by other students and to respond to at least a few with comments or questions. These reports serve several purposes. First, they encourage those on co-op to have a least one interaction with their peers while they are on co-op. Second, these reports prompt additional communication between the students and their faculty coordinator, providing a chance to discuss problems or opportunities that may have arisen since the last meeting. Without prompting, many students will simply not contact their coordinator while on co-op. Third, students in the preparatory Introduction to Co-op course for the major are encouraged to review prior reports, which help them develop more realistic expectations about their first co-op and provide them with insight into the experiences their peers have had at specific placement sites.

Some students have opted to do what are called *experiential co-ops*. This is a type of co-op in which they develop their own project, submitting a proposal including a timeline of achievable goals, and for which they serve as their own supervisor. These co-ops have entailed starting a business, writing a portfolio of music or a play, recording and promoting a full-length CD, or going on a national or international tour with their bands. Each student's proposal generally undergoes several revisions before being approved, since embarking on an experiential co-op without a solid, achievable plan simply sets the student up for failure. Such co-ops also require tremendous discipline on the students' part, for example, requiring them to know what they need to accomplish and when in order to provide them with the necessary structure to keep them on track. However, students have no supervisor

or co-worker to provide them with feedback and advice on a regular basis. To address this issue, students doing experiential co-ops are required to keep journals in which they write at least once a week. Inevitably, there are some students who either fail to keep a journal, do so only intermittently, or just keep a log of activities, without the depth of a journal. Consequently, in recent years students have been asked to keep an online journal that can be reviewed by their co-op coordinator every three to four weeks. In this way the coordinator can interact with them via follow-up calls or emails after the journal review, to nudge them if they aren't journaling frequently or deeply enough, or to help them through the tough spots. There are three free sites students use for online journaling: xanga.com, livejournal.com, and blogspot.com.

Although web technology has been very helpful to experiments involving reflection-in-action, it has also played a longstanding role for students returning from co-op. At Northeastern, upon the return to classes, students attend a reflection seminar with their peers. These seminars are offered both online in a chat room located on the program website and in person. While they are each structured slightly differently, students prepare for the seminars by submitting a list of five students whom they are most interested in meeting, based on the online Mid Co-op Reports mentioned above. The online seminars are open discussions that are usually attended by 10 to 15 people and held in the evenings. In the live seminars, students are broken into group of five or six people based on the students' lists, allowing them a richer, more focused conversation. In both cases, each student introduces him or herself and then the discussion develops organically as they ask each other about their experiences. Coordinators observe these meetings and may occasionally stimulate the dialogue through the use of a provocative question or may respond to questions addressed specifically to them.

A Peer Mentoring Project with Face-to-Face Learning Teams

The peer mentoring project, entailing concurrent reflection in learning teams, is an evolving project at Northeastern University that engages students in small learning teams during their six-month co-op period. In this section, the goals of the project for students, the corresponding assumptions the coordinating team made about the students, the format of the project, the initial steps in launching the project, and the programmatic choices involved will be examined. Student comments are reported next, followed by a discussion of the problems of administering and sourcing programs, such as peer mentoring, invoking reflection-in-action.

Goals and assumptions: At the outset students learn that the goals of the program are to:

- Enhance their co-op experience;
- Enrich their learning during co-op;
- Strengthen their contributions to the workplace;
- Integrate real-world and classroom learning;
- Allow them to form stronger connections with fellow students and with the university; and
- Demonstrate the power of their contributing to each other's learning.

These goals can be viewed according to two chief principles—continuity and interaction—advanced by Dewey (1938) in his theory of experience and education. These are the principles for interpreting an experience in terms of its educational function and force. Continuity refers to experience shaping in some degree future experiences and is used as a “criterion by which to discriminate between experiences which are educative and those which are mis-educative.” Interaction refers to the balanced allocation of objective and internal conditions. As noted by Dewey, “continuity and interaction in their active union with each other provide the measure of the educative significance and value of an experience.” In terms of maximizing the educative value of an experience, Dewey notes that “only by extracting at each present time the full meaning of each present experience are we prepared for doing the same thing in the future.” If students achieve this educative value, then the goals one through four above will necessarily be met. Goals five and six emphasize the value of interaction among students in achieving the first four goals. These latter values are emphasized by Wenger (1998: see, pp. 226-228).

The six goals described above are based on the assumption that students can indeed contribute to each other's learning during their experience, that they can take responsibility for contributing to each other's learning, and that they are interested in convening while on co-op to accomplish this learning. This brings us to the format the project takes in accomplishing these goals.

Format and initial steps: The format of the project is for students to have face-to-face meetings of their learning team once every 4 to 6 weeks during their co-op experience. These meetings are convened and facilitated by a trained guide. The convening of students in such learning teams for purposes of facilitating their reflection during their co-op or internship experience clashes with the prevailing practice of leaving students “alone” during their off-campus experience. Students in the project are also encouraged to engage in on-line dialogue between the

face-to-face learning team meetings. It should be noted that student participation in the project is voluntary and students who participate do not, at present, earn academic or experiential credit for their participation.

The peer mentoring project had the benefit of a number of precursors. For example, an early offering featured an on-line dialogue among students during their co-op experience, as suggested in the prior section of this paper, and another had students assemble in groups to focus on ethical inquiry about work and organizational experiences (see, e.g., Cohen, McDaniels & Qualters, 2005). These precursors brought to mind a number of critical issues, such as taking into account the conflicting work schedules of students on co-op, the need to clearly articulate student goals, and the importance of working with a wide and large range of university stakeholders, such as co-op coordinators, administrators, and college deans, willing to promote and support the project.

The first pilot group of nearly 30 students was initiated during the second, six-month co-op cycle of 2005. The number of students in the second offering more than tripled to nearly 90 students. At the time of writing, the number of participants has been capped at about 90, with a projection of further doubling that number based on available funds.

Programmatic Choices: The programmatic choices available in organizing a program involving collective reflection among students during their co-op or internship experience are detailed in Hill et al. (2005). The focus in this paper regarding such choices will be on: (a) student cohorts, (b) sites for the meetings, (c) guides, (d) size of the learning teams, and (e) level of interaction among the guides.

Student cohorts: The pilot of the project initially recruited students who were on their first co-op, working in the Boston area, majoring in the College of Arts & Sciences, Business Administration, and the Bouve College of Health Sciences. Learning teams were arranged by college and, in some cases, by major. During the second pilot, the student cohorts expanded to include students on their first co-op living in the residence halls and students of any year of graduation in Arts and Sciences and in Bouve working in one of three area hospitals. Honors students were also recruited to join the project.

Sites for the meetings: Meetings of the learning teams were typically held informally at one of the pizza restaurants near campus. It should be noted here that pizza and soda are provided for the students as a recruiting and retention incentive. Other incentives have included raffles for gift certificates to the bookstore and i-Pods.

Guides: The guides for the project were initially graduate students in the College Student Development

and Counseling graduate program at Northeastern. Lately, guides have been recruited from graduates of the project and co-op faculty coordinators interested in learning more about their co-op students' day-to-day working experiences.

Size of the learning teams: The expected ideal size is 5 to 7 students in order for the learning teams to achieve the goals set out for the students. However, larger teams have been formed at the outset to allow for attrition.

Level of interaction among guides: An important ingredient of the project is that the guides themselves form a learning team. The learning team of guides meets to reflect in action with the faculty coordinators who have volunteered their time in service of this unique approach to learning.

Student comments: After each cycle of the program, students are queried using an open-ended qualitative response form. The following comments are from the students in the pilot of the project and are in response to the question: "Did this project add or detract from your co-op experience? and How?"

"This project definitely added to my co-op experience and made me think more about how my education related to co-op and what skills I could bring to it."

"I felt connected... my opinion mattered and I was not alone in the process."

"This project was a great addition to the co-op experience because it added a perspective from people our own age."

"Helped me to stay connected to the university and my peers."

"Very nice to be able to get opinions of other majors. Also nice to connect with the faculty and peer mentors."

To put the comment in the last bullet in perspective, it is important to note that direct connection to academic or co-op faculty is not currently part of the structure of the project. One learning team did, on its own initiative, invite an academic faculty member to one of its meetings. This informal meeting seemed to be particularly productive for members of the learning team and for the faculty member. Such interactions can become a more frequent practice and can be an important step leading to enhanced integration of real-world and classroom learning.

The Problems of Administration and Budget: Like many administrative operations in higher education, the problems of administration of any program come down to two basic factors of structure of the program and resources. Both are important because the structure of a reflection-in-action program, such as the peer mentoring project, while it borrows from other well-established academic operations (e.g., advising), is unique. The issue of resources is a challenge

because it is easy to see the promotion of reflection-in-action as an additional burden on a system where budgets are already tight in just providing the basic classroom instruction and academic advising that is required of all colleges and universities. One also needs to add in the experiential variants of co-op, internship, study abroad, or service learning. It is on top of these experiential programs that one must source a program such as peer mentoring on-co-op.

All institutions of higher education (and even high schools) provide the basic structure of classroom instruction and academic advising. Responding to a manifest increase in demand for experiential programs, many such institutions have increasingly added personnel to develop and manage experiential programs, particularly study abroad, internships, and increasingly undergraduate research. A cooperative education institution, such as Northeastern University, maintains a very large overhead (some 60 people) to manage the interaction between students and employer partners. This investment is necessary to provide students with the advantage of the 'heavy-hitting' experience of paid employment at thousands of companies, governmental agencies, and non-governmental organizations. This investment has produced substantial returns to the institution, such as a massively increased applicant pool, a rising reputation, and ancillary financial benefits.

The peer mentoring project is no different than the basic investment in these traditional experiential programs. It requires people and time. The project initially chose to use students in a graduate college student development and counseling program to facilitate the dialogue among the participating students to minimize expenses. But as the reflection-in-action program expands, coordination and oversight will be required and that will require a stipend for a graduate student supervisor at the very least and eventually staff and an office. As reported above, there are also expenses covering food and raffles. Assessments must also be conducted and that too constitutes a small additional expense, principally of time to administer and analyze surveys, run focus groups, and produce public reports.

At Northeastern in general and within the College of Arts and Sciences in particular, the benefits to the student of experiential education are strongly believed to be one of the key components underlying the more than doubling of applicants (over 14,000, making more than a 10:1 ratio for freshman seats), improved retention, and a resulting doubling of gross revenue to nearly \$170 million a year. Given this scale, if a reflection-in-action program can be demonstrated to improve the outcomes from an already pervasive experiential program, it will be well worth it.

To take the retention issue, every student that stays in the program contributes tuition to the bottom line. There are two ways of looking at this increase. First, one could argue that any student retained generates extra marginal income because he or she will fill open seats in the class while making minimal additional impact on the school's plant. A better way to look at the impact of retention is to employ return-on-investment calculations. For example, if tuition were at \$40,000 and the contribution margin were 50% (to make the math easy); each student retained would be worth an additional \$20,000 to the bottom line. A still further refinement is to include costs university-wide (e.g. space, library, security), which brings one closer to a RCM model (Responsibility Centered Management). As a summary statistic at Northeastern University, for every 100 additional students retained university-wide, an additional \$1 million in net revenue is generated in the university budget. Last year the College had more than 6,000 majors and sent out almost 1,000 students on the last cooperative education cycle. It also appears that last year an additional 200 students for the year were retained. While it can only be conjectured what produced this retention, it certainly seems likely that having more enthusiastic students in the primary experiential education program of cooperative education can only help. What is also true is that on the scale above, a small improvement can produce a large revenue stream to justify the program's costs.

Resource-based thinking ignores the benefits to the mission to profoundly educate students, teaching them to become responsible thinkers and practitioners who can learn and keep learning in a complex and fast-changing world. In an experiential university, one can also underestimate the value of electronic communication between students such as through Facebook, chat rooms, or even simple e-mail, IM, or texting to friends in explaining and even 'selling' the university by word, or mouth. Students engaged in reflection-in-action who are pleased with the outcome of their cooperative education experience become ambassadors and recruiters. Any effects they may have on increasing or protecting the applicant pool can only positively affect the bottom line by improving selectivity or by expanding the pool of qualified and, in some cases, financially capable students. Finally, *customer* draw tends to improve the bond ratings of private universities – a domain that does not go unnoticed among the organization's financial officers.

On the expense side there are also ways to minimize costs. As reported earlier, in addition to using graduate students as facilitators, recent iterations have relied upon senior undergraduates and other alumni(ae) of the program who voluntarily take a *training of facilitator's* seminar to sharpen their facilitation skills. While not

eliminating the need for staff, if the cost of facilitation can be minimized by making it a learning experience, overall costs will drop substantially. There are even more creative ways to support such programs. For example, the College of Arts and Science operates a small operation teaching experiential education techniques to other institutions and uses any profits generated to promote further research of internal experiential education activities. While one could not fully support a program with such *soft* money, it is precisely these activities that can promote the next generation of experiential learning services.

The aforementioned budgetary considerations rest on the foundation that the peer mentoring project featuring concurrent reflection actually improves the cooperative education learning experience. In the last year, the project has initiated an applied research project to begin to study the explicit practice-based learning effects from participating in concurrent reflection. In this study, classical survey techniques are being used by student researchers to compare the novel reflection component to conventional co-op conditions among a control group sample. A unique practice-based learning outcomes survey, developed by the Center for Work and Learning (see, e.g., Hayward, Blackmer & Raelin, 2007), is being deployed to strategically assess the extent to which students in both experimental and control groups are learning from experience. The results will be used determine the nature of the learning from the experience and its value to the students over and above conventional co-op placement without concurrent reflection. This research will also guide further adaptations in the administration of the program.

Conclusion

Although reflective practice can technically occur as a solitary process, it is frequently interactive since most work entails contact with others. Further, though learners may reflect privately and may commit these private reflections to personal accounts in their journals, they often like to bring out their reflections with others once they become absorbed in practice. Their internal dialogue is thus enhanced by external dialogue that induces and then refines it (Wertsch, 1979). In other words, their experience with others informs them, pulls them, and even transforms them.

Although reflection on co-op experiences has provided a critical function to help students distill the lessons from their placements, it has not been able to furnish a dialectical form of learning whereby they can learn to reframe experiences in the moment that are not going according to plan. In the experiments detailed in this article, the authors hope to have shared the value and practicality of introducing a method of reflection-in-action that encourages students to learn collectively

and concurrently from their real-time experiences. The purpose of cooperative education has been to expand the curriculum from the walls of the school into the day-to-day experiences of the workplace. The inherent curriculum represents an opportunity to learn how to learn from experience. The approach of reflection-in-action merely enhances this curriculum to ensure an opportunity for a rich holistic experiential learning for our students.

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