

Digital Marketplace Needs Assessment Report



Office of the Distributed Learning (ODL) Research Team
California State University San Bernardino (CSUSB)

Research Team:
Dr. Eun-Ok Baek, Principal Investigator
Dr. Jim Monaghan, Director of the ODL
Mauricio Cadavid, Instructional Designer

December 2008

Table of Contents

EXECUTIVE SUMMARY	3
INTRODUCTION.....	6
METHODOLOGY	6
FINDINGS	7
CONCLUSIONS AND RECOMMENDATIONS	12
REFERENCES	15

EXECUTIVE SUMMARY

Textbook costs have come to comprise an increasingly significant amount of the expenditures for a university education. The California State Auditor reported in August 2008 that textbook costs have grown more rapidly than student fees. In these current difficult economic times reducing the cost of textbooks has even been encouraged by state laws - in Assembly Bills (AB) 2477 and (AB) 1548. As one way of addressing this issue, the California State University (CSU) Chancellor's Office has led the Digital Marketplace project. The Digital Marketplace is an initiative to enable the effective distribution of *network-based digital instructional resources and materials* in support of CSU academic programs.

Understanding the ways that faculty currently develop courses and locate instructional resources is crucial to the successful development of the project. To gain an understanding of how university faculty develop courses and locate instructional resources, the Office of Distributed Learning research team at California State University San Bernardino (CSUSB) conducted a survey, sponsored by the CSU Chancellor's office, of faculty at the university. The input obtained from the survey will be most valuable in aiding the development team in the Digital Marketplace endeavor.

124 faculty members participated in the survey. Participants included faculty from all of the five colleges (Arts & Letters, Business & Public Admin, Education, Natural Sciences, Social & Behavioral Sciences) and across all teaching ranks (Part Time Instructor, Full Time Instructor, Full Time Lecturer, Assistant Professor, Associate Professor, Professor). The average length of teaching experience at a college level was 15.8 years.

A majority (95%) of the faculty perceived themselves as either experienced or advanced (one who can teach others) Internet users. In general, faculty perceived the following three as the most time consuming tasks in course development.

1. Developing their own instructional resources
2. Developing student activities
3. Locating instructional materials/resources

The top three most widely used instructional and learning resources faculty develop themselves include Handouts, Lecture Note Slides (e.g. PowerPoint, Apple Keynote), and Photos. The survey also asked which resources the faculty use that are developed by others. A significant number of faculty selected Hardcopy textbook, Websites, Video files, Photos, and Electronic textbook.

Almost all of the respondents reported that they have previously used Internet Search Engines (e.g. Google, Yahoo, Ask) to locate instructional and learning resources. They were favorable of search engines for their ease of use, the ability to quickly find information, the effectiveness for narrowing down the subject area, sorting by relevance, grouping results into categories, as well as for their accessibility, and extensive coverage. Considerably fewer, only about one-fifth of the surveyed faculty have ever used a Website portal dedicated to locating and/or organizing instructional and learning resources (e.g. Merlot, CafeScribe, O'Reilly Safari, MIT OpenCourseWare).

Interestingly, and perhaps a bit surprisingly, faculty reported that they are satisfied with their current methods of locating instructional resources. It is, however, important to note that even though 82.2% of the surveyed faculty were satisfied with their current methods of locating resources, there remains a great deal of room to improve the Internet Search Engines in order to support faculty locating good-quality, relevant resources. This is clearly shown by the fact that faculty ranked a Website portal first, over Internet Search Engines, as the most convenient way to locate resources.

The top three most important criteria when faculty choose instructional and learning resources include: Alignment with topics that are important to me, Alignment with my educational philosophy, and Proven success or failure in previous courses I taught. The least important three are: Format: digital or physical, Interactivity of resources, and Accessibility needs of students. Even though faculty also highly rated Testimonies from other faculty, Quality of resources, Difficulty of resources content, and Ease of alignment with class activities (exams, assignments, etc.), their own educational philosophies and their own experiences with certain resources are key when selecting instructional resources.

It is important to understand what faculty would consider the most important functionalities if there were a Website portal to help them locate/choose instructional and learning resources. Faculty ranked the functionalities in the following order.

1. search multiple websites and discover content on a topic with a "one click" interface (with the easy sorting feature: it needs features of helping faculty sort through the hits easily and effectively.)
2. link resources easily to an online course (e.g. Blackboard, Moodle, Instructor Website) already in use
3. customize search tools and parameters
4. evaluate the resources
5. read evaluations written by others
6. organize the resources
7. check the accessibility of the resources
8. assign the resources as requirements for students
9. allow students to purchase the resources

Over four-fifths of the faculty view electronic instructional and learning resources (e.g. Electronic Textbooks, Presentation Slides, Websites, Electronic Handouts, Video files, Audio files, Electronic Photos, Simulations/Games) as viable options for their students as part of their required class activities.

As a nice surprise, many faculty (three-fourths) were open to sharing instructional and learning resources with their colleagues in the CSU system on the portal. They value collaboration, learning from one another, sharing, and time saving ways of adopting existing resources. But they did not forget to add some concerns about their contribution to the DM. These included unwelcome increased scrutiny of their teaching materials, loss of intellectual property, and lack of compensation and rewards.

Based on the findings outlined in this report, the research team suggests that the following recommendations be considered.

1. The DM should be very intuitive and easy to use, reflecting faculty mental model/workflow. It should be intuitive enough for average computer users.
2. The DM should consider reviewing features of internet search engines and other web portals that faculty viewed favorably and incorporate these features into the DM.
3. The DM should include databases of various types of resources that are currently used by faculty.
4. The DM should be seamlessly incorporated into existing faculty Blackboard pages and/or websites.
5. The DM team should consider provisional faculty buy-in of the DM or marketing strategies in order to sell the added values of DM.
6. The DM team should consider a design approach based upon “designing with users” rather than “designing for users.”

INTRODUCTION

The California State University (CSU) Chancellor's Office has led the Digital Marketplace (DM) project to provide effective location and distribution of *digital instructional resources and materials for faculty and students*. This is one way of addressing the timely issue of textbook costs comprising an increasingly significant sum of university education expenditures. In fact, the California State Auditor reported in August 2008 that textbook costs have grown more rapidly than student fees.

Recent states laws - Assembly Bills (AB) 2477 and (AB) 1548 - encourage faculty and staff to assist in the reduction of textbook costs. AB2477, which became official January 1, 2005, requires the Trustees of the CSU to work together with their academic senates in order to encourage faculty to consider the most cost-saving methods in textbook adoption. Along the same vein, AB1548, which became effective January 1, 2008, requires faculty to consider the affordability of textbooks.

Understanding the ways that faculty currently develop courses and locate instructional resources is crucial to the successful development of the DM. To gain an understanding of how university faculty develop courses and locate instructional resources, the Office of Distributed Learning (ODL) research team at California State University San Bernardino (CSUSB) conducted a survey, sponsored by the CSU Chancellor's office, of faculty at the university. The input obtained from the survey will be most valuable in aiding the development team in the Digital Marketplace endeavor.

METHODOLOGY

Guided by discussions between the DM project team and the ODL research team, a written survey instrument and sampling methodology were developed. The survey was pre-tested at a DM workshop with participants (seven faculty members and the DM project leaders) held at CSUSB, reviewed by an external research expert for relevance and clarity of content, and was revised accordingly.

California State University, San Bernardino (CSUSB) was selected as the research site among the CSU, the largest four-year university system in the country with 23 campuses located throughout the state of California (http://www.calstate.edu/explore/common_questions.shtml). With over 16,000 students, CSUSB serves communities that are physically wide-spread throughout the San Bernardino and Riverside Counties. It has a quarter system.

To solicit cooperation and participation in the survey, the principal investigator and the Director of the ODL visited the Deans of all five colleges, and presented the survey instrument with an explanatory email letter including the web link to the electronic survey developed on SurveyMonkey.com. The Deans were asked to send out an email to their college faculty to briefly describe the purpose of the study and to encourage faculty participation. Respondents remained anonymous.

FINDINGS

Characteristics of Respondents

The number of faculty members who participated in the survey totaled 124, that is about 29% of the 431 faculty according to 2007/08 CSUSB academic personnel data (<http://academic-affairs.csusb.edu/personnel/profile07.html>). The participants were from all of the five colleges: ¹Arts & Letters 13 faculty (12%), Business & Public Admin 14 (13%), Education 27 (23%), Natural Sciences 27 (23%), and Social & Behavioral Sciences 37 (29%). They were from all teaching ranks including full time and part time faculty. The rank distribution of full time instructional faculty roughly reflected the composition of the CSUSB faculty ranks.

Table 1. Number of Faculty Respondents by Their Ranks

		Participants		² CSUSB	
		Number	%	Number	%
Full Time Instructional Faculty	Assistant Professor	19	5.3	89	20.6
	Associate Professor	21	16.9	102	23.7
	Professor	48	38.7	196	45.5
	Lecturers	8	6.5	44	10.2
<i>Total of Full Time</i>		231	96.0	431	100.00
Part Time Instructional Faculty	Full Time Instructor (full time part-timer)	2			
	Part Time Instructor (less than full load)	26			
<i>Total</i>		241			

The average teaching experience at the college level was 15.8 years, with ranges from 0 to 42 years. Besides teaching at the college level 55 (44.7%) faculty had K-12 teaching experience as well.

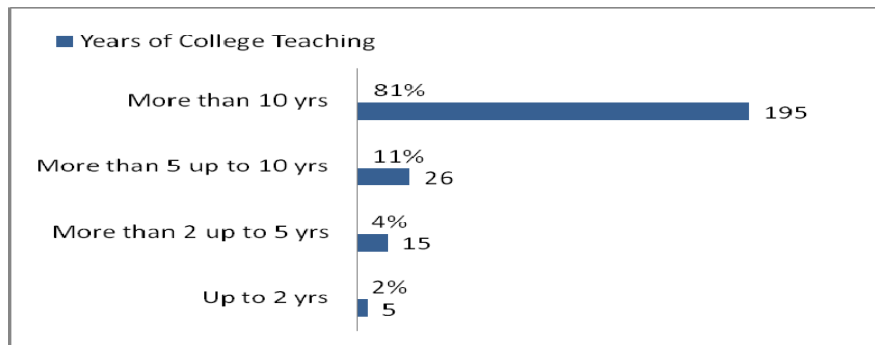


Figure 1. Length of Time Taught by Respondents at the College Level

¹ 10 faculty missed this question.

² CSUSB academic personnel data only included the full time instructional faculty members.

Both male faculty 56 (45.5%) and female faculty 68 (54.5%) responded to the survey. Over one-third of the faculty 95 (77.2%) said that they used computers for instruction in their classrooms for more than 3years. A majority (95%) of the faculty perceived themselves as either experienced or advanced (one who can teach others) internet users.

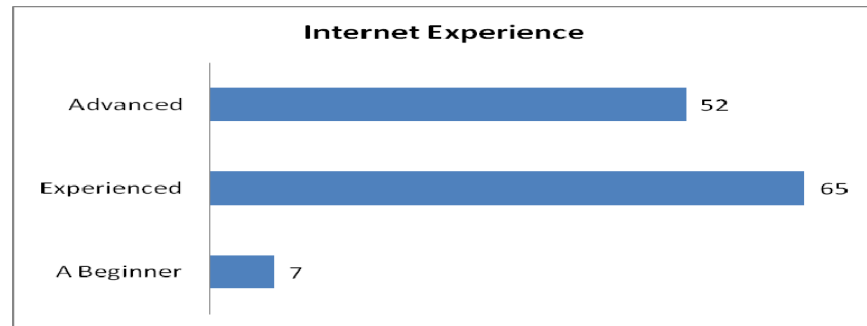


Figure 2. Faculty's Perception of Their Internet Experience

Current Practice of Course Development

The first part of the survey asked respondents to indicate the order they typically take in developing a (new) course. The purpose of this question was to understand the common sequencing of practices used by faculty in their course development.

1. Review the department and college curriculum standard course outline
2. Review topics and perspectives that are important to me
3. Locate instructional materials/resources
4. Read and evaluate textbooks/resources
5. Develop a course syllabus
6. Develop student activities
7. Develop my own instructional resources
8. Distribute to my students (upload to e.g. Blackboard, Moodle, Instructor Website)

Among these tasks, faculty perceived the following three as the most time consuming tasks.

1. Develop my own instructional resources
2. Develop student activities
3. Locate instructional materials/resources

Current Practice of Locating Instructional Resources

In order to find out more specific information about faculty's Current Practice of Locating Instructional Resources, the survey asked what instructional and learning resources faculty used in their teaching. The top three resources most commonly used are Hardcopy Textbook, Handouts, and Slides (Lecture Notes).

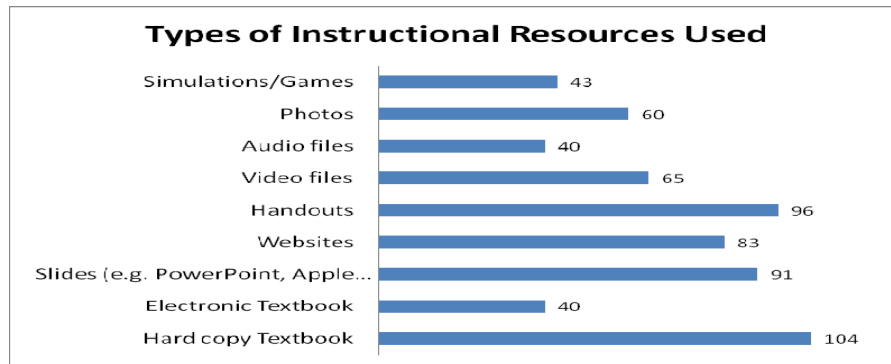


Figure 3. Types of Instructional Resources Used by Faculty

To further investigate the development of those resources, the survey asked whether faculty usually develop the sources themselves or use those developed by others. As to the self-developed resources, faculty ranked Handouts (84), Lecture Note Slides (78), and Photos (31) as the top three. For the resources developed by others, faculty chose Hardcopy textbook (100), Websites (70), Video files (61), Photos (48), Electronic Textbook (32), and Simulations/Games (31) as the top five. Additionally, faculty noted that they also use online peer-reviewed journal articles, student work as examples, case studies, and quizzes.

Faculty stated that they typically locate instructional and learning resources by Internet Search Engines (e.g. Google, Yahoo, Ask), academic journals and magazines, conferences, publisher websites, and colleagues.

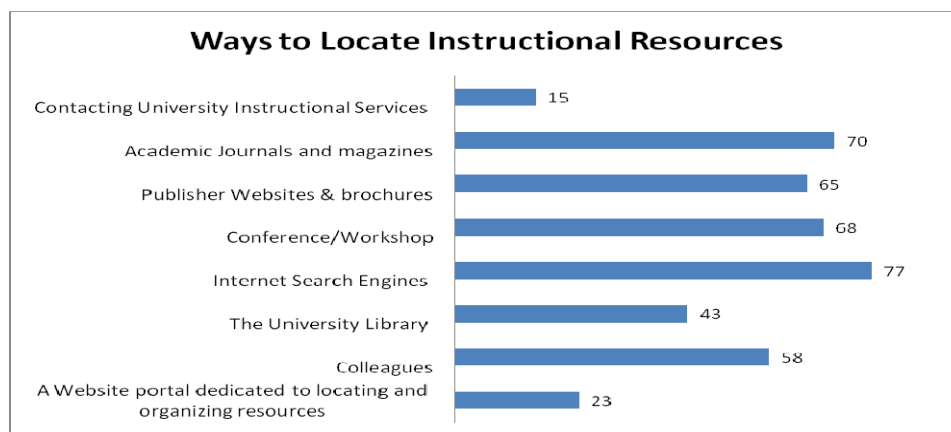


Figure 4. Ways Currently Used by Faculty to Locate Instructional Resources

They were favorable towards Internet search engines for their ease of use, accessibility, ability to quickly find information, effectiveness for narrowing down subject area, sorting by relevance, and clustering grouping results into categories, and extensive coverage.

The barriers in locating appropriate resources for faculty were in the order of Lack of time, Too much information/resources, Price of resources, Lack of relevancy, Too little information/resources, and ADA compliance/accessibility. These were closely linked to the aspects faculty did not like about the Internet search engines, such as not being “very content specific (does not locate professional resources, better for general courses than specialty),” “too much info to sort through,” “unreviewed,” “Ads that blink at you (commercialization and unsolicited info),” “sometimes unable to locate source when clicked,” “imprecise filtering (too many irrelevant returns),” “quality control issues,” “cost to view the information (limited access for subscribers only),” “publication date not always obvious,” and “not organized in an academic manner.” These comments were made by approximately 70 faculty members.

Considerably fewer, only less than one-fifth of the surveyed faculty, have ever used a Website portal dedicated to locating and/or organizing instructional and learning resources (e.g. Merlot, CafeScribe, O’Reilly Safari, MIT OpenCourseWare). Among the 25 faculty who said they used a Website portal, about 16 faculty used Merlot, and 6 faculty MIT OpenCourseWare. They like these tools for aspects such as, “more content specific,” “speed,” “relevance to the courses I teach,” “ease of finding information,” “review of the resources on their website,” “free of charge,” “innovative ideas,” “Access to work of experienced colleagues and experts—don’t have to reinvent the wheel!”

It is important to note that even though 82.2% of faculty were satisfied with their current methods of locating resources, there is a lot of room to improve the Internet Search Engines in their ability to support faculty locating good-quality, relevant resources. In fact quite a large number of faculty (70%) ranked, as a convenient way to locate resources, a Website portal dedicated to locating and/or organizing resources as first over Internet Search Engines even though only 20% of faculty had experience using a Website portal.

The next question asked what major criteria faculty considered when choosing instructional and learning resources. The top three most important criteria included: Alignment with topics that are important to me, Alignment with my educational philosophy, and Proven success or failure in previous courses I taught. The least important three were: Format: digital or physical, Interactivity of resources, and Accessibility needs of students. Even though faculty also highly valued Testimonies from other faculty, Quality of resources, Difficulty of resources content, and Ease of alignment with class activities (exams, assignments, etc.), their own educational philosophies and their own experiences with certain resources are key when selecting instructional resources. Surprisingly faculty did not consider accessibility needs of students as a key criterion yet.

Suggestions for a Potential Web Portal

It is important to understand what faculty would consider the most important functionalities if there were a Website portal to help them locate/choose instructional and learning resources. Faculty ranked the functionalities in the following order.

1. search multiple websites and discover content on a topic with a "one click" interface (with the easy sorting feature: it needs features of helping faculty sort through the hits easily and effectively.)
2. link resources easily to an online course (e.g. Blackboard, Moodle, Instructor Website) already in use
3. customize search tools and parameters
4. evaluate the resources
5. read evaluations written by others
6. organize the resources
7. check the accessibility of the resources
8. assign the resources as requirements for students
9. allow students to purchase the resources

Over four-fifths of the faculty viewed electronic instructional and learning resources (e.g. Electronic Textbook, Presentation Slides, Websites, Electronic Handouts, Video files, Audio files, Electronic Photos, Simulations/Games) as viable options for their students as a part of required class activities.

It was a nice surprise that many faculty (three-fourths) were open to sharing instructional and learning resources on the portal with their colleagues in the CSU. They valued collaboration, learning from one another, sharing, and saving time by adopting existing resources. But they did not forget to add some concerns about the DM, including unwelcome increased scrutiny of their teaching materials, lack of useful resources on the "portals", loss of intellectual property, and lack of compensation and rewards. In addition, there was a concern about this being a step that would shift the university towards online instruction, which would in turn impact their long term job security.

Several faculty offered words of excitement and encouragement about a Web Portal development.

- Give us serious access to journals/libraries (comparable to UC)!!!
- I think this a great idea. Hope you pursue it.
- It would be nice if this type of resource would become a reality!

CONCLUSIONS AND RECOMMENDATIONS

To support the CSU Chancellor's Office's endeavor in developing the Digital Marketplace project, the CSUSB ODL team conducted a needs assessment survey of current faculty practices for locating instructional materials they use in their teaching at CSUSB. A total of 124 faculty members participated in the survey, from all five colleges and from all faculty ranks. The average teaching experiences at the college level was 15.8 years, ranging from 0 to 42 years.

A majority (95%) of the respondents perceived themselves as either experienced or advanced (who can teach others) internet users. Among the course development tasks, faculty perceived tasks related to developing their own instructional resources and to locating instructional resources as the most time consuming tasks.

Faculty stated that they typically locate instructional and learning resources through Internet Search Engines, academic journals and magazines, conferences, publisher websites, and colleges. While faculty were generally favorable of Internet search engines for their ease of use and ability to quickly find information, faculty were not as satisfied as it first appeared as to the tools being useful in locating good-quality relevant resources. In fact, faculty ranked a Website portal dedicated to locating and/or organizing resources as first over Internet Search Engines as the most convenient way to locate resources. This point is worth drawing our attention to again because considerably fewer, only less than one-fifth of the faculty have ever used a Website portal dedicated to that purpose.

As to the important criteria when faculty choose instructional and learning resources, faculty's educational philosophy and their experiences with certain resources are the keys to their selection of instructional resources. Faculty ranked searching multiple websites and discovering content on a topic with a "one click" interface as the most important functionality of a potential Web portal.

Based on the findings outlined in this report, the research team suggests the following recommendations be considered.

1. ***The DM should be very intuitive and easy to use, reflecting users' mental model/workflow. It should be intuitive enough for average computer users.***

One of the reasons faculty use Internet search engines as a number one method for locating resources is because faculty like their ease of use. Ease of use only can be achieved when the DM is designed around users' mental model/workflow. A thorough task analysis of how faculty typically complete their course development tasks, especially locating and organizing materials, must be conducted. As many activity theorists (see. Engeström, Leont'ev, Nardi) have pointed out, if a new technology intervention fails to serve as a tool to support users' work/performance it will become an additional object they have to learn.

- 2. The DM should consider reviewing and incorporating features of internet search engines and other web portals viewed favorably by faculty.***

There are many well known Internet search engines as well as commercial and academic Web portals. Each has its own strengths and weaknesses. A thorough comparative analysis will provide useful data for the DM team to visualize key functionalities of the product. As faculty who have used a Website portal stated, they rely on a tool that allows them to locate relevant, reliable and content specific materials easily in a speedy manner.

- 3. The DM should hold databases of various types of resources that are currently used by faculty.***

In order to serve as a one-stop shopping place, the DM should contain comprehensive databases that store diverse types of instructional resources, ranging from handouts and lecture note slide shows, to textbooks, websites, and simulations. One way of increasing the quantity of resources on the portal would be to invite faculty contribution to the DM. This is a reasonable and promising possibility considering that about three-fourths of respondents were open to sharing instructional and learning resources with their colleagues in the CSU on the portal.

While addressing their concerns such as increased scrutiny of their teaching materials, loss of intellectual property, and lack of compensation and rewards, the DM project team should consider a provision to invite quality materials from a wide range of faculty. A structure of different layers of participation may be a viable option. For example, if the DM allows users to create community spaces according to the discipline they teach, some participants may share their materials in their private team space before publishing them to the completely public DM place.

- 4. The DM should be seamlessly incorporated into existing faculty Blackboard and/or websites.***

Many faculty have used Blackboard or their personal websites in their teaching. If the DM is seamlessly incorporated into existing faculty Blackboard and/or personal websites, it will increase the possibility of faculty adopting the DM. Potential places in Blackboard would be under Course Documents and/or Assignments, where links to assigned readings are typically published.

- 5. The DM team should consider provisional faculty buy-in of the DM or marketing strategies to sell the added values of the DM.***

It is encouraging that a good number of faculty have used various Internet based tools to search for instructional materials. As important as developing a quality tool, it is crucial to make a plan to sell the added values of the DM. Presenting best practices of early adopters of the DM would draw attentions from other faculty. In order to do this the DM team should look for ways to invite innovators and early adopters from various disciplines and support their use of the DM for their course development.

6. *The DM team should consider a design approach based on “designing with users” rather than “designing for users.”*

While “designing for users” is an approach in which the development team takes “leadership” in the design process, “designing with users” is an approach in which users take “ownership” in the process. The DM team should consider a broad framework of participation in transverse as well as long-term collaboration that would facilitate faculty’s ownership and leadership roles. Participatory design, or “cooperative design,” starts with the creation of shared visions, design goals, and a development prototype that reflects the needs of both users and user representatives. This is not an easy issue in reality. The DM team, however, should offer many opportunities to co-create visions, goals, or prototypes of the DM with target users. The application of a broad framework of participation will provide the DM designers with opportunities to better support faculty’s course development tasks. It requires “design with” users throughout the process.

REFERENCES

- California State University (2008). *CSU common questions*. Retrieved December 14, 2008 from http://www.calstate.edu/explore/common_questions.shtml
- California State University San Bernardino Academic Affairs (2008). *Faculty Profile 2007/2008*. Retrieved November 20, 2008 from <http://academic-affairs.csusb.edu/personnel/profile07.html>
- California Senate Committee on Education (2003). *Assembly Bill No. 2477*. Retrieved November 10, 2008 from http://info.sen.ca.gov/pub/03-04/bill/asm/ab_2451-2500/ab_2477_cfa_20040622_085352_sen_comm.html
- California Senate Committee on Education (2007). *Assembly Bill No. 1548*. Retrieved November 10, 2008 from <http://www.calepa.ca.gov/Education/EEI/documents/AB1548.pdf>
- Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki, Finland: Orienta-Konultit.
- Engeström, Y. (1993). Developmental studies of work as a test bench of activity theory: The case of primary care medical practice. In S. Chaiklin & J. Lave (Eds.) *Understanding practice: Perspectives on activity and context* (pp. 64-103). Cambridge, MA: Cambridge University Press.
- Engeström, Y. (1999a). Communication, discourse and activity. *The Communication Review*, 3 (1&2), 165-185.
- Engeström, Y. (1999b). Innovative learning in work teams: Analyzing cycles of knowledge creation in practice. In Y. Engeström, R. Miettinen, & R. Punamaki (Eds.), *Perspectives on activity theory*, (pp. 377-404). Cambridge, UK: Cambridge University Press.
- Engeström, Y. (2000). Comment on Blacker et al. Activity theory and the social construction of knowledge: A story of four umpires. *Organization*, 7(2), 301-310.
- Engeström, Y. (2005). *Developmental work research: Expanding activity theory in practice*. Berlin: Lehmanns Media.
- Leont'ev, A. N. (1978). *Activity, consciousness, and personality*. Englewood Cliffs: Prentice-Hall.
- Nardi, B. (1996). *Context and Consciousness: Activity Theory and Human-Computer Interaction (Ed.)*. Cambridge: MIT Press.