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June 10, 2010

Creation of a Statewide Survey of Incentives and Disincentives for the Use of OpenCourseWare in Utah

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***Creation of a Statewide Survey of Incentives and Disincentives
for the Use of OpenCourseWare in Utah***

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Teaching with Technology Idea Exchange - University of Utah

June 10, 2010

Abstract

This article examines the creation and distribution of a survey tool used to assess Utah resident views of incentives and disincentives for use of OpenCourseWare (OCW) and how they fit into the theoretical framework of perceived innovation attributes established by Rogers (1983).

This was a descriptive study that employed a survey method. This study consisted of three stages: a preliminary Delphi technique questionnaire based on Rogers (2003) attributes of innovation, a pilot study, and the primary study. In the primary study, a mail survey was given to 753 Utah residents using the Tailored Design Method (Dillman, 2000). Several strategies were employed in data collection which included:

- (a) detailed introductory letters with the questionnaires and postage prepaid envelopes,
- (b) monetary incentives to potential participants, and
- (c) a series of three follow-up letters to remind non-responding participants.

A survey instrument was developed using attributes that emerged from a Delphi technique with input from experts in the OCW field. Eleven experts were asked to participate and five were actively involved. After the attributes were identified they were placed into Roger's attribute characteristics. It was then pilot tested with 44 individuals. Cronbach's alpha was calculated to assess inter-item consistency for the pilot test and required a reliability of .70 or higher before the survey instrument would be used (Schumacker, 2005). The survey was then sent via postal mail to a randomized group of 753 individuals residing in Utah between the ages of 18 and 64. The names and addresses, along with associated gender, ethnicity, income, age, education, and occupation were obtained from Alesco Data Group, LLC of Fort Myers, Florida.

The following research questions were to be answered by the survey: (a) What are perceived incentives for use of OCW by the Utah adult population? (b) What are perceived disincentives that prevent use of OCW by the Utah adult population? (c) What are diffusion attributes that contribute to the adoption (incentives) of OCW in Utah? (d) What are diffusion attributes that contribute to rejection (disincentives) of OCW in Utah?

Results of this survey can be found at:

ARENDR, A., SHELTON, B.. Incentives and Disincentives for the Use of OpenCourseWare. The International Review of Research in Open and Distance Learning, North America, 10, oct. 2009. Available at:
<http://www.irrodl.org/index.php/irrodl/article/view/746/1393>. Date accessed: 09 Jun. 2010.

Printable results: <http://www.irrodl.org/index.php/irrodl/rt/printerFriendly/746/1393>

Introduction

This article examines the creation and distribution of a survey tool used to assess Utah resident views of incentives and disincentives for use of OpenCourseWare (OCW) and how they fit into the theoretical framework of perceived innovation attributes established by Rogers (1983).

A survey instrument was developed using attributes that emerged from a Delphi technique with input from experts in the OCW field. Eleven experts were asked to participate and five were actively involved. After the attributes were identified they were placed into Roger's attribute characteristics. It was then pilot tested with 44 individuals. Cronbach's alpha was calculated to assess inter-item consistency for the pilot test and required a reliability of .70 or higher before the survey instrument would be used (Schumacker, 2005). The survey was then sent via postal mail to a randomized group of 753 individuals residing in Utah between the ages of 18 and 64. The names and addresses, along with associated demographic information, were obtained from Alesco Data Group, LLC of Fort Myers, Florida. The demographic information used for this study included (a) gender, (b) age, (c) education, (d) income, (e) occupation, and (f) ethnicity.

The following research questions were to be answered by the survey:

- (a) What are perceived incentives for use of OCW by the Utah adult population?
- (b) What are perceived disincentives that prevent use of OCW by the Utah adult population?
- (c) What are diffusion attributes that contribute to the adoption (incentives) of OCW in Utah?
- (d) What are diffusion attributes that contribute to rejection (disincentives) of OCW in Utah?

For this study it was assumed that a primary concern is to understand incentives and disincentives for OCW adoption and use by the general public. Therefore, this study surveyed individuals throughout Utah, without focusing on a particular audience sub-set. Equally, it is assumed that concern lies on overall incentive or disincentive to use and adopt all available OCW and open educational resource materials, not simply those offered from within Utah state boundaries. Therefore, the research considered participant's interest in OCW and open educational resource materials generally to be relevant.

The state of Utah was chosen as the sample for this study because Utah Legislature provided \$200,000 to Utah State University for OCW-related activities in the 2007-2008 budget year (Utah System of Higher Education, 2007). This implies that OCW is seen as relevant and impactful by the Utah System of Higher Education and Utah State government.

This was a descriptive study that employed a survey method. This study consisted of three stages: a preliminary Delphi technique questionnaire based on Rogers (2003) attributes of innovation, a pilot study, and the primary study. In the primary study, a mail survey was given to 753 Utah residents using the Tailored Design Method (Dillman, 2000). Several strategies were employed in data collection which included:

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- (a) detailed introductory letters with the questionnaires and postage prepaid envelopes,
- (b) monetary incentives to potential participants, and
- (c) a series of three follow-up letters to remind non-responding participants.

Preliminary Delphi Technique Questionnaire

The Delphi analysis occurred in three phases:

- (a) initial question creation, which began on June 12, 2008;
- (b) compilation and rating, which began on July 3, 2008; and
- (c) review, which began on July 17, 2008 and ended on July 25, 2008.

First, a preliminary Delphi technique questionnaire was sent via email to 11 OpenCourseWare or open educational resource subject matter experts asking them to identify potential incentives and disincentives for end-user OCW use in the form of two questions:

- (a) in your opinion, what are incentives for potential users of OCW to make personal use of the resource?
- (b) in your opinion, what are disincentives for potential users of OCW to make personal use of the resource?

Appendix A exhibits a sample of the questionnaire. Appendixes A and B exhibit a sample of the letter and questionnaire.

The experts invited to participate included:

- (a) Richard G. Baraniuk, Department of Electrical and Computer Engineering, Connexions, Rice University;
- (b) Steve Carson, external relations director of OCW at Massachusetts Institute of Technology;
- (c) Brandon Muramatsu of the National Science Digital Library;
- (d) Derek Keats, executive director, Information and Communication Services at the University of the Western Cape;
- (e) Lisa Petrides, president, Institute for the Study of Knowledge Management in Education;
- (f) Terri Bays, OCW project director at the University of Notre Dame;
- (g) Andy Lane, director, OpenLearn of Open University UK;
- (h) Ahrash Bissell, executive director, ccLearn of Creative Commons;
- (i) Susan D'Antoni of Unesco Virtual University and e-learning at the IIEP-Institute for Educational Planning;
- (j) Marion Jensen, USU OCW project director at Utah State University;
- (k) Brian Lamb of the Office of Learning Technology at The University of British Columbia; and
- (l) John Dehlin, OCW Consortium director at Utah State University.

These individuals were chosen with the assistance of Dr. David Wiley who then worked with Utah State University's OpenCourseWare project. The experts are active administrators, innovators or facilitators of OCW or other open educational resources. Ideally, the expert list would also incorporate frequent users of OCW; however, by its very nature of being open the users are not tracked by name, identification or otherwise and thus cannot be identified. Those who are experts in producing, supporting or maintaining OCW as assumed by necessity to be aware of prior, current, and emerging

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consumer needs and expectations. Use of the Delphi approach ensured each expert had equal opportunity to give his or her input and equal weight in the opportunity for weight in the conversation.

Of the 11 individuals asked, 5 opted to participate: Marion Jensen, Ahrash Bissell, Terri Bays, Steve Carson, and Andy Lane.

Phenomenological Research Method

To compile the results of the experts a phenomenological research method, which describes the lived experiences for several individuals about a concept or phenomenon, was used. This method was chosen because its focus is on understanding experiences about a phenomenon and commonly is used for interviews with up to 10 people. The data analysis method includes obtaining statements, identifying meanings through reduction, finding meaning themes through clustering, conducting a search for all possible meanings, and then giving a general description of the experience based on those themes. The researcher brackets, or sets aside all prejudgment or preconceptions, when obtaining a picture of the experience (Creswell, 1998; Denzin & Lincoln, 2000; M. Dever, personal communication, April 26, 2008). The data analysis approach as used for analysis of results from the Delphi technique included:

- (a) list incentives or disincentives,
- (b) determine the meaning of the statements,
- (c) identify common characteristics or essentials, and
- (d) create descriptive statements of essential themes.

Throughout this process the experts were asked for input a total of four times.

From the original expert responses and the phenomenological research method a list was created which compiled the open-ended responses, and the number of respondents that wrote each response.

Next, compiled responses were then sent to each subject matter expert with a request that they rate their agreement with each statement on a five-point Likert scale where 1 represents strongly agree and 5 represents strongly disagree. The statements with a mean of 3.5 or higher and a standard deviation below 1 were designated as areas of agreement.

Third, areas of agreement were then compiled and sent to the group of experts for review with an area allocated where they could identify additional items they believe should have been included that differ from the general tendency but have justification. Finally, additional items for the survey were again sent out for final review and commentary.

At this point the role of the experts was completed.

Categorization into Roger's Attributes for Pilot Study Results

After the creation of questions were completed via the Delphi technique and phenomenological method, the results were then distributed into categories of Roger's innovation attributes:

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- (a) relative advantage,
- (b) compatibility,
- (c) complexity,
- (d) trialability, and
- (e) observability.

Although the items were not separated into Roger's innovation attributes on the end-user distribution survey, these categorizations were used when statistical analysis is performed. The survey results were also analyzed by descriptive statistics and frequency charts, but they were additionally assessed based on the categories of Roger's (2003) innovation attributes.

The end-user distribution survey was then created for pilot testing. Each item was placed in a Likert scale format that ranged from 5, representing very large incentive or disincentive, to 1, representing not an incentive or disincentive at all. There was also an option for those who wished to answer 'do not know' to either the overall incentives or the overall disincentives sections of the survey. This helped avoid uninformed response bias where members feel obligated to answer about topics on which they have little or no information.

Pilot Testing

The results from the above Delphi questionnaires were used to create the survey for the pilot study as described above. The pilot study questionnaire was then distributed to a minimum of 40 ($N = 44$) individuals via hand delivery for pretesting after obtaining their oral informed consent and statement of understanding about the pilot study.

Cronbach's Alpha

Cronbach's alpha was calculated to assess interitem consistency for the $N = 44$ pilot test and required a reliability of .70 or higher before the survey instrument would be used (Schumacker, 2005). Modifications to the questions were made as necessary based on the results of pretesting. Based on the pilot study ($M = 44$) categorization by Roger's attributes and Cronbach's alpha assessment, two questions from the initial set from the subject matter experts were removed. The questions removed were both disincentives: (1) availability of alternative methods to find information online, and (2) the need to purchase books or items not provided online. See Appendix H and I for details. The final survey as shown in Appendix E included 35 incentives and 43 disincentives, which were presented in a Likert scale format.

Formal Survey

Survey Package

A survey package was sent via postal mail that included: (a) a cover letter describing the importance of the participant, incentives offered, purpose of the study, assurances of confidentiality, and completion time (see Appendix C); (b) a statement of consent (see Appendix D), (c) the survey with a unique identification number that tied the survey results back to the demographic variables (see Appendix E), and (d) a prepaid addressed envelope for return of the survey that has both an address and return address for Anne Arendt, the originator of the study. A unique identification number was

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placed on the survey and was used to tie survey information back to demographic variables without the use of first name, last name, or address. This is noted in the statement of consent (see Appendix D). It should be noted that four survey respondents scribbled over the unique identification numbers on their surveys and thus their demographic information was unknown. In compiling the results, their responses were used where possible, and were not included for evaluation of some of the demographic results such as gender comparisons.

Setting and Sample

The survey was sent via postal mail to a randomized group of 753 individuals residing in Utah between the ages of 18 and 64. Although this research was not testing a hypothesis but instead was a descriptive study, the survey sample size was based on numbers used for inferential statistics. To illustrate the potential range of scores, survey results represent, a minimum of 95% confidence level needed to be obtained with a confidence interval, otherwise known as a range of scores or margin of error, of 8%. Based on the Utah population of 1,383,605 for high school graduates ages 18 to 64 in 2006 (U.S. Census Bureau, 2007), a sample size of 150 was necessary to achieve a confidence level of 95% and a confidence interval of 8%. Therefore, 753 surveys were sent out with three follow-up letters. The percentage response rate needed from the 753 surveys was 19.92%. It should also be noted that Alesco data is deemed 90% deliverable, so with that in consideration a percentage response rate of 22.16% would have been required of the deliverable 678 surveys.

Follow-up Letters

The first follow up letter was sent via postal mail two weeks after the study introduction. The purpose of this letter was to thank those who have already completed and returned their survey package and remind those who had not yet done so. Second and third follow-up letters were delivered via postal mail to non-respondents on the third and fourth weeks after the study introduction. In the last follow-up letter (see appendix XX), instructions were included for requesting another copy of the survey. Three individuals requested new copies of the survey via the email method specified.

Survey Response Numbers

Of 753 surveys set out across Utah, 35 were returned as undeliverable, leaving a total of 718 deliverable surveys. Of the deliverable surveys, 180 responses were received, for an overall response rate of 25.06%. Of the 180 received, 140 were deemed usable. Five survey responses were removed at the request of the recipient or a representative of the recipient; this reasons included sickness (1), blindness (1), deceased (1), mission duty (1), and personal decline (1) leaving a total of 175. Ten of the remaining 175 responses were removed due to missing over 20% of the survey answer values, leaving 165 total responses. Additionally, a category of "do not know" eliminated another 25 responses, leaving 140 total responses.

A sample size of 180 achieves a confidence level of 95% and a confidence interval of 7.3%, which surpassed the initial target of having a sample size of 150 necessary to achieve a confidence level of 95% and a confidence interval of 8%. However, with only 140 of the surveys being deemed usable, that number dropped to a confidence level of

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95% and a confidence interval of 8.28%.

Cronbach's Alpha

A Cronbach's alpha was also run at completion of the survey data collection to assess the categorization by Roger's attributes. A Cronbach's alpha over .70 was the target. This was achieved for all categories for both incentives and disincentives on all Roger's attributes.

Wave Analysis

On order to assess the consistency of data throughout the survey period, a wave analysis was done for incentives and disincentives by week for overall means by Roger's attributes. Although there was some variance in the means and standard deviations, overall the results were consistent.

Results Assessment

In addressing the perceived incentives for use of OpenCourseWare by the Utah adult population, statistics were given for overall incentives and frequency for each independent incentive. Descriptive statistics of survey responses for incentives were also supplied. The same was done for disincentives.

Survey Result Correlations

In addressing incentives in the Use of OpenCourseWare in Utah by age, income, gender, education, county, occupation, and ethnicity a variety of correlations were used based on the data type.

- Pearson product-moment correlations were used between incentives and age and also incentives and income.
- Point bi-serial correlation coefficients were used between incentives and gender.
- Spearman's RHO was used for correlation coefficients between incentives and education.
- Eta Correlation was used between incentives and county, incentives and occupation, and incentives and ethnicity.

The same was done for disincentives.

Results for Roger's Attributes

In considering the diffusion attributes that contribute to the adoption (incentives) of OpenCourseWare in Utah, the following statistics were given: Descriptive statistics for incentives as categorized by Roger's attributes of innovation, overall means for incentives by Roger's attributes, frequency for incentives based on Roger's attributes of innovation, and multiple regression analysis on incentives and Roger's Attributes, and multiple regression analysis of weighted incentive mean and Roger's attributes. The same was done for disincentives.

One drawback of this study, however, was that there were not enough results to make use of logistical regression a possibility. As it stands, the multiple regression analysis

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was not statistically valid; however, the participant numbers were not high enough to constitute logistical regression, although it would have been ideal. Due to this, attempts to quantify the role Roger's attributes played in predicting user response were not possible.

Results of Open-Ended Questions

The results of open-Ended questions were compiled in their own section. It was anticipated that results would be categorized but that was not necessary as there were only three open ended comments.

Threats to Validity and Reliability

Statistical Validity

Threats to external validity involve the extent to which the results can be generalized to other people and places. In an effort to ensure the data can be generalized to all of Utah, random sampling was used, as well as a large sampling size of 753. Threats to internal validity have do with selection, where the groups end up not equivalent, and attrition, where some participants do not complete the survey.

History

As each participant only completed the survey once there was not a possibility for validity errors between surveys, but there may be events that occur in the 6-week duration of the study itself-which could affect early responders as compared to late responders. Due to this, a wave analysis was done as was shown in Table 4. Although there was some variance in the means and standard deviations, overall the results were consistent.

Sampling Error

Concerning sample selection, it may be faulty to assume the similarity of the participants involved. One way to remedy this would be to perform additional surveys of other groups and compare results. For the purposes of this study sampling error is reduced through the use of a large sample.

Response Error

According to Dillman (2000), the single most serious limitation to direct mail data collection is the relatively low response rate. Response rates are often only about 5 to 10 percent. Individuals may choose not to respond, which could cause bias in the responses that are received and cause non-response error. To discourage this from occurring, the survey package included a monetary incentive of 50 cents in the initial survey package because research has shown consistently that inclusion of a small financial incentive can improve response rates significantly over promised incentives, nonmonetary incentives or no incentives (Dillman, 2000; StatPac, 2007). Although higher monetary rewards may have created even higher response rates, this figure was within the budget allocated for this study. Three follow up letters were also sent to those who had yet to respond, encouraging their participation (Dillman; Miller & Smith, 1983).

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For this study, a response rate of 25.06% was achieved, well beyond typical response rates noted above.

To address any potential non-response error that still might occur, a comparison of non-respondents and respondents was performed to assess similarities in the demographics in an effort to address any potential discrepancies in the responding sample. If the non-respondents do not appear different then the results can be generalized to the sample and population (Lindner, Murphy, & Briers, 2001; Lindner & Wingenbach, 2002; Miller & Smith, 1983). There were no differences greater than 10% between respondents and non-respondent demographics.

Response error could also be due to uninformed response error as well. Uninformed response error is where individuals feel obligated to express an opinion for which they have little or no information was minimized by offering a do not know option at the end of the Likert scale measures on the survey. Twenty-five responses were not included in the overall results due to respondents making use of the do not know option.

Reliability

This evaluation method has internal consistency reliability because the instrument was only administered once, in a singular version, and each participant completed the survey only once. Equally, a Cronbach's alpha was calculated to assess inter-item consistency for the $N = 44$ pilot test and required a reliability of .70 or higher before the survey instrument was used (Schumacker, 2005).

Measurement Error

In order to address potential measurement error, the questionnaire had clear, unambiguous questions and response options. This does not completely remove the potential of measurement error, which results when respondents fill out surveys, but do not respond to specific questions however.

In order to avoid processing errors the data will be backed up and all calculations, sorts or summaries were run twice to ensure the same results are obtained.

Coverage Error

In order to avoid coverage error the sample was obtained from Alesco data, which is deemed 90% deliverable. An updated randomized list was obtained in April 2008 to ensure the timeliness of data.

Results of Utilizing a Delphi Approach to Develop a Survey Instrument

Use of a Delphi approach included:

- (a) identifying experts in the field,
- (b) inquiring to the experts in the field,
- (c) developing a list incentives or disincentives based on their input,
- (d) determining the meaning of the statements,
- (e) identifying common characteristics or essentials,
- (f) creating descriptive statements of essential themes,

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- (g) developing survey questions based on essential themes,
- (h) reviewing survey questions with experts, and
- (i) pilot testing the survey.

Use of the Phenomenological Research Method

To compile the results of the experts, a phenomenological research method was used. This method was chosen because its focus is on understanding experiences about a phenomenon and commonly is used for interviews with up to 10 people. This data analysis method typically includes obtaining statements, identifying meanings through reduction, finding meaningful themes through clustering, conducting a search for all possible meanings, and then giving a general description of the experience based on those themes. The researcher brackets, or sets aside all prejudgment or preconceptions, when obtaining a picture of the experience (Creswell, 1998; Denzin & Lincoln, 2000; M. Dever, personal communication, April 26, 2008).

Limited Participation of Experts

Of the 11 individuals asked to participate in the Delphi technique, five opted to participate: Marion Jensen, Ahrash Bissell, Terri Bays, Steve Carson, and Andy Lane. Andy Lane and Steve Carson participated in all three phases of (1) initial question creation, which began on June 12, 2008; (2) compilation and rating, which began on July 3, 2008; and (3) review, which began on July 17, 2008 and ended on July 25, 2008. Marion Jensen participated in phase one initial question creation and also agreed to be interviewed in person for initial question creation on June 26, 2008. Ahrash Bissell participated in phase 2 compilation and rating but was not able to participate in phase 1 initial question creation as he was away with limited email capability; Terri Bays participated in phase 2 compilation and rating. John Dehlin offered to participate but was not able to within the timeframe due to time constraints; Susan D'Antoni had to decline as she was departing on a mission.

Thus, one challenge with this technique was encouraging and maintaining involvement. Equally, the process of developing the questions took 42 days, from June 12, 2008 to July 25, 2008. In part, this was due to waiting for responses from experts who stated they would submit feedback. Ultimately, however, a comprehensive list of incentives and disincentives was created that addressed virtually all areas of OCW use or rejection.

Results of the Formal Survey

The response received from the formal survey were informative in identifying top incentives and disincentives as follow:

Greatest Incentive Questions for OCW Use

| Mean ranking | Frequency ranking | Question |
|--------------|-------------------|---------------------------|
| 1 (4.59) | 1 (98.57%) | I26 No cost for materials |
| 2 (4.35) | 3 (96.43%) | I17 Available at any time |

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| | | | |
|-----------|-------------|-----|--|
| 3 (4.24) | 8 (92.81%) | I12 | Pursuing in depth a topic that interests me |
| 4 (4.22) | 4 (95.71%) | I9 | Learning for personal knowledge or enjoyment |
| 5 (4.16) | 5 (93.57%) | I14 | Improving professional knowledge or skills |
| 6 (4.13) | 2 (97.14%) | I13 | Improving my understanding of particular topics |
| 7 (4.12) | 9 (91.43%) | I27 | Materials in an OCW are fairly easy to access and find |
| 8 (4.09) | 11 (90.71%) | I32 | High quality and reliability because the content is produced by experts in the field |
| 9 (4.06) | 6 (93.57%) | I35 | Materials available are from leading universities |
| 10 (4.04) | 7 (92.86%) | I10 | Keeping my mind active |
| 11 (4.01) | 10 (90.71%) | I24 | Access is at my preferred pace |
| 12 (3.89) | 12 (90.65%) | I3 | Doing research |

Greatest Disincentive Questions for OCW Use

| Mean ranking | Frequency ranking | Question |
|--------------|-------------------|---|
| 1 (3.28) | 4 (68.57%) | D6 There is no certificate or degree awarded |
| 2 (3.17) | 2 (69.85%) | D26 It does not cover my topic of interest in the depth I desire |
| 3 (3.14) | 1 (73.19%) | D2 Lack of professional support provided by subject tutors or experts |
| 4 (3.09) | 3 (69.57%) | D3 Lack of guidance provided by support specialists |
| 5 (3.06) | 6 (67.63%) | D25 Feeling the material is overwhelming |
| 6 (3.02) | 8 (65%) | D42 There is currently no accreditation tied with OCW |
| 7 (2.97) | 7 (67.14%) | D27 Lack of ability to assess how I am doing to ensure I am learning |
| 7 (3.01) | 5 (68.38%) | D5 Lack of awareness of how these tools can be used effectively |
| 8 (2.92) | 9 (64.29%) | D39 Not knowing what resources exist |
| 9 (2.85) | 13 (62.04%) | D23 Content is not structured in a 'self-learn' or 'self-teach' method |
| 10 (2.84) | | D40 Not understanding what the resources are |
| 11 (2.82) | 10 (63.97%) | D4 Availability of this mode of teaching & learning is extremely variable |

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| | | | |
|-----------|----------------|-----|---|
| 12 (2.8) | | D17 | Not understanding how to use this resource |
| 13 (2.79) | 12 (62.32%) | D7 | Lack of activities and events that facilitate participation in learning opportunities |
| 14 (2.74) | 11 (62.59%) | D24 | Content is produced and displayed in large chunks instead of bite-sized pieces of information |

It was also informative in its implications that demographic variables such as age, gender, education, income or ethnicity did not have a significant impact what was deemed an incentive or disincentive. The full results of the survey can be found at <http://digitalcommons.usu.edu/etd/389/>.

Practical Importance & Conclusion

This study presents all findings, not just those that are found to have statistical significance. In part, this is because sample size plays an important role in whether or not a relationship or difference is statistically significant, yet a finding with insufficient power may potentially still be of practical importance or interest. The goal was a descriptive study that presents areas for potential assessment or improvement; thus the information may still be of practical importance, particularly if improvements can be made with little expense or risk. Just as statistical results that demonstrate statistical significance do not necessitate them being of practical importance, results that do not demonstrate statistical significance do not reduce them to a level of no practical importance. Practical importance or significance represents the educational value of the results. It may be shown in effect sizes that present degrees to which a phenomenon is present, replicability potential, or simply by being noteworthy (Gliner, Leech, & Morgan, 2002; Onwuegbuzie & Leech, 2004; Thompson, 2002; Utts, 2003).

One limitation of this study was the limited number of experts who participated in the Delphi technique to create the original questions; however, a strong question base was created for further research. A second limitation was the number of participants in the survey; this occurred in part because the study was self-funded. At the same time the self-funding was a limitation, however, it was also a benefit in that there were no incentives to obtain any particular set of results. Ideally, additional studies can be done with larger sample sets in the future.

This research is a starting point in assessing the adoption of OCW and potential impact in Utah teaching and learning. There are a variety of areas one could expand from the findings in Utah alone. These include, but are not limited to, assessing:

- (a) the breadth of OCW usage, reasons for usage, nonusage, or reasons for nonusage for differing audiences including students, faculty, self-learners, and general public;
- (b) the breadth of OCW usage, reasons for usage, nonusage, or reasons for nonusage by ethnicity; and
- (c) differences in OCW usage, reasons for usage, nonusage, or reasons for nonusage based on age.

Each of these issues could then be addressed in other states or on a larger scale. There are also broad questions to be addressed about the OCWs themselves. For example, assessing distinctions between OCWs in regard to content offerings or resources

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therein; assessing ways in which OCW initiatives could affect education or; assessing potential limitations of OCW initiatives as perceived by specific audiences such as students, instructors or administrators.

The intention of this research was to help drive OCW projects a step closer to satisfying end-user desires and expectations, thus promoting their use as educational change agents. It is important to understand the perceptions of the end users because, as Rogers (2003) noted, "Perceptions count. The individual's percepts of the attributes of an innovation, not the attributes as classified objectively by experts or change agents, affect its rate of adoption" (p. 223).

Survey Results

Full results of the survey can be found at:

ARENDR, A., SHELTON, B.. Incentives and Disincentives for the Use of OpenCourseWare. The International Review of Research in Open and Distance Learning, North America, 10, oct. 2009. Available at: <http://www.irrodl.org/index.php/irrodl/article/view/746/1393>. Date accessed: 09 Jun. 2010.

Printable results: <http://www.irrodl.org/index.php/irrodl/rt/printerFriendly/746/1393>

The full dissertation for which this research was done can be found at: <http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1379&context=etd>

It is my hope that this research will inspire further exploration into OpenCourseWare and related fields.

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Arendt 2010

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Dear OCW Topic Expert,

My name is Anne Arendt, and I am inviting you and ten other subject matter experts to participate in a research project to study incentives and disincentives for OCW and other open educational resources made available to residents of Utah. I am doing this research as part of my Doctorate of Education studies at Utah State University located in Logan, Utah in cooperation with Dr. Gary Straquadine, the principal investigator who has oversight of this research project. I have a working copy of my proposal, including the list of experts in Appendix C, which may be found at <http://www.mydeskdrawer.com>.

I am requesting your participation in the following Delphi procedure which will be used to create the survey questions that will be distributed to 753 individuals throughout Utah:

- a) Complete the attached two open-ended survey questions and return within 10 days after receipt of the email. The two open-ended survey questions may take approximately 10 minutes to complete.
- b) From these responses a new survey will be created that lists all the open-ended responses, and the number of respondents that wrote each response. This will be sent to you and the other experts and you will be asked to rate your agreement with each statement on a five point Likert scale where (1) means strongly agree and (5) means strongly disagree. This may take approximately 10 minutes to complete. Please respond within 10 days after receipt of the email.
- c) Statements with a mean of 4 or higher and a standard deviation below 1 will be designated as areas of agreement. These will be compiled and sent to the group of experts for review with an area included if you feel additional items should be included that differ from the general tendency but have justification. This may take approximately 10 minutes to complete. Please respond within 10 days after receipt of the email.
- d) Assuming there are additional items the survey will again be sent out for final review and commentary. Please respond within 10 days after receipt of the email.

The results of this project will be used by educational institutions nationally and globally to access and improve their offerings of open-access educational resources. Through your participation I plan to gain a better understanding of factors affecting use of open educational resources and I hope to share my results by publishing in a scholarly journal as well as by making them publicly available on the Web for individuals all over the world to access. There is minimal risk in participating in this research. Participation in research is voluntary; refusal to participate will involve no penalty. You may also withdraw participation at any time without penalty. However, if you do decide to discontinue participation please contact Anne Arendt aware of your decision by emailing her at aarendt@cc.usu.edu.

I hope you will take the time to complete this questionnaire and return it via email. Regardless of whether you choose to participate, you may like to view a summary of my findings. Once the research is complete I will post the results at <http://www.mydeskdrawer.com>.

Arendt 2010

This project has been approved by the Institutional Review Board at Utah State University. If you have any questions or concerns about your rights you may contact the IRB at (435) 797-0567 or email: true.fox@usu.edu If you have any questions or concerns about the research you may contact either Gary Straquadine or Anne Arendt.

Gary Straquadine, Principal Investigator
(435) 797-3521
garys@cc.usu.edu

Anne Arendt, Student Researcher
(801) 319-0615
aarendt@cc.usu.edu

Appendix B

Questions for OCW Experts

Note: Users or potential users include any user of open educational resources whether they are affiliated with any educational institutions or not. The focus is on end-user, not the developers of OCW

In your opinion, what are incentives for potential users of OCW to make personal use of the resource?

In your opinion, what are disincentives for potential users of OCW to make personal use of the resource?

Appendix C
Letter of Information



College of Agriculture
4800 Old Main Hill,
Logan UT 84322-4800
Telephone: (435) 797-3521
Fax: (435) 797-3321

Dear Respondent,

I am inviting you to participate in a research project to study incentives and disincentives for OCW resources available to residents of Utah. I am doing this research as part of my Doctorate of Education studies at Utah State University located in Logan, Utah. OCW (OCW) is dedicated to the development of freely available, stand-alone college-level online course and teaching materials on a variety of topics. It includes items such as lecture notes, reading lists, course assignments, syllabi, study materials, simulations and the like as used in current courses which are then made freely available on the Internet. Some of the OCW projects available to you include:

- Carnegie Mellon OpenLearningInitiative at <http://www.cmu.edu/oli/>
- Johns Hopkins Bloomberg School of Public Health OCW at <http://OCW.jhsph.edu/>
- Massachusetts Institute of Technology OCW at <http://OCW.mit.edu/>
- University of Notre Dame OCW at <http://OCW.nd.edu/>
- Tufts University OCW at <http://OCW.tufts.edu/>
- University of California, Irvine OCW at <http://OCW.uci.edu/>, and
- Utah State University OCW at <http://OCW.usu.edu/>

We invite you to review some of these sites before taking the survey.

Along with this letter is a short questionnaire that asks about incentives and disincentives for people to use OCW. I am asking you to read the questionnaire, complete it and return it to me in the enclosed self-addressed envelope. It should take you about 2-3 minutes to complete. I have enclosed two quarters to compensate you for your time.

The results of this project will be used by educational institutions nationally and globally to access and improve their offerings of open-access educational resources. Through your participation I plan to gain a better understanding of factors affecting use of open educational resources. I hope to share my results by publishing in a scholarly journal and by making them publicly available on the Web. I know of no risks to you if you decide to participate in this survey and I guarantee that your responses will not be identified with you personally. You need not sign the questionnaire and your response will remain anonymous and confidential.

I hope you will take the time to complete this questionnaire and return it. Your

participation is voluntary and there is no penalty if you do not participate. Regardless of whether you choose to participate, you may like to view a summary of my findings. Once the research is complete I will post the results at <http://www.mydeskdrawer.com>.

This project has been approved by the Institutional Review Board at Utah State University. If you have any questions or concerns about your rights you may contact the IRB at (435) 797-0567 or email at true.fox@usu.edu. If you have any questions or concerns about the research you may contact either Gary Straquadine or Anne Arendt.

Gary Straquadine, Principal Investigator
(435) 797-3521
garys@cc.usu.edu

Anne Arendt, Student Researcher
(801) 319-0615
anne.arendt@aggiemail.usu.edu

Appendix D
Letter of Informed Consent

This consent document must be printed with your dept. letterhead on each page before being given to the participant

Page 1 of 2

Date Created: _____

INFORMED CONSENT

An Assessment of Utah Resident Incentives and Disincentives for Use of OCW Resources

***Introduction/ Purpose** Graduate student Anne Arendt in the Department of Education at Utah State University is conducting a study to find out more about OCW. You have been asked to take part because you have been identified as a potential user within the state of Utah. There will be approximately 753 participants randomly chosen from across the state of Utah.

***Procedures** If you agree to be in this research study, all you will need to do is complete the enclosed survey and submit it in the enclosed addressed stamped envelope. It should take you a matter of minutes to complete. There is no personally identifying information on the survey, although your survey has been given a random ID which will be used to correlate your survey responses to your demographic information including gender, age, education, county, income, ethnicity and occupation but not to any personally identifying information.

New Findings During the course of this research study, you will be informed of any significant new findings, either good or bad, such as changes in the risks or benefits resulting from participation in the research, or new alternatives to participation that might cause you to change your mind about continuing in the study. If new information is obtained that is relevant or useful to you, or if the procedures and/or methods change at any time throughout this study, your consent to continue participating in this study will be obtained again.

***Risks** There are no anticipated risks to the individuals involved in this study.

***Benefits** There may not be any direct benefit to you from these procedures. The investigator and committee members, however, may learn more about Open Educational Resources and how they can be improved to better suit the needs and expectations of individuals throughout Utah, the nation, and the world.

Explanation & offer to answer questions Doctoral student Anne Arendt has explained this research study to you and answered your questions. If you have other questions or research-related problems, you may reach her at 801-796-1369 or via email at aarendt@cc.usu.edu

Extra Cost(s) There are no costs for participating in this study.

Payment You will be paid half a dollar, enclosed in this envelope, for your participation

in this study.

*Voluntary nature of participation and right to withdraw without consequence

Participation in research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits.

*Confidentiality Research records will be kept confidential, consistent with federal and state regulations. Only the investigator will have access to the data which will be kept in a locked file cabinet in a locked room, on a password protected computer, and password protected external hard drive. Personally identifiable information will be kept until completion of survey data collection, at which point any personally identifying information will be destroyed. A randomly assigned ID will be associated with each survey returned.

*IRB Approval Statement The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any questions or concerns about your rights, you may contact the IRB at (435) 797-1821

*Copy of consent You have been given one copy of this Informed Consent. Please retain it for your files.

*Investigator Statement "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

*Signature of PI & student or Co-PI

Signature of PI
Gary Straquadine
 Principal Investigator
 (435)797-3521

Signature of student
Anne Arendt
 Student Researcher
 (801)319-0615

Agreement of Participant By submitting the attached survey, I agree to participate.

Appendix E
Formal Survey

OCW (OCW) is dedicated to the development of freely available, stand-alone college-level online course and teaching materials on a variety of topics. It includes items such as lecture notes, reading lists, course assignments, syllabi, study materials, simulations, and the like as used in current courses which are then made freely available on the Internet.

Some of the OCW projects available to you include:

- Carnegie Mellon OpenLearningInitiative at <http://www.cmu.edu/oli/>
- Johns Hopkins Bloomberg School of Public Health OCW at <http://OCW.jhsph.edu/>
- Massachusetts Institute of Technology OCW at <http://OCW.mit.edu/>
- University of Notre Dame OCW at <http://OCW.nd.edu/>
- Tufts University OCW at <http://OCW.tufts.edu/>
- University of California, Irvine OCW at <http://OCW.uci.edu/>, and
- Utah State University OCW at <http://OCW.usu.edu/>

Please indicate how much of an **INCENTIVE** each of these characteristics would be to you personally, where **1 means “not an incentive at all” and 5 means “very large incentive”**. Please choose “do not know” if you feel you cannot answer this question.

| | Not Large |
|---|--------------|
| Seeking additional information about a subject introduced in school | 1 2 3 4 5 |
| Comparing courses at different educational institutions | 1 2 3 4 5 |
| Doing research | 1 2 3 4 5 |
| Furthering projects or programs | 1 2 3 4 5 |
| Improving my study skills | 1 2 3 4 5 |
| Enriching or supplementing study on a formal course | 1 2 3 4 5 |
| Two-way interaction and collaboration between groups | 1 2 3 4 5 |
| Using and changing the materials for personal use | 1 2 3 4 5 |
| Learning for personal knowledge or enjoyment | 1 2 3 4 5 |
| Keeping my mind active | 1 2 3 4 5 |
| Shopping around for a college to attend | 1 2 3 4 5 |
| Pursuing in depth a topic that interests me | 1 2 3 4 5 |
| Improving my understanding of particular topics | 1 2 3 4 5 |
| Improving professional knowledge or skills | 1 2 3 4 5 |
| Helping understand my own abilities to learn | 1 2 3 4 5 |
| Freedom from discrimination on the basis of prior achievement | 1 2 3 4 5 |
| Available at any time | 1 2 3 4 5 |
| Improving my teaching skills | 1 2 3 4 5 |
| Improving my performance in academic programs | 1 2 3 4 5 |

| | | | | | |
|--|---|---|---|---|---|
| Saving time in creation of educational materials | 1 | 2 | 3 | 4 | 5 |
| Improving my own materials through inclusion of OCW content | 1 | 2 | 3 | 4 | 5 |
| Sampling courses or study before enrolling | 1 | 2 | 3 | 4 | 5 |
| Gaining experience in online learning | 1 | 2 | 3 | 4 | 5 |
| Access is at my preferred pace | 1 | 2 | 3 | 4 | 5 |
| Clear and familiar structure of materials | 1 | 2 | 3 | 4 | 5 |
| No cost for materials | 1 | 2 | 3 | 4 | 5 |
| Materials in an OCW are fairly easy to access and find | 1 | 2 | 3 | 4 | 5 |
| Tools which allow users to find materials in multiple OCW's | 1 | 2 | 3 | 4 | 5 |
| Seeing more clearly see what I will be signing up for in a "regular" class | 1 | 2 | 3 | 4 | 5 |
| Help in choosing my next course | 1 | 2 | 3 | 4 | 5 |
| Can be accessed simultaneously by many people & infinitely replicated | 1 | 2 | 3 | 4 | 5 |
| High quality & reliability because the content is produced by experts in the field | 1 | 2 | 3 | 4 | 5 |
| Seeing the communications of others | 1 | 2 | 3 | 4 | 5 |
| Communicating with others | 1 | 2 | 3 | 4 | 5 |
| Materials available are from leading universities | 1 | 2 | 3 | 4 | 5 |

Do not know:

Other: _____

Please indicate how much of a **DISINCENTIVE** each of these characteristics would be to you personally, where **1 means "not at all a disincentive"** and **5 means "very large disincentive"**. Please choose "do not know" if you feel you cannot answer this question.

| | Not Large | | | | |
|---|-----------|---|---|---|---|
| The need to be a skilled self-studier or independent learner | 1 | 2 | 3 | 4 | 5 |
| Lack of professional support provided by subject tutors or experts | 1 | 2 | 3 | 4 | 5 |
| Lack of guidance provided by support specialists | 1 | 2 | 3 | 4 | 5 |
| Availability of this mode of teaching & learning is extremely variable | 1 | 2 | 3 | 4 | 5 |
| Lack of awareness of how these tools can be used effectively | 1 | 2 | 3 | 4 | 5 |
| There is no certificate or degree awarded | 1 | 2 | 3 | 4 | 5 |
| Lack of activities & events that facilitate participation in learning opportunities | 1 | 2 | 3 | 4 | 5 |
| Concern about intellectual property | 1 | 2 | 3 | 4 | 5 |
| There is a mismatch to my local language or culture | 1 | 2 | 3 | 4 | 5 |
| Concern about feeling included | 1 | 2 | 3 | 4 | 5 |
| Concern about being competent or capable to study at this level | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|--|---|---|---|---|---|
| Education is not important for my social group or community | 1 | 2 | 3 | 4 | 5 |
| It goes against the norms or customs of my culture | 1 | 2 | 3 | 4 | 5 |
| Being discouraged from engaging in additional education | 1 | 2 | 3 | 4 | 5 |
| It goes against the norms or customs of my family or community (social) | 1 | 2 | 3 | 4 | 5 |
| Having no intent to learn at this level | 1 | 2 | 3 | 4 | 5 |
| Not understanding how to use this resource | 1 | 2 | 3 | 4 | 5 |
| Not having the qualifications to use this resource | 1 | 2 | 3 | 4 | 5 |
| Concern about handling these new technologies | 1 | 2 | 3 | 4 | 5 |
| Concern about handling these new ways of learning | 1 | 2 | 3 | 4 | 5 |
| There is a lack of teacher-supplied motivation, feedback & direction | 1 | 2 | 3 | 4 | 5 |
| Feeling educational materials & opportunities are not as open as possible | 1 | 2 | 3 | 4 | 5 |
| Content is not structured in a 'self-learn' or 'self-teach' method | 1 | 2 | 3 | 4 | 5 |
| Content is produced & displayed in large chunks instead of bite-sized pieces of information | 1 | 2 | 3 | 4 | 5 |
| Feeling the material is overwhelming | 1 | 2 | 3 | 4 | 5 |
| It does not cover my topic of interest in the depth I desire | 1 | 2 | 3 | 4 | 5 |
| Lack of ability to assess how I am doing to ensure I am learning | 1 | 2 | 3 | 4 | 5 |
| Wanting personal support through encouraging self-reflection & guidance within some of the in-text activities and formal assessments | 1 | 2 | 3 | 4 | 5 |
| Lack of availability of guidance materials on study skills | 1 | 2 | 3 | 4 | 5 |
| Lack of recording of learning & achievements in e-portfolios or journals | 1 | 2 | 3 | 4 | 5 |
| Limited or no access to a computer | 1 | 2 | 3 | 4 | 5 |
| Limited or no access to the Internet | 1 | 2 | 3 | 4 | 5 |
| Other technical barriers preventing easy use or reuse | 1 | 2 | 3 | 4 | 5 |
| Physical circumstances that limit my access | 1 | 2 | 3 | 4 | 5 |
| The cost of being online | 1 | 2 | 3 | 4 | 5 |
| Being geographically remote | 1 | 2 | 3 | 4 | 5 |
| Not having the qualifications or prior achievements necessary for access | 1 | 2 | 3 | 4 | 5 |
| Needing to learn & understand how to navigate and use such resources | 1 | 2 | 3 | 4 | 5 |
| Not knowing what resources exist | 1 | 2 | 3 | 4 | 5 |
| Not understanding what the resources are | 1 | 2 | 3 | 4 | 5 |
| Concern that free resources lack quality | 1 | 2 | 3 | 4 | 5 |
| There is currently no accreditation tied with OCW | 1 | 2 | 3 | 4 | 5 |
| Not clear that unstructured communication on its own is very helpful to learning. | 1 | 2 | 3 | 4 | 5 |

Do not know:

Other: _____

Thank you for completing this survey. Please now place it in the enclosed envelope and drop it in the postal mail.