**The Texas Course Redesign Learning Object Repository:
Research and Development for a Production System**

Research Plan for User Requirement Collection

Research Plan

Introduction

This document details the research plan for collection of user requirements for the Texas Course Redesign Learning Object Repository. The intended audience for this learning object repository is teachers in community colleges in Texas. The user requirement collection will therefore be done with this population. User Requirements will be collected and will be provided to the team developing the system and system interface, so that a system that fulfills user requirements and is usable by the target audience is developed. The main intended usage of the system is for storing and retrieving course content in the form of learning objects. The user requirement collection research will be looking for some specific feedback about the level of granularity of these learning objects and the usefulness at these various levels of granularity. There will be open ended questions and discussion points to ensure that the largest set of user requirements is collected through this study. The following sections detail the data collection and data analysis research methods to be used in the study.

Research Plan

- First step in the user requirement collection is to get IRB Approval.
- Second Step is to contact the potential participants for focus group and interviews.
  - o The institutional heads will be contacted first and once they permit then individual instructors will be contacted
- Schedule the Focus Groups and the individual Interviews
- Conduct the Focus Group and Individual Interviews
- Analyze the data to develop a list of prioritized user requirements
- Share these findings with the development team
- Re-categorize the prioritized user requirements with the feedback from development team

IRB Approval

Received in November 2007

Contact the Potential Participants

The Following email will be sent to institutional heads to get their permission for conducting focus groups and interviews at their premises with their faculty members.

Subject: Request for Participation in a Research Project at UNT
Dear Prof XYZ,
Greetings,

You are being contacted through this email to participate in a study because you are a faculty in (DEPARTMENT NAME, COMMUNITY COLLEGE NAME).

My name is Vandana Singh and I am a faculty member at School of Library and Information Science at University of North Texas. I am contacting you to participate in a research project funded y Texas Higher Education Coordinating Board. The principal investigator of the project is Dr William Moen (Associate Professor, School of Library and Information Science at University of North Texas and Associate Director Texas Center for Digital Knowledge email : wemoen@unt.edu).

The research project is called "The Texas Course Redesign Learning Object Repository: Research and Development for a Production System". In this project we have developed a learning object repository for storing/retrieving course contents in the state of Texas. The project is aimed at undergraduate courses in Community Colleges. So, an expected use case scenario is if you are developing a new course or want to update/modify some sections of a course, you can go to this repository, search for your topic and get some material that has been developed by other faculty members in other institutions for teaching a similar topic. You can then download this material and use it in your course. This is the basic objective of this learning object repository. Right now, the repository will be open to only faculty in Texas.
In developing of this repository we need your help in identifying user requirements. At this stage we just have a proof of concept of this repository and we would like to collect data on user requirements before we built it on a usable scale. Your co-operation is highly desirable and will be extremely helpful to us.

The time commitment from your side is **two hours**. We want to conduct one focus group (with 6-8 individuals) and one interview (individually). The focus group will be 90 minutes long and will be conducted on the premises of your college and the interview will also be at your premises and conducted in your college premises. We plan to conduct these activities in the month of November.

Please feel free to contact me or Dr Moen if you have any questions/concerns. If you agree to participate in our research, I will send you more information about the project and your role in it.

Hoping that you will be able to spare some time for us in your busy schedule.

Thanks a lot,
Vandana Singh

Data Collection Methods

Two methods that will be used for user requirement collection are focus groups and individual interviews with a mix of closed and open ended questions. The population for both the interview and focus group will be Instructors in community colleges in Texas – specifically in the Dallas FortWorth Region. First round of data collection will be done with focus group and a follow-up will be done with each individual instructor who participated in the focus group. The interview will be conducted individually and will be based on a mix of pre-defined questions and questions that arise from their role in the focus group.

Focus Groups

Focus Groups are believed to be an excellent way to discover the attitudes of customers, prospects, consumers and other target groups relative to a wide variety of different topics.A primary benefit of the Focus Group Research process is that it can directly involve the clients; they can observe the proceedings from behind a one-way mirror. As a result, the findings from the research have more credibility with the client. Focus Groups are a dynamic research process because the areas and nature of the questioning can change to reflect the knowledge acquired from group to group and hence the learning from the research process is maximized. Focus Groups have been long used for user requirement collection and have been proven to give valid insights into the target user expectations.

A good focus group will have at least 6-10 members and a good research design will have multiple focus groups for the same topic. Conducting one focus group for collecting user requirements defeats the purpose and strength of focus groups. For the purposed of this study we are aiming at conducting 4 or 5 Focus Groups with at least 6-10 members. This data set will give us more than 25 individual interviews and a large set of user requirements.

The following script will be used for conducting the Focus Group. This script has been developed by following recommendations for carrying out Focus Group by multiple experts.

Focus Group Script

Section 1. Opening and Agenda
Introductions – Moderator and Note-taker

Opening: First of all, we would like to thank all of you for coming today and joining the discussion about a learning object repository we are building. Your thoughts will help us understand what the LOR should and should not do from a user's point of view. Next I'll give you a little bit of introduction of the background and purpose of the project. Then we'll take a look at a demo site and have some conversions together. The discussion session will take about an hour, and the whole meeting will take no more than an hour and a half. Please feel free to interrupt me if you have any questions.

Important Announcement: This focus group will be audio taped and the tapes will be used for transcribing the discussion and validating the themes / points from the observer's notebook.

Section 2. Introduction and Demonstration of the THECB LOR

The Texas Higher Education Coordinating Board's Learning Object Repository (THECB LOR) is an open repository containing learning objects developed as part of the Texas Course Redesign Project. A learning object is any entity, digital or non-digital, that may be used for learning, education or training. It could be a lesson, tutorial, illustration, demonstration, simulation, music, game, broadcast, or map.

The learning objects contained in the THECB LOR are freely available to all THECB members and other educational institutions within Texas. We have decomposed and reorganized the resources at various levels of detail, which we call granularity levels. So, say, if you are developing a course or thinking about improving your course content, you might want to look for some useful, free resources to use. We are trying to make this repository a good place to go.

Now let's take a look at a demo version of the repository. This is by no means the final look. We built this "proof-of-concept" repository or "prototype" to see if it is feasible, what the LOR is capable to do, and how course content can be decomposed into discrete learning objects. We also found some questions that need to be addressed before we bring this LOR to a near-production level. And this is the time for you, actual users, to weigh in with your opinions by telling us how you expect this repository to help you with curriculum development.

[The moderator passes handouts to participants and goes to the LOR homepage to start the presentation. The handout provides a description of the LOR's main functions and features.]

Section 3. Discussion

Question #1: Do you think a learning object repository like this would be helpful? What do you use currently when you are developing/modifying a course?
Expected outcome: yes/no – examples of web-searches

Question #2: Under what circumstances would you think you will go to this LOR to find resources?
Expected outcome: specific scenarios such as when the user is going to teach a course which was taught by a professor who just retired and the user wants to change the course structure, rearrange some materials, and/or add some materials

Question #3: As mentioned earlier that the resources can be decomposed and reorganized at different levels. What the LOR provides you with could be as broad as an entire course.

And the course may contain several units or modules, each of which contains several lessons. The resources used in a lesson can be further broken down into topics. What are the types of things that you have used in past and what would be more helpful to get in hand – the whole course, one module, one lecture, one topic, etc.?

Expected outcome: appropriate and inappropriate levels of granularity

For example, "I don't find the LOs at the topic level very useful because they are too short and seem detached from the lesson without enough context."

Question #4: When there are a lot of resources in the LOR, how would you like to browse the contents? How do you prefer browsing in other situations? What are the levels that you would like to see your results?

Expected outcome: browsing by topic, title, etc.

Question #5: After you conduct a search, how would you like to sort the search results, and what would be a preferable format for presentation?

Expected outcome: sorted alphabetically, by date, by relevance; I want to a list that provides me with information of what the LO is, what course it is used in, etc

Question #6: What functions and features do you think you might need, besides searching and browsing?

Expected outcome: subscribing to a certain discipline, downloading files, etc

Section 4. Conclusion

Thanks to all you for attending this focus group. Here is a conclusion for our focus group (based on the discussion).

The next step if the follow-up interview with you individually. Once again thanks from all the members of our project.

Individual Interviews

Individual Interviews will be conducted with the same set of participants to ask follow-up questions and to have an open discussion about their expectations from the learning object repository. These follow-up interviews will ensure that we are able to discover the user preferences and opinions on all the relevant points of interest for the repository. This will also ensure that we are getting equal input from all the participants and we can overcome any knowledge gaps that could occur because of group's dynamics issues.

The following script with some modification, as and when required, will be used for the interviews.

Questions to be refined / contextualized after the focus group

1. You are teaching a [course name]. What factors may encourage you to use the LOR to

find resources?
2. What factors may hinder you from using it?
3. You have looked at the demo version of the LOR. What functions or features stood out that you think need to be improved?
4. What functions or features do you find useful?
5. Any more suggestions or comments?
6. Do you think you would this kind of system?

Data Analysis

The data collected from these focus groups and interviews will be analyzed to develop prioritized user requirements. The data will be collected in form of written notes and audio tapes that will be transcribed. The user requirements will be developed by the categories emerging from the data and will be based on the questions in the focus group and interview scripts. A document detailing this list will be developed.

Feedback to the System Development Group

The prioritized user requirements will then be shared with the development team in a meeting. The feedback from the focus groups will be provided to the group. Discussion regarding the absolute essential and wish list feature will be done. The feedback from this group about feasibility of certain functionalities implementation will be used to revise the prioritized list of user requirements. This revised list will then be used by the system development team.