Portfolio Authorship as a Networked Activity[1]

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Abstract: In this paper, the author uses data from a multi-site case study to demonstrate the utility of Engeström's (1987) Cultural Historical Activity as an analytic and interpretive framework to investigate the complex act of portfolio creation as practiced in accreditation-seeking institutions. The data highlights how the portfolio task is influenced by tensions arising from the task and the surrounding network of activity. She argues that a sociocultural frame, such as CHAT, is a viable tool to help move portfolio research beyond the atheoretical experience reports prevalent in the existing body of portfolio literature.

On today's campuses, electronic portfolios are a hot topic (Batson, 2002; Cohn & Hibbitts, 2004). At many institutions, teacher education programs are leading electronic portfolio adoption programs to support data collection associated with licensure and accreditation (Britten *et al.*, 2003). Contemporary electronic portfolios are rooted in the traditions of their paper predecessors. The use of portfolios in education exploded in the 1980s and 1990s (Elbow & Belanoff, 1997) and have been used for a variety of purposes since. Early portfolio leaders suggested a portfolio should tell a learner's story (P. R. Paulson & Paulson, 1991). They emphasized the fundamental role of the student as the author of the portfolio story. However in higher education, portfolio adoption is frequently in response to accountability demands (Yancey & Weiser, 1997). In this context, Wilkerson and Lang (2003) stress the need to ensure "contents are rigorously controlled and systematically evaluated" (paragraph 3). They argue that standards of validity, reliability, fairness, and absence of bias are needed to protect institutions from litigation. One result of this shift in paradigms is that portfolio authors confront multiple purposes and multiple audiences for their work (Carney, 2001, 2002; Gibson, 2004; F. L. Paulson & Paulson, 1996).

Numerous researchers have raised concerns about portfolio use: Paulson and Paulson (1996) over the impact data aggregation would have on portfolios; Shulman (1998) over the possible perversion of the portfolio process; and more recently, Barrett (2005a) over her concerns that "high stakes assessment and accountability are killing portfolios as a reflective tool to support deep learning. Those mandated portfolios have lost their heart and soul: not creating meaning, but jumping through hoops" (paragraph 4)! In addition to concerns about how portfolios are used, some have expressed concern about how portfolios are researched. Carney (2004) noted that most existing work has been conceptual or anecdotal rather than research-based. Cambridge (2005) highlighted the importance of policy implications of portfolio research. Their concerns, along with broader concerns about research quality in education and educational technology (Bull *et al.*, 2005; Thompson *et al.*, 2005; Burkhardt & Schoenfeld, 2003; Feuer *et al.*, 2002; NRC, 2002; Roblyer, 2005; Roblyer & Knezek, 2003), prompted this author to scrutinize earlier methodological approaches before designing the research reported here. She discovered that, when limited to research examining use among preservice teachers, one-half of the studies were atheoretical and most of those were experience reports. Only six studies incorporated existing theories to guide inquiry. Three of those (Carney, 2001; Hoel & Haugløkken, 2004; Placier *et al.*, 2001) used a sociocultural framework – a reasonable theoretical stance for portfolio researchers given the collaborative nature of portfolio creation and the diverse contexts in which portfolio authors work. Identifying a useful theoretical framework to guide the research reported in this paper was the next task and Engeström's (1987) Cultural Historical Activity Theory (CHAT) quickly surfaced as potentially useful.

Theoretical Framework

CHAT (Engeström, 1987) is a sociocultural framework rooted in work by Vygotsky, Leontev, and Luria (Barab *et al.*, 2004). CHAT emphasizes that "doing something" involves context and purpose and that knowledge and action are integrated and socially mediated. The CHAT model is represented by a series of embedded triangles

as illustrated in Figure 1. The three sides of the largest triangle represent a subject acting on an object while embedded in a community. The nodes of the triangle represent interactions between two adjacent components. For example, the subject interacts with the object through the use of tools (symbolic, tangible, or psychological). Similarly, the subject's interactions with his or her community are governed by rules, norms, and conventions. Likewise, the interactions between an object and the community occur through division of labor. Finally, all of these actions and interactions are motivated by an intended outcome.
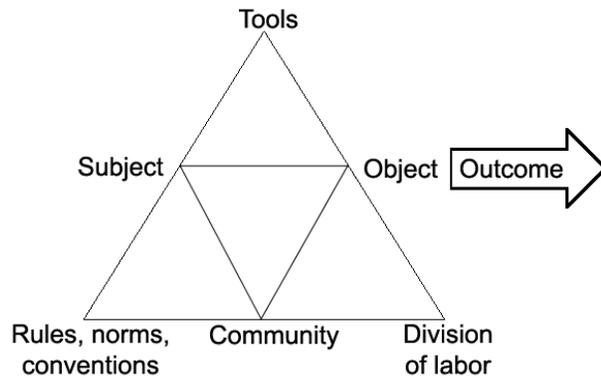
Figure 1: Engeström's Cultural-Historical Activity Theory model

The CHAT framework not only accounts for the central activity of interest, but also the related activities embedded within it and those that are related to it. This collection of activities comprises a network of activity that one must understand to fully appreciate the rich context and complexity of human activity (Engeström, 1987; Russell, 1997). However, this complex network leads to tensions or contradictions within the activity system. Such tensions are inevitable and are neither inherently good nor inherently bad. CHAT can help analyze and explicate the sources of these tensions (Holt & Morris, 1993). Generally, tensions provide the motivation for an activity to change and CHAT helps researchers capture the changes (Engeström, 1987). CHAT can also help to identify opportunities for intervention if warranted (Engeström, 1999). For these reasons, CHAT is a robust and useful framework to guide research on the complex act of portfolio authoring in teacher education programs.

Research Methods

The data reported in this paper were drawn from VendorBuilt College (a pseudonym), one site of a multi-site case study. VendorBuilt College (VBC) is a private, four-year institution focusing exclusively on the traditional undergraduate student. It is located in the Southeast. Data was collected over five one-week visits during the Fall 2005 semester. Data collection activities included individual interviews; focus group interviews; observations in classrooms, computer labs, and the library; videotaped thinkaloud work sessions with six students; digital pictures of classrooms, labs, student work, and students at work; and review of a variety of documents including course documents and student portfolios. All notes and interviews were transcribed. The transcriptions and photos were collected into a hermeneutic unit using *ATLAS.ti* qualitative data analysis software. Data were then coded and analyzed using Creswell's (1998) "data analysis spiral" as the analytic framework and CHAT (Engeström, 1987) as the interpretive framework.

Portfolio Creation as a Networked Activity

In this study, the act of preservice teachers creating a program-required electronic portfolio was the central activity of interest. However, CHAT also helps researchers to focus awareness on additional activities--those that are embedded within the activity of interest and those that are indirectly related to the central activity of interest. These related activities comprise a network of activity within and around the central activity and one must understand this network to fully appreciate the rich context and complexity within and around that central activity. Members of the VendorBuilt community are actively involved in the network of activity surrounding the preservice teacher's

portfolio activity. Community members range from local dignitaries who visit the campus to advise Education Department leaders to state level oversight personnel who influence the structure of the portfolios through their standards and the institution's choice of tools by their demands for data collection and aggregation.

Engeström (1987) defines several specific types of activities associated with the broader activity network. The related activities he has identified, and his definitions of those related activities, can help researchers identify and understand relationships between observed activities and the central activity. Engeström's related activities are briefly described in this section and the relationships more fully illustrated in Figure 2 at the end of the paper. Note that double-headed arrows indicate reciprocal relationships between sub-systems of VBC's portfolio activity.

Object-activities are embedded within the central activity and share the same object and outcomes (Engeström, 1987). Examples from VBC include making artifacts to include in the portfolio as well as scanning products to include. Subject-producing activities focus on recruiting, training, or educating subjects for the central activity. Obviously professors and instructors participated in numerous subject-producing activities as they worked with their students in their coaching and mentoring roles. However, VBC's preservice teachers also honed their skills by learning from the experiences of roommates and older peers, sharing their technical skills with each others, and asking friends, boyfriends, and family members for assistance when needed. Rule-producing activities focus on creating rules, policies, and/or legislation that effects or governs the central activity. At VendorBuilt College, this is evident in certification and accreditation policies and mandates from the state as well as program requirements and program policies deemed appropriate by professors and education department leaders. Tool-producing activities focus on creating tools to be used in the central activity. At VendorBuilt College, tool producers included professors creating templates to help students complete the portfolio task; technical staff to keep equipment running; and a free technical support hotline from *CommercialFolio* (a pseudonym for VendorBuilt's commercial portfolio tool) for students having difficulty with their system

Finally, education professors and instructors are members of the students' portfolio authoring community and their influence permeates the portfolio activity. Professors' instruction and coaching of preservice teachers is clearly a subject-producing activity. The professors' influence on rules, norms, and conventions is unmistakable. Professors and instructors divide some of the labor associated with the portfolio task by developing and sharing templates and handouts. They often serve in a tool capacity as they assist their students with portfolio tasks. Finally, the assignments and projects professors and instructors assign in their classes are elements of the preservice teachers' portfolios and are classified as object-producing activities.

To breathe life into these explanations, let us watch Anne as she works on her portfolio in the semester before student teaching.

Analyzing Anne's Expectations and Experience

At the beginning of the semester, Anne explains what she thinks of *CommercialFolio* and the portfolio creation task as she sees it at that point.

> Aesthetically, I think it's [*CommercialFolio* portfolio] really ugly. <giggles> That's a major concern for me because I did not like it at all – the way it's set up and it's very <pauses> it's very cut and paste and not personal at all. There wasn't a lot of room to personalize it. There are a limited number of color choices for the background – maybe five. The layout is uniform for every single person. It makes it easier to do, but at the same time, it doesn't make me want to do it. It doesn't increase my motivation because it just doesn't feel like a part of me. I probably will do my own web site after this – with my own background and my own pictures and different tabs that you can click—like a regular web site. That's what I wish it looked like because I think it's a lot more attractive and efficient.
>
> Interviewer: How much skill to you have to create your own web site?
>
> I have a lot. There's a website called *MySpace*. It's a relatively new website and it's becoming more popular. It's taught a lot of our generation HTML. So that's how I learned HTML – through creating my

own profile on *MySpace*. It has my pictures and links to different websites that I like and it has an Interests box and I get to pick my background. So, I think of lot of my preferences for *CommercialFolio* have been influenced by what I've already created on *MySpace*. And I know how to do backgrounds and I can't do that on *CommercialFolio* and I'm getting really frustrated.

I'm really curious how this is going to hold up over the years. Things have changed over the years and my concern is that I'm going to have this portfolio that's going to be outdated technologically in two years. I'd like some reassurance and some more personalized support that way that guarantees that it's [*CommercialFolio*] going to be around and will continually help me update the portfolio.

I would also like increased confidence in the amount of space that I have. I don't how much space I have. I think there are a lot of questions I have about little tiny things. Why can't I upload more than one picture and why can't I put in the background of my own with HTML code? How much space am I really using and how much is going to be available after this project is done?

Interviewer: What advice would you like to give the professors in the Education department?

Maybe just to summarize, if teachers could get on the same page and, across the board, have a certain knowledge about *CommercialFolio*….some teachers have no *CommercialFolio* experience and no interest in *CommercialFolio* and then we're left with paper artifacts and no idea how to put those artifacts in *CommercialFolio*. And then the other teachers are extreme and don't work with anything but *CommercialFolio*. I think there's a disparity between those two and there's no medium. I think that's why a lot of us are left with no help transitioning from the paper portfolio to the electronic one.

Analysis: It appears Anne's use of *MySpace* is a subject-producing activity because she has developed a variety of skills she can use as she works on her portfolio task: making links to other websites, adding pictures, and adding backgrounds. She explicitly tells us that her involvement in *MySpace* has set her expectations for the portfolio task and she expresses her frustration that *CommercialFolio* doesn't offer the same flexibility she's come to expect from her work on *MySpace*. CHAT analysis identifies the frustration she is feeling p as a quaternary tension— one between the central activity (portfolios) and a nearby activity (*MySpace*). In this first interview, Anne has also identified a tertiary tension—a tension between one form of completing an activity (paper-based tasks in some of her classes) and the more culturally advanced form of the same activity (*CommercialFolio* portfolios). Students at VBC repeatedly reported they were prohibited from producing certain assignments digitally even though those assignments were required as digital submissions as part of their portfolios later.

At the start of her mid-semester work session, Anne explains that she will work on only one thing for the session.

So I scanned all of those [paper forms from her practicum experiences] earlier today and then uploaded them onto a photo web hosting service—*PhotoBucket*. And that way, I'm going to go back in with HTML and be able to post them as actual pictures and not as attachments. I'm going to use the <img src> tag to post them on *CommercialFolio*.

[For an extended period of time, Anne worked in HTML source code view completing the task she outlined at the beginning of the work session. The interviewer watched.]

Interviewer: Today you spent most of your time in source code.

I prefer the organization that it provides and I can make the page look better. I use HTML code to post the picture. I'm not a big clip art fan and. I use photos that are more pertinent and relevant and they're hosted by another site so it shouldn't take up too much memory.

Interviewer: So, if it's not in *CommercialFolio*, it doesn't count against your storage limit?

Right. I can kind of go around those rules and that makes me enjoy the presentation of the page.

Interviewer: So, correct me if I'm wrong but, it looks like today you had a vision for what you wanted your page to look like and you used whatever tools you had to bend *CommercialFolio* into submission. Is that right?

Yes. Now, I'm a little worried that *CommercialFolio* will come back and say, "I'm sorry. Your portfolio crashed because you kept using all of those codes…"

Analysis: In her first interview, Anne identified the quaternary tension between her *MySpace* activity and her portfolio task. In this work session, we see her modify the portfolio task by bringing her *MySpace* skills to her portfolio. Although her pages currently look the way she wants them to look, she worries that something will cause her portfolio to "crash." She identifies the cause of the impending crash as stemming from a tension between the rules (what is allowed in the *CommercialFolio* activity) and whether or not the tool will continue to handle her modifications. This tension is very real to Anne and readers of this paper should understand that a collection of other unpredictable behaviors were a "feature" of the *CommercialFolio* experience in that semester. CHAT classes a tension between two nodes of the model—in this case between rules and tools—as a secondary tension.

At the end of the semester, Anne reflects on the portfolio task as she approaches student teaching. She responds to the question, "Now that the portfolio is done, what words or descriptions come to mind?"

I was disappointed. I thought there was going to be somebody from the State Board here at VendorBuilt. I mean, that's what I had been told all my years in Education; there's going to be someone from the State Board of Education who's going to come and they're going to be in one of those classrooms [for Portfolio Presentation Night] and, that would have been amazing--even a County supervisor. I know it's a big county, but it would have been really nice if I could have gotten feedback from a county supervisor or a state board educator. It just would have made sense to have gotten some feedback from them. Maybe that's an unrealistic expectation, but I was really disappointed. At Portfolio Presentation Night, there were some really serious-looking people in the room and they didn't give me any negative comments or negative feedback and I guess that's an accomplishment, but at the same time, I kind of always want to grow, so when I get the same feedback, it just doesn't seem that special to me. Maybe it's just because I've never really had a good outlook on *CommercialFolio* and I'm never going to be satisfied.

Interviewer: What has been the most satisfying part of your portfolio experience?

I would say it was that I was able to somewhat--and this touches on the fact that I just didn't like *CommercialFolio*—I was able to use my own creativity to shape how I presented things within my portfolio. Not only being *able* to do it, but on top of that, being *allowed* to do it. I'm talking about putting pictures on there with *PhotoBucket* and HTML so that it looked better, and then I felt more ownership because the organization became mine then and not what was mandated by the college, because I thought that looked ugly. And I got good feedback on that from three of my professors who looked at my portfolio. They really liked it because they haven't seen that before. So, I'm happy with that.

Interviewer: I'm wondering if there's something I really need to understand that you think I might not have been told or seen or figured out, and you want to say, "you need to know this."

I don't know. It all comes down to how we react to what's required of us. I look at it now as a joke. Because of my reactions to it – after hours on the library steps, spilling my candle on my paper portfolio, not knowing how to get started. I think of it as a joke because it wasn't that big of a deal. In the long run of things, it didn't require that much pain and effort and tears. It was just another project and I should have looked at it as another education project.

Analysis: In the final interview, we can see that Anne is still focused on the quaternary tension between her experiences using *MySpace* and *CommercialFolio*. She recognizes the broader sociocultural forces that shape her portfolio activity: her *MySpace* experience as it shaped her expectations for the portfolio task and the influence of accrediting bodies in determining both form and content for her portfolio. Although Anne's expectation that a state official might be present at Portfolio Presentation Night was mistaken—some might say naïve—it illustrates her awareness of the involvement and influence these bodies have in her educational experience. In this regard, Anne

was not different from her peers. Anne's story demonstrates how she used her technical proficiency, and familiarity with other technical resources (e.g. *PhotoBucket*) to resolve some of the limitations imposed on her experience by VendorBuilt's portfolio tool. Interestingly, it was her ability to work around those limits that provided Anne with the most satisfying element of her portfolio experience as she brought her *MySpace* skills to bear on the portfolio task. Finally, Anne also identified another secondary tension—between the subject and rules nodes of the CHAT model—when she says, "it all comes down to how we react to what's required of us." In her opinion, the essence of the portfolio experience is determined by how students resolve the tension between themselves (their self-identify, goals, and expectations) and their requirements.

Significance of this Work

To fully understand the activity under inquiry, researchers must understand the network of activity that surrounds it. The broader significance of the work described in this paper is as an illustration of the effectiveness of Engeström's (1987) Cultural Historical Activity Theory in bringing that network of activity into focus.

The analysis of Anne's portfolio experience highlights the clash of the competing forces within the activity network surrounding accreditation portfolios at VendorBuilt. Readers of this paper heard Anne describe her frustration developing her portfolio under a system specifically designed to impose uniformity on the portfolio task. They watched as Anne used a combination of technical skills and external tools in her attempts to make the accreditation portfolio personally meaningful. Although Anne's specific approach to achieve meaning was unique, every student interviewed at VendorBuilt voiced similar frustration with the "sameness" imposed by the *CommercialFolio* tool and the prescribed content for the majority of the portfolio artifacts. The design of this tool, the institution's decision to use that tool, and the prescriptive nature of the institution's requirements, were to satisfy accreditors and their demand for data aggregation. In these respects, Anne's educational experience, and that of her peers, is shaped more by the high stakes evaluation imposed from outside the institution than it is by her professors and the choices they would have made without accrediting pressures.

Most of the researchers and portfolio theorists mentioned in the brief literature review at the beginning of this paper have expressed their concerns about shifting paradigms, competing purposes, and the impact of data collection on portfolio assessment. For contemporary portfolio researchers, CHAT offers guidance to investigate and better understand the concerns portfolio pioneers have raised and to shape current portfolio initiatives. A theoretical perspective, such as that offered by CHAT, can enhance each stage of inquiry, from research design through data analysis and reporting. In this study, the author used CHAT to guide data collection, capturing the rich context and networked nature of portfolio authorship through theoretically-informed interview protocols and observations. In conjunction with Creswell's (1998) "data analysis spiral", CHAT provided a powerful interpretive framework to identify the relationships between and among stakeholders in the portfolio task and to realize the interconnectedness of the social relationships surrounding the portfolio activity. CHAT-driven analysis highlighted the tensions within the activity and offered insights into their sources and causes.

For portfolio leaders, CHAT offers a useful analytic framework to consider the consequences of a program change or to identify opportunities for change. It is only through a thorough understanding of the relationships within the network of activity surrounding accrediting portfolios that portfolio leaders can identify possibilities to change the activity system to improve it. Moreover, CHAT is a useful explanatory framework for discussing activity systems and changes to those systems with colleagues and policymakers.

Finally, and perhaps most importantly, CHAT helps both researchers and portfolio leaders capture and understand the impact of these mandated systems on the students who must live those systems. From that understanding, teacher educators and portfolio leaders can begin to consider what changes, if any, should be made to a system to improve student outcomes. .

Figure 2: Networked nature of portfolio activity at VendorBuilt College

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