Towards a Community Incubator: The ICAP Design Framework for Social Constructivist Educational Designers

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Abstract. This paper highlights the often-mentioned mismatch between the more social constructivistic oriented pedagogy and the traditional instructional design model. Such a framework is important as a design process relevant to the work of CSCL. Any attempt trying to apply the traditional Instructional Design approaches (e.g., ADDIE) to social constructivist learning in CSCL contexts such as the community of learners approach is fundamentally flawed because the two stem from different assumptions of knowledge and philosophies of pedagogy. Based on a modified Activity Theory, we propose the ICAP (Identity, Community, Activity and Personal) design framework for social constructivist oriented approaches to educational design as an alternative to this mismatch. A case example of how ICAP is applied to designing a postgraduate degree program is reported.

Introduction

It is now widely acknowledged that most existing instructional design models are not suitable for designing instruction which is based on the social constructivist approaches (Jonessan, 2000; Reigeluth, 2004). Traditional instructional design models regard the role of the teacher as that of an expert and knowledge being transmitted from the expert to the novice. This is accomplished via carefully packaged or designed instructional activities. The focus is on the teacher and the content to be delivered. Under this type of conception to learning, it makes sense to analyze the content and the task involved in the knowledge to be taught and design instruction accordingly to deliver the knowledge. However, recent proliferation of learning as knowledge construction, place students are at the center on the stage, and the process of learning becomes important. Contents or knowledge is therefore not as prescriptive or definite as it used to be. Meanings are constructed by individuals and they can be different from that of the teacher. Analysis of the content of the tasks, therefore, does not really inform the design of this type of instruction. Furthermore, the community-based approaches emphasize the social interaction dimension of learning where individuals learn in the context of a community of learners or practice. The traditional wisdom of analyzing the content and designing the instruction become almost irrelevant in this context.

In this paper we propose the ICAP design framework as an alternative to the predominant educational design processes known as the ADDIE processes (Chen, Hung & Wang, 2006). Social constructivist approaches, which uphold the importance of collaboration among peers, authenticity to learning activities and the emergent nature of knowledge construction, are suffering from an apparent lack of a design framework. In Chen, Hung & Wang (2006), we argue for congruency between learning theories and their epistemologies and the design process.

Activity theory is one conceptual framework which can tease out the activity processes within social constructivist interactions. Activity theory provides a framework or community-based learning where learners and experts can co-work together, establishing shared knowledge, in authentic tasks through the use of appropriate technologies, learning resources, and tools. Note that there are a number of variations to Activity Theory. The variation of Activity Theory in this paper is our re-conceptualisation based on Cole and Engeström's (1991) proposal. Activity Theory (to be introduced below) and the above-proposed four dimensions constitute a powerful way for designing community-based learning activities.

Activity Theory

Cole and Engeström (1991) conceive an activity as follows (see Figure 1). This activity system below encompasses Wenger's notion of language, implicit and explicit, rules, roles, and tools. However, language is not explicitly reflected in the activity structure but it is core to the dialog and interactions surrounding the constructs of any activity. The notion of dialog through language is exemplified through the Bakhtinian notion of contextual genres and voice peculiar to the specified community of practice. Complementing the Vygotskian and Bakhtinian perspectives, genres and language peculiar to that community would become internalized through dialog.

An "activity" is undertaken by human actors motivated towards an object (or goal) and mediated by tools and the community. Activities are distinguished from each other according to their objects. It is the

object that shapes the actions of participants within that particular community, and over time, forming the dispositions and identity of the members of the community. Broadly speaking, if the *object* of a profession is to make advancements in a particular domain, then the actions within that community are engineered towards achieving that particular goal. The *division of labor* (or roles) and *tools* involved in mediating toward that goal assists in shaping the identity of those members who use the tools and perform their roles and functions. It is the transformation of the object into an outcome that motivates the existence of an activity. In short, the tools, rules, and roles within the activity system mediate the actions and processes by members in the community. The subject exists in a community which comprises of other individuals and subgroups that share the same object. From a Vygotskian perspective, these (psychological) tools play a crucial role in identity formation. The relations between the subject and community are mediated by the community's collection of mediating rules such as explicit and implicit regulations, norms and handbooks that encourage and constrain actions and interactions within the activity system. Thus, these tools (including the communities' signs and symbols) and rules (experienced as the participants engage in their functions) become internalized over time and form part of the learners' identity. Identity is a crucial part of the design process in lieu of content which is the emphasis in ADDIE.

We re-conceive an activity system or structure in the context of identity formation within communities of practices (please note the bold marking in the figure). Instead of 'subject' we adopt the entire members of the community as 'subjects in the community'. These subjects are always in constant (implicit and explicit) recognition of their 'identity', for example, as academics in the University setting.

Towards a Design Framework for CoP

We recommend a design framework that focuses on four levels. At the Identity level, when a new community is formed, identity be identified and subjects with common interests, but with complementary backgrounds recruited first. However, this does not mean that the identity is static for new comers to appropriate. Rather, it should be seen as a starting point for an ongoing evolving process. Subsequent developments and interactions within the community with the gained experience and implicit institutional knowledge over time will shape the community identity and regulatory rules. Enabling tools are subsequently designed for general purpose interactions.

At the community level, ground rules are set before the commencement of any activities. These ground rules regulate how members interact with one another, how various activities contribute to the attainment of the community vision and how a specific community interacts with other related communities. Again, tools are designed to enable these interactions.

At the activity level, when we design community-based activities, objects for specific activities must be spelled out clearly. It must have a clearly defined associate outcome. In addition, it must meet the criteria of situatedness, commonality and interdependency. Only after that, activity-related rules can be articulated and roles assigned. The employment of supporting tools only come after all the above are appropriately delineated and aligned.

At the personal level, there are personal "agendas" for individuals participating in an activity. Participants also need to set their own "rules" for this particular activity and how this interacts with other activities that they are involved at the same time. They also need to integrate all different roles they play in different activities

Note that there are no roles at the community level, because roles only make sense when people are engaged in community-based activities. For example, when we refer to the CEO of a company, we immediately associate that role with a number of activities that this person has to be involved. Without those associated activities, one cannot even be seen as a CEO. These roles exist regardless whether the associated activity is underway or not. But, these roles are functional only when these people are engaged in activities that require the presence of this role.

A case example of designing a degree program based on the CoP approach

We now apply the framework to designing university degree programs. The design at the community level can be likened to the design of a degree program, whereas the design at the activity level are largely within individual courses. Our recent experience in setting up a Postgraduate Diploma in Applied e-Learning is a good example to illustrate how this framework.

One realization we have is that one course cannot form a community and that's why most attempts to adopt CoP/CoL into the course failed. Fundamentally, for a community to survive and sustain, the members cannot be fixed and there should not be time limits. Otherwise, once the key people lost interests/momentum, the group dies in no time. A course cannot be a community because there are fixed people and the lifetime is finite. Once the assessment is due. That's it. Not more interactions.

So, the community should be at the program level (at least) or higher (e.g. the whole university). If we ever want to adopt this CoP philosophy in schools or universities, we need to run a program like a community. Students can come and go, but the program (community identity) stays. Each individual courses within the program, then becomes activities.

One feature of such a program is that students are constantly involved in the community. This participation is part of the core (compulsory) course that they have to take. As part of the core, they have to work with a senior on the senior's internship projects. As they become senior, they work with new comers on the internship of their choice. This is to model the process of legitimate peripheral participation.

Students are also required to develop their pathway through the program as part of this core course. This core is then extended to the internship course. There should not be clear distinction between the two. Each student will be assigned a supervisor to guide him/her. There will be plenty of opportunities for them to learn from each other and work with practitioners (through the various projects). The optional "courses" are different projects/activities that they will be involved. All learning is situated/project-based/problem-based/community-based!

Assessments will be done via portfolios. A competency checklist will be introduced as a tool for determining quality of their learning. Students will have to make a public presentation about their portfolio as part of the assessment. A panel of lecturers will be involved to assess. Table 1 shows design activities and outcome of the design at each level when applying the design to a university degree program.

Level	Design activity (Infrastructure)	Outcomes
Identity	Community identity identified	Philosophy, Visions, Beliefs documented
	Subjects recruited	Student profile, graduate profile,l ecturer profile Internship partners profile
Community	Ground rules set	Pathway analysis, course structure, graduate competency check list, code of conduct, interaction with other communities
	Tools designed and employed	Tools support the above
Activity	Object of activity specified	Course competency checklist, project outcomes
	Rules for interaction set	Collaboration w/ other team members Collaboration w/ other courses (activities) Assessment clarified
	Roles assigned	Roles of team members assigned Roles of this course and others assigned
	Tools designed and employed	Previous cases bank, tools support the above
Personal	Rules negotiated	Personal commitments Personal time/resource management
	Roles integrated	Integrating assigned roles into an integrated whole
	Tools designed and employed	Personal prior learning experience Tools designed to support the above

Concluding Remarks

In this paper we have proposed an exciting framework for designing community-based collaborative learning activities. It focuses on setting the structure right to start with and thus increase the possibility for a successful development. In a way, this is a organic approach to learning. Unlike the traditional design approach which takes a mechanistic view to learning and treats learning a predictable journey, our proposed approach to learning is like gardening. We may design how the garden may look like, but much is uncertain and much is attributed to the process of planting and pruning. With other scaffolding and augmenting approaches to learning, this framework offer a more promising result than other traditional approaches to education design.

References

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