

Sociocultural Portfolios as a Tool for Enhancing Student Learning in Cooperative Education

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Abstract

One of the key issues in working with cooperative education (co-op) students is how to facilitate their learning across two distinct communities of practice, the classroom and the workplace. As co-op practitioners we need to help students identify their current competencies, set goals for their learning and match their development needs with appropriate work placements. This paper discusses the use of a portfolio based on sociocultural views of learning as a means of achieving this. A portfolio is a collection of evidence that can map a student's learning progress. Developing the portfolio requires a student to undertake critical thinking and reflection on their experiences. This makes what they know and can do more explicit to the student, and helps them to understand the level of their competencies. This assists students with their placement application tasks such as resume and cover letter writing and interview skills. The portfolio also provides a mechanism for the co-op placement coordinator to make a match between a student's competency, their development needs and an employer's needs. Previous research (Eames, 2003) has shown that sociocultural views of learning can help us to understand the process of learning on placement. These views of learning focus on the situatedness of learning in a socially and culturally determined community. Taking a sociocultural approach to portfolios allows students and educators to not only understand what is learnt, but also how it is learnt and from whom. Such an approach can give a student a greater understanding of what it means to learn, which is critical for lifelong learning. This paper presents an overview of sociocultural learning ideas and portfolio development and describes a pilot project at the University of Waikato, that is, investigating the use of a competency-based electronic portfolio in a science and engineering co-op program.

Introduction

Cooperative education (co-op) programs provide learning opportunities to students within two distinct learning environments, those of the classroom and the workplace. As co-op educators we are charged with facilitating the workplace opportunities and assisting the students to understand how what they learn in each environment complements each other. This task raises two issues that are important to this discussion. Firstly, in many cases students enter a co-op program precisely to find out what careers might be available to them as they lack the experience to determine their future directions. These students often come with only a vague understanding of what they may be capable of, having not developed the skills to interpret their prior experiences and hence the knowledge of the competencies. The challenge then lies with the co-op educator to identify their current competencies, set goals for their learning and match their development needs with appropriate work placements. Secondly, students' understanding of their learning between two very different learning environments and our assessment of that learning has for many years been challenging in co-op programs. This paper discusses the use of an electronic portfolio to meet these challenges.

Portfolios

Portfolio is a word in common usage that has been used to describe anything from a device for holding papers and other materials through to a collection of clients or tasks. In educational settings, the word has gained currency in recent years in describing "a purposeful collection of student work that tells the story of the student's efforts, progress, or achievement in a given area" (Klenowski, 2002, p. 3). The collection should "include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection" (Paulson et al., 1991, p. 60)

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The documentation within a portfolio are pieces of evidence that can be as diverse as results from authentic tasks, performance assessments, conventional tests or work samples, and the portfolio often illustrates achievements or progress over time: "It is significantly more than a collection of assignments" (Klenowski, 2002, p. 26). The individual identifies work from an accumulated collection to illustrate their achievement and to demonstrate learning for a particular purpose. The process of assembling the portfolio involves critical self-evaluation of the relevance and merit of their achievements, with feedback and discussion with peers and/or teachers guiding the subsequent learning progress. As Barootchi and Keshavarz (2002) note, through the portfolio process students are asked to identify needs, goals, weaknesses and strengths in their learning, and are asked to select work for the portfolio and explain why it is valuable to them.

Portfolios were traditionally paper and document-based, that is, photographs or art, but increasingly as their use spreads to other disciplines, they are becoming electronically-based. Avraamidou and Zembal-Saul (2002) describe several advantages of web-based or e-portfolios. These include enabling an easily accessed interface for students to assemble and organize their portfolio material, to review and edit material and also stimulate reflection as they can store multiple iterations over time without taking up a lot of space. Web-based systems also have the advantage of remote access. These features of the electronic portfolio make them particularly for use in co-op programs, as the students move between the educational institution and the workplace.

Portfolios and Co-op

The potential for portfolio use in co-op programs appears sound. Indeed, portfolios are already in use in a co-op program at Simon Fraser University, Canada, and are being considered at the University of Victoria, Canada, and may be in operation in other co-op programs. In my thinking, two issues facing co-op programs could potentially be addressed through using portfolios. The first issue relates to evaluating a student's current competencies and learning progress. This issue becomes important when trying to advise students about career options, placement options, preparation for placements (developing CV, preparing for interviews, etc.), and future learning options. Students often enter a co-op program with the goal of exploring career options and routinely have a poor grasp of what competencies might be required to undertake certain careers. Equally, the students often only a vague understanding of what they are currently competent for, and need training in reflective practice, as well as careful and intensive questioning in order to elucidate their abilities. The potential of finding a good placement match depends on the co-op educator's ability to understand what the student has to offer.

The second issue relates to assessment of student achievement on placement. The co-op community has for some time been searching for different ways to accurately assess achievement in co-op programs, in particular in the placement. These arguments stem partly from the diverse learning that can be achieved in co-op, not only because this learning occurs in two distinct communities, those of the classroom and the workplace, but also because the learning in the workplace can be very diverse even within a co-op cohort. The learning in placements in particular has been difficult to assess by traditional quantitative means. Additionally, much of what a student learns in the placement is different from their learning in the university. Not only is the learning environment different in the workplace, creating different demands on the student, there is a different emphasis on learning product and learning process, and the nature of any teaching takes a different form (Eames, 2003). More authentic methods of assessment are needed that recognize the context of the learning. Furthermore, students more accustomed to learning and assessment in the traditional classroom setting sometimes struggle to recognize what they learn in a workplace. Not all of this learning is technical, much is social, and just as important in the student's education. The portfolio offers the potential for students to reflect upon their learning, both technical and social. Zegwaard, Coll and Hodges (2003) have noted the potential use of portfolios as an assessment tool in cooperative education.

Portfolios offer the potential for a student to map their progress in learning the wide variety of skills or competencies that co-op programs encourage. These competencies include not only the discipline-specific knowledge and the technical skills of the student's academic course, but also the

workplace and communication skills that can be developed on placement. For example, Bartkus (2001) has argued for the importance of co-op students learning social skills in their internships. He developed a framework that included skills such as sensitivity to oneself and to others, social knowledge of what to do in social situations, and socialization – the ability to adapt to new social situations. Each co-op program could recognize a set of competencies that the student in the program should develop and the portfolio could provide the vehicle for monitoring and demonstrating the student's development.

As noted above, portfolios are representations of experience and the product of careful selection of, and reflection on, those experiences. They provide a framework for students to analyze *where they are at* and where they would like to get to. In making sense of their situation within a co-op program, which requires enculturation into the educational institution classroom and the workplace, sociocultural views of learning have previously been shown to be useful (Eames & Bell, 2005). These views of learning are now briefly described, before discussion turns to their applicability for student e-portfolios.

Sociocultural Views of Learning

Sociocultural views of learning represent an amalgam of ideas about learning, which includes the influences of earlier researchers such as Vygotsky and Piaget, and more recent contributors such as Lave, Wenger, and Rogoff (Salomon & Perkins, 1998). Vygotsky and Piaget saw each individual's mind as developing through their actions in a social environment (Piaget, 1950; Vygotsky, 1978; Wertsch, 1991). In contrast, Lave and Wenger (1991) described learning as occurring in social interactions rather than each individual's mind, and Rogoff saw learning as occurring through participation in socially and culturally-determined activities (Rogoff, 1991, 1995). These sociocultural perspectives have been described as learning as a 'situated activity' occurring through participation, and learning as mediated action.

Lave (1991) defined situated learning as emphasizing "the inherently socially-negotiated quality of meaning and the interested, concerned character of the thought and action of persons engaged in activity" and "that learning, thinking, and knowing are relations among people engaged in activity *in, with, and arising from the socially and culturally structured world* [original emphasis]" (p. 67). That is, learning occurs within a social situation, cannot be dissociated from it, and can only be understood within the context in which it occurred. The emphasis on social negotiation of meaning indicates that it is through social interaction, in which participants share knowledge and understanding, that they come to understand what they do. In this view learning and thinking are viewed as social processes occurring in a community of practice, in which members participate in a shared endeavor. When students participate in shared endeavors through their placements, they may undergo a kind of cognitive apprenticeship (Brown et al., 1989) through being situated alongside practicing professionals and participating in authentic activities (Billett, 1994). This apprenticeship not only allows the learning of manual tasks in the traditional sense, but also inducts the student into ways of thinking and understanding in the community. In this way the students learn through their participation (Rogoff, 1995), gradually adopting the culture of the workplace in a process of enculturation (Brown et al., 1989; Hennessy, 1993). This may allow the students to develop a working identity (Wenger, 1998) within their workplace community.

A second notion that contributes to sociocultural views of learning is that human action is mediated by tools and signs (Bell & Cowie, 2001; Vygotsky, 1978; Wertsch, 1991). This view draws on the work of Vygotsky (1978) and mediated action considers that human action such as learning is effected by tools and signs, which are themselves situated in the social and cultural environment in which they exist (Wertsch, 1991). Wertsch, del Rio and Alvarez (1995) separated the mediational means into technical tools (such as instruments and computers) and psychological tools (such as language and counting systems). Two key ideas arise from consideration of the influence of mediational means. Firstly they are used in social interaction, particularly in the case of language. Secondly they are "products of sociocultural evolution, and are inherently situated in sociocultural context" (Wertsch, 1991, p. 91). This, Wertsch (1991) argued, locates higher mental functioning such as learning together with mediational means. Wertsch further asserted that one way of

investigating sociocultural approaches to how the mind works is through exploring how social language mediates learning. He drew on Bakhtin's notion of social languages – discourses peculiar to specific communities – to explain how language could lead to learning in a particular community of practice. There is seen to be continuity between language and thought, each informing the other, such that thinking, and learning, are socioculturally determined (Leach & Scott, 2003).

As language is used in the workplace, this approach would appear to hold promise in understanding how students learn in their work placements. Consider a media arts placement student who is exposed to the jargon used on the production set of the TV news. Additionally, all students in placements are likely to be required to use some form of instrument or other tool that could affect their learning. A trainee teacher on placement may learn the value of storybooks through reading to her class. The notion that learning occurs through mediated action in social situations therefore has relevance to placements. From a sociocultural viewpoint, learning occurs through participation in two distinct communities of practice, that of the educational institution and that of the workplace. In the work placement, learning is mediated through the use of tools and language, is situated in the context of the workplace and is assessed as increasing participation within its community.

Having argued for this view of learning on placement, it would be only fair and reasonable to consider (albeit briefly here) the sociocultural view of learning in the educational institution. This permits a view of learning in the classroom that engages the social dimension through a transactional process in which the educator provides opportunities for discourse through collaborative work and other such pedagogies that lead to classroom communities and the unique social relationships that characterize them. It also leads to a system in education in which different cultures are recognized for their differing learning needs and diversity is genuinely emphasized. It openly acknowledges the sociocultural dimension of the educational institution, the power relationships, the privileging of knowledge, and the gate-keeping roles of assessment. In this way, sociocultural views of learning ally themselves equally with a transformational approach to learning that seeks to empower students to bring about change, as Van Gyn and Grove-White (2004) allude to in their recent very useful description of learning orientations.

The theoretical arguments for considering sociocultural views of learning to understanding learning and development in a co-op program appear reasonable. I now explore the use of such a framework for organizing a student portfolio.

A Sociocultural Portfolio of Learning

In the final part of this paper I would like to explore a case for developing a sociocultural approach to portfolios in our co-op program as an example of what could be achieved. My interest in the sociocultural stems from the applicability of the approach to understanding learning for co-op students who transition between two different learning environments, both of which have social and cultural dimensions. Focusing on these dimensions may be productive in helping students to understand what and how they have learnt in the past, whom they have learnt from and make explicit to them that which they know and can do. This may go some way to addressing the first issue described above, and help students to be better prepared for placements and future learning. At this point in time I see the portfolio solely as a learning development tool, but in time, and with successful use, it could also be used in placement assessment.

What would a sociocultural portfolio of learning look like? If it were to be based around the sociocultural notions of situated learning, participation, communities of practice, mediation and distributed cognition, then such a portfolio should emphasize learning from these perspectives. It would focus on the socially and culturally determined dimensions of learning whilst not losing sight of what is learnt. It would ask questions about learning, not only about what is learnt, but also how it was learnt, who from and in what situation, where that knowledge or skill may have come from, and what it means to the person. It would investigate the language and other tools used by the community. It would look for evidence of increasing engagement in tasks within the community, and development of identity as a community member. The student would consider the various communities of practice in which they are engaged and identify, through critical reflection, competencies that they have developed in those communities.

A Sociocultural Learning Portfolio for Co-op

A sociocultural learning portfolio is conceived as a developmental and formative assessment tool for students in a co-op program. A key issue for these students is to develop reflective practice and by doing so gain a clearer understanding of their capabilities and their future learning needs. A student would begin their portfolio on entry in the co-op program. The portfolio would be web-based and would contain several elements:

1. An entry assessment – this would include examination of their past and current community engagement and their learning from that. This would include a provided list of current competencies in which they would rate their development in the interpersonal area and their general discipline area (some of these would be taken from graduate profiles, skills seen to be important from the literature etc). This would be required before a placement could be undertaken. It would need to be a straightforward and not excessively time-consuming task completed as a first step to finding a placement and be used to inform CV development and placement-matching. The student would receive feedback on it from the co-op educator and possibly from their peers.

To understand their current competencies, a student may address the following questions in this initial stage in portfolio development:

- What communities can you identify that have influenced your learning (family, work, university, school, friends, sports, cultural, i.e. dance, music, religious)?
- For one, some or each of these communities:
 - Describe the community
 - Describe what the community means or meant to you
 - Reflect on what is or was important to be a member of this community
 - Reflect on what competencies you have learnt within this community. How have you learnt these competencies?
 - Who is/are or were the gatekeepers of knowledge within the community?
 - What is or was the best way you have learnt from these gatekeepers?, and
 - Has anyone mentored you in the community? How have they done this?
- For one of the communities describe what it was like when you first entered it. How did you feel? What did you need to do to become accepted as a member of the community over time?

This activity would prepare the student for thinking about the learning influences that have got them to where they are today and give them techniques for developing as a reflective practitioner.

2. A competency progress map – a list of competencies would be provided as above and students would be asked to rate their perceived ability on each one, with an explanation of why they chose that level of ability and an example of when they have displayed that competency at that level, providing evidence to back up their claim. The list will also include a column for them to suggest how they can improve that competency, and a column for the educator to comment on that. This map would be updated at the end of each teaching year and the end of each placement. The co-op educator would provide feedback on the map at any stage at the request of the student but would formally use it to assess the student's progress at student interview stage.

The map may look something like that depicted in Figure 1.

3. Reflective essays – these would be written after each placement and could form part of an assessment strategy. They would focus on a small number of key questions similar to those posed in the entry assessment regarding learning in their community, and would include comments on competencies learnt.

A key aspect of the portfolio system will be an agreed set of competencies. As noted earlier, it would be important that these competencies reflected the views of faculty, employers, students, coop educators and evidence from the literature.

| Competency | Rating | Explanation for rating | What I could do to improve this competency | Coordinators comment |
|------------|--------|------------------------|--|----------------------|
| | | | | |

FIGURE 1
Sample portfolio map for co-op placements

Note:

From a technical point of view, the web structure could be constructed to contain layers for the students to write under the explanation and comment areas.

Summary

This paper has explored the potential use of portfolios in co-op programs. Portfolio use and understanding has developed significantly in the past 10 years and has spread from its original subject areas into many new areas. The theoretical ideas that underpin the use of portfolios have synergies with the theories that guide cooperative education. Many of the processes inherent in student portfolio use, such as experiential learning and reflective practice, are important in co-op. Recent moves towards conceiving learning in co-op from a sociocultural perspective leads to a consideration of a collection of evidence in a co-op portfolio that reflects competency development in a social and cultural community of practice. Such a portfolio could be web-based, contain a negotiated set of competencies and allow for tracking the learning progress of a co-op student as they pass through their degree. The use of a portfolio in this way has potential to enhance student understanding of their own learning development and for co-op coordinators to tailor appropriate placements and other learning opportunities to maximize the educational outcomes for the student.

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