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Medicine Training Center

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NTC Annual Report
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Executive Summary

INTRODUCTION: MAJOR ACCOMPLISHMENTS

In Option Year 1, NTC and NLM staff delivered 39 classes with 1,011 participants from 48 states and U.S. territories. Class topics included PubMed®, TOXNET®, NCBI databases, teaching and learning technology, and adult learning. Classes were delivered using a variety of formats, including in-person, synchronous online using the Adobe Connect web conferencing system, and asynchronous online using the Moodle course management system. Evaluation data (student satisfaction and skills assessment) were collected for the classes and used to improve the training. A follow-up evaluation questionnaire to determine behavioral changes as a result of the classes was administered in February 2013.

NTC's major accomplishments in Option Year 1 are as follows:

- *Improved the "PubMed for Trainers" hybrid class based on participant comments, particularly adding the "rapid design" component to help participants learn how to customize PubMed training for their particular audience and setting.
- *Developed and delivered fifteen segments of the new online class, "PubMed for Librarians."
- *Delivered two sessions of the online asynchronous class, "Teaching with Technology."
- *In collaboration with NLM, NCBI, and Diane Rein, Ph.D. (consultant to NTC), delivered "A Librarian's Guide to NCBI," which included a 15-hour online asynchronous class, "Fundamentals of Bioinformatics and Searching," and a 5-day in-person workshop held in Bethesda, MD. Twenty-two participants formed the first cohort for this class.
- *Utilized training techniques and best practices learned from professional development activities to improve NTC's teaching as well as communicating this information through our blog and a webinar.
- *Continued the slow, but steady, growth of the NTC social media outlets.
- *Implemented a number of user enhancements and features to the National Training Registration Page (NTRP) system, as well as streamlining the back-end programming.
- *Administered a follow-up evaluation questionnaire to determine behavioral changes as a result of the NTC and NLM classes from May 2011 through October 2012.

CHALLENGES

TECHNICAL CHALLENGES

The NTC trainers continued to experience technical difficulties with Adobe Connect. Major disruptions occurred during the February PubMed for Librarians classes. The trainers have notified NIH Support about various problems but have not received resolution, and the problems are often different from session to session.

CLASS ATTENDANCE CHALLENGES

Despite allowing for up to 70 registrants per segment and offering classes in February, April, June, July, and September of 2013, most of the "PubMed for Librarians" segments reached the maximum registration within a few days of opening the class for registration.

The average attendance rate for the January, February, and April 2013 classes was 62%. Balancing the registration demand for this class versus the actual attendance rate is an on-going challenge that the trainers will need to address in Option Year 2.

NTC and NLM trainers are also taking steps to ensure that participants registered for "PubMed for Trainers" are librarians who are training others; we are guiding those who say they only want to learn more about PubMed into "PubMed for Librarians."

NTC ACTIVITIES

CLASS DELIVERY AND DEVELOPMENT

PUBMED TRAINING

NTC and NLM trainers taught the hybrid "PubMed for Trainers" class 12 times from May 2012 – April 2013. The class consists of four sessions: three 2-hour online sessions using Adobe Connect and one 7-hour in-person session. Locations for the in-person classes were: Bethesda, MD; Portland, OR; Worcester, MA; Cincinnati, OH; Kansas City, KS; New York, NY; Orlando, FL; Los Angeles, CA; and Shreveport, LA.

Student satisfaction evaluation data were collected using a SurveyMonkey questionnaire. Student knowledge gains were measured through a 22 question pre- and post test. The Moodle course management system is used to organize class information, participant biographies and discussions, homework assignments, quizzes, and pre- and post-tests in one place. Class participants are eligible for 15 MLA Continuing Education credits.

Participant evaluations were used to implement improvements to the class. Specific improvements implemented in Option Year 1 were as follows:

- *Added a new "rapid design" assignment: students designed a 1 hour PubMed class for particular audiences (including objectives and activities) through a combination of individual and group work.

- *Removed repetitive sections of the class, particularly overlap between the tutorials assigned for homework and the class presentations.

- *Changed the "Search Mechanics" presentation to "PubMed Nuts and Bolts" in order to help participants understand how PubMed fields are indexed.

- *Added a "Teachback" component to the "Searching for Drugs and Chemicals" presentation; participants work in small groups to teach each other what they have learned about searching for pharmacologic actions in PubMed.

NTC and NLM trainers developed and delivered a new online PubMed class entitled "PubMed for Librarians." PubMed for Librarians consists of five segments taught via Adobe Connect; participants can choose to attend any of the segments that interest them. The five segments are: "Introduction to PubMed"; "Medical Subject Headings (MeSH)"; "Automatic Term Mapping (ATM)"; "Building and Refining Your Search"; and "Customization - My NCBI." Student satisfaction evaluation data were collected using a SurveyMonkey questionnaire. Student knowledge gains were measured through a 4 question pre- and post test.

The five segments were offered as a series three times, in January, February, and April of 2013. Initially the segments were 1 hour each; however, based on student feedback from the January series, the segments were increased to 90 minutes for the February and April series. Increasing the classes to 90 minutes allowed more time for questions from participants to be answered during the presentations.

588 participants attended at least one segment of "PubMed for Librarians." The classes had an average attendance rate of 59%, based on the number of participants who registered versus the number who attended the class sessions for at least 45 minutes.

Recordings of the latest "PubMed for Librarians" segments are posted on NTC's web site.

TOXNET TRAINING

NTC and NLM trainers taught 7 sessions with 76 participants of the 6-hour in-person "TOXNET and Beyond" class in Option Year 1. Student satisfaction data was collected via a SurveyMonkey questionnaire. The in-person locations were: Bethesda, MD; Portland, OR; Cincinnati, OH; New York, NY; and Shreveport, LA.

In the fourth quarter of Option Year 1, the NTC trainers created a class plan and scripts for an online class called "Discovering TOXNET: From Paracelsus to Nanotechnology." The class will be taught in two segments; participants can choose the segments that interest them.

The class will be taught as a "flipped class." During the first two weeks of the class, participants will work independently on their own time. Class activities include viewing short instructional videos and completing assignments related to each database. Participants will turn the assignments into the instructors at the end of the two week period.

In the third week, the class will meet as a group via Adobe Connect. Activities during this session will include reviewing the assignments, answering questions, and working through reference questions submitted by the participants.

The scripts for Segment 1 of the class were submitted to NLM for review in April 2013. A beta class will be taught in the summer of 2013.

TEACHING TECHNIQUES AND ADULT LEARNING PRINCIPLES

Sharon Dennis, in collaboration with Kay Deeney, Educational Services Coordinator from the NN/LM Pacific Southwest Region (PSR), taught the asynchronous online class called "Teaching with Technology: Tips, Techniques and Tools" twice in Option Year 1. The class was taught asynchronously using the Moodle course management system. Participants who completed the class received 8 MLA Continuing Education credits. The class covered adult learning principles, options and best practices for asynchronous and synchronous distance classes, and online learning tools. 55 out of 144 registrants completed the class.

Sharon Dennis, Rebecca Brown and Sharon Brown presented a one-hour webinar called "What We Learned in "School": Stories from Three Training and Learning Conferences" on November 7, 2012. They discussed tips they learned when attending three professional development conferences, covering presentation design, tips for participant-centered training, and distance learning recommendations. Forty-three people attended the webinar. The webinar recording was posted on NTC's web site.

NCBI DATABASE CLASSES

"The Librarian's Guide to NCBI" is a collaborative project between NTC, NLM, NCBI trainers, and Diane Rein, Ph.D. The first iteration of the class was offered in two parts during the fourth quarter of Option Year 1:

1. "Fundamentals in Bioinformatics and Searching," a three-week, online, (asynchronous) self-paced pre-course, offered from March 4-25, 2013 via Moodle.

2. A subsequent 5-day in-person course offered on-site at the National Library of Medicine in Bethesda, Maryland, April 15-19, 2013.

The class provides basic knowledge and skills for librarians interested in helping patrons use online molecular databases and tools available from NCBI. It is expected that, following the class, participants will be able to improve their ability to initiate or extend bioinformatics services at their institution.

Diane Rein, Ph.D., M.L.S., Bioinformatics and Molecular Biology Liaison from the Health Science Library, University at Buffalo, developed and taught the "Fundamentals" portion of the class. Dr. Rein and NCBI staff taught the 5-day in-person workshop. The "Fundamentals" class was worth 15 hours of MLA CE and the 5-day workshop was worth 36 hours of CE.

Admission to the class required an application and a supervisor statement. Forty one applications were received for 18 seats. Janet Zipser, Sharon Dennis, Diane Rein, Eric Sayer and Peter Cooper selected applicants in mid-February 2013. Twenty two applicants were accepted into the "Fundamentals" online course with three on the waiting list for the in-person workshop. Due to the exemplary performance of the waiting list applicants during the "Fundamentals" portion of the class, all applicants were accepted into the 5-day workshop. The completion rate for both classes was 100%.

The "Fundamentals" class required students to complete seven assignments; in particular, the molecular vocabulary and NCBI discovery exercises required a great deal of time and thought on the creation end by the facilitator and the instructor, as well as on the part of the participants. Dr. Rein provided feedback to the students and assembled a master answer sheet for both exercises using answers from the students. In particular, one student provided a definition for "gene" that Dr. Rein judged "the best I have ever seen." As evidenced by the quality of the answers to the various exercises, marrying the concept of an online asynchronous course with the academic-style lecture seems to have drawn the majority of students into successfully self-learning the often complex bioinformatics material.

ONLINE SELF-PACED TUTORIALS

A new "Tutorials and Recordings" web page was added to the NTC web site to provide links to NTC's online recordings. Recordings of the "What We Learned in School" webinar and the most recent "PubMed for Librarians" sessions are available on this page.

Kate Majewski, a trainer at NLM, exported the NLM PubMed video tutorials to the Sharable Content Object Reference Model (SCORM) format. This allows other trainers to import the materials directly into a SCORM-compatible course management system (CMS).

Rebecca Brown recorded a Jing video demonstrating the rapid design database used in the PubMed for Trainers class.

OTHER ACTIVITIES

FOLLOW-UP EVALUATION PROJECT

NTC and NLM trainers worked with Cindy Olney, President of CO Evaluation Consulting

LLC, to design a follow-up questionnaire that was administered to participants of PubMed for Trainers and TOXNET and Beyond from May 2011 through October 2012. The purpose of the questionnaire was to determine behavioral changes that may have occurred as a result of the training, particularly related to search efficiency and/or improved training techniques.

The questionnaire was sent to training participants who had completed PubMed for Trainers in 2012 or TOXNET and Beyond between June 2011 and October 2012. The questionnaire received excellent response, with 200 (70%) of 287 participants returning the questionnaire.

Participant response to PubMed for Trainers was consistently positive. Eighty-nine percent said the class was the worth the time and effort invested. Most said that PubMed for Trainers improved their efficiency in performing PubMed searches (96%), their skill in conducting searches for others (96%), and their ability to help others use PubMed (97%). Eighty-four percent have used or plan to use class information to create or improve training, and 71% have used or plan to use the information for library materials. The class inspired 42% of respondents to try new teaching techniques. Respondent feedback indicated, unequivocally, that respondents left the class with improved ability to help their users with PubMed, but some said they expected the class to include more information about formal teaching techniques. Recommendations for improving the class included more search exercises and adjustment to time management (e.g., longer course; more in-person training time).

TOXNET and Beyond also received a positive response from questionnaire participants, with almost all of them agreeing that their time was well spent in the class and that the class covered expected information. Sixty-two percent of respondents said they had used TOXNET after taking the class. Most respondents reported using the information from the TOXNET and Beyond class after completing the class. Most frequently, respondents said they shared information about TOXNET with colleagues. Most respondents said they used or planned to use TOXNET as a research tool to answer reference or personal questions. The most frequent recommendations for improving the class were related to time management of the class, such as lengthening class time or providing pre-session work followed by hands-on instruction.

NTC WEB SITE AND SOCIAL MEDIA

During Option Year 1 NTC staff continued to implement a social media plan through NTC's blog, Twitter feed, and Facebook page. Blog posts include announcements of NTC classes as well as links to information about NLM databases, tools for online teaching, and adult learning principles.

From May 1, 2012 – April 30, 2013, the NTC blog received over 20,000 page visits. The NTC Twitter page has grown from 53 followers in Base Year 1 to 111 as of April 30, 2013. The NTC Facebook page received 83 "likes" in Option Year 1, up from 18 the previous year. NTC staff wrote 95 blog postings during Option Year 1. The postings appear on NTC's home page and are also funneled into the NTC Facebook page. The NTC added a PowerPoint slide to the end of all "PubMed for Librarians" segments about its social media program. Announcements are also made during the in-person "PubMed for Trainers" and "TOXNET and Beyond" sessions.

MLA EDUCATIONAL CLEARINGHOUSE

NTC and NLM continued to receive feedback about the MLA Educational Clearinghouse from RML users of the Clearinghouse, and requested changes from MLA based on the feedback.

In June of 2012, the NN/LM Education Task Force was assembled to address the question of how to organize and manage class materials created by NN/LM staff and subcontractors, now that the training page on the NN/LM server has been replaced with the MLA Clearinghouse. The task force was the result of a discussion at the Joint Coordinators Breakout Session during MLA '12 in Seattle. Representatives from all NN/LM regions and Centers are included on the task force. The task force is creating a set of guidelines that cover required online records, definitions and processes related to course materials, and author responsibilities including transferring and retiring classes. Step by step instructions were published on the NN/LM Staff Wiki. Rebecca Brown represented NTC on the Task Force.

NATIONAL TRAINING REGISTRATION PAGE

All the RML regions as well as the Outreach and Evaluation Resource Center (OERC) use the NTRP system for class registrations. In addition, the Disaster Information Management Research Center (DIMRC) is now set up to use the system.

The NTRP back-end database and PHP programming functions have been streamlined, making it easier to maintain and update.

Enhancements to the NTRP in Option Year 1 were as follows:

- *Improved the registration form so that it does not delete the user information already entered when there is a missing required field.

- *Added many customization features, including customizing the confirmation page for each class, and customizing e-mail messages for each session of each class.

- *E-mail messages can be customized for each session of each class.

- *Development of a map report; the map of the United States shows the locations of the class participants.

- *Development of a report for NTC to show which regions and states class participants are coming from as well as which NTC classes they attended. The report will be shared with the RMLs.

- *Walk-ins participants can now be added using the "Report Class Attendance" form.

In addition, Matthew Steadman worked with the RMLs on bug fixes and technical support as needed.

MARKETING AND PROMOTIONAL ACTIVITIES

Matthew Steadman worked on editing the promotional videos originally created by a marketing consultant Cyndy Salzmann. He tightened some of the transitions and other small changes. The videos are stored on YouTube and linked from the NTC web site. The NTC trainers access the materials as they work with host sites to promote NTC's classes.

NTC WEB SITE

Matthew Steadman created a WordPress "slide show" plug-in that it is featured on NTC's home page. The slide show switches between graphics depicting NTC's classes. Users can click on the slide for more information about the class. Several RMLs also implemented

the slide show on their web pages.

STAFF CHANGES

Jessica Van Der Volgen, a second year NLM Associate Fellow completing her fellowship at the Spencer S. Eccles Health Sciences Library at the University of Utah, joined the NTC team as a back-up trainer.

Lindee Radtke, Program Manager, resigned on February 8, 2013. She was replaced by Russel Henricksen on February 11, 2013. Mr. Henricksen resigned as of April 30, 2013.

Sharon Brown, Trainer / Curriculum and Content Specialist, retired on March 29, 2013.

STAFF ACTIVITIES

May 17, 2012: Matthew Steadman attended the Web-STOC Web Developers meeting in Seattle, WA. During the meeting he presented changes and improvements to the National Training Registration Page (NTRP), as well as asking for feedback about the system.

May 17-18, 2012: Sharon Dennis attended the Web-STOC Web Developers meeting and NN/LM Director's meeting in Seattle, WA.

August 8-10, 2012: Sharon Brown attended the Annual Conference on Distance Teaching and Learning in Madison, WI.

September 11-13, 2012: Sharon Dennis attended the Bob Pike Annual Training Conference in Minneapolis, MN.

October 3-5, 2012: Sharon Dennis and Rebecca Brown attended the annual meeting of the Midcontinental Chapter of the Medical Library Association (MCMLA), in Kansas City, MO.

October 8-9, 2012: Rebecca Brown attended the Presentation Summit in Scottsdale, AZ.

October 31, 2012: The NTC team gathered in Salt Lake City, UT for the annual NTC Planning Meeting.

April 15-19, 2013: Sharon Dennis and Rebecca Brown attended "A Librarian's Guide to NCBI," a 5-day in-person workshop held in Bethesda, MD.

Analysis

TRENDS IN ATTENDANCE

The online classes had a lower class attendance rate than the hybrid or in-person classes. The NTC and NLM class attendance rates for Option Year 1 were as follows:

TOXNET and Beyond in-person course: 92% (7 classes, 83 registered, 76 attended); PubMed for Trainers hybrid course: 86% (12 classes, 242 registered, 209 attended all four sessions); PubMed for Librarians synchronous online course: 62% (15 classes, 954 registered, 588 attended); Teaching with Technology asynchronous online course, offered over 5 weeks: 51% (2 classes, 107 registered, 55 completed all parts of the course).

STUDENT SATISFACTION LEVELS

NTC and NLM student satisfaction results are summarized for each class below; in general, student satisfaction levels were high for all of the classes. NTC and NLM staff monitors the student comments for each class and make adjustments to improve the class as necessary.

PubMed for Trainers (Based on 144 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (91%); Good (8%); Fair (1%)

*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (87%); Somewhat Agree (10%); Somewhat Disagree (2%); Disagree (1%)

*Course objectives met expectations: Agree (83%); Somewhat Agree (13%); Somewhat Disagree (3%); Disagree (1%)

*Course content well organized and length was appropriate: Agree (86%); Somewhat Agree (10%); Somewhat Disagree (2%); Disagree (1%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (94%); Somewhat Agree (6%); Disagree (1%)

*Overall course grades: "A" (81%); "B" (15%); "C" (3%); "F" (1%)

TOXNET and Beyond (Based on 59 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (80%); Good (20%)

*Instructional materials used effectively, relevant/useful; and hands-on exercises were useful: Agree (88%); Somewhat Agree (12%)

*Course objectives met expectations: Agree (92%); Somewhat Agree (8%)

*Course content well organized and length was appropriate: Agree (79%); Somewhat Agree (14%); Somewhat Disagree (1%); Disagree (1%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree

(93%); Somewhat Agree (7%)

*Overall course grades: "A" (73%); "B" (27%)

Teaching with Technology (Based on 56 Completed Evaluations):

*Instructor knowledge, preparation, and responsiveness to questions: High (91%); Good(9%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (93%); Somewhat Agree(7%)

*Overall course grades: "A"(82%); "B"(18%)

PubMed for Librarians (Based on 541 Completed Evaluations):

*Instructor's knowledge, preparation, presentation skills and responsiveness to questions: High (87%); Good (12%); Fair (1%)

*Course content well organized and length was appropriate: Agree (87%); Somewhat Agree (11%); Somewhat Disagree (2%)

*Participants rating of whether they acquired knowledge and skills they can use: Agree (91%); Somewhat Agree (8%)

*Overall course grades: "A" (82%); "B" (17%); "C" (1%)

Fundamentals of Bioinformatics and Searching (Based on 21 Completed Evaluations):

Instructor knowledge, preparation, and responsiveness to questions: High (90%); Good (10%)

Overall Rating: "A" (71%); "B" (24%); "C" (5%)

STUDENT SKILLS ASSESSMENT

A 22-question pre- and post-test was administered for the "PubMed for Trainers" class. The averaged scores for all NTC and NLM classes were 65% on the pre-test and 81% on the post-test.

Short 4-question pre- and post-tests were administered for the "PubMed for Librarians" class. The averaged scores for all segments were 70% on the pre-test and 87% on the post-test.

LOGIC MODEL INDICATORS

All but one of the class related logic model indicators were met. The results for NTC and NLM classes are as follows:

Indicator 1: Over 81% of the course participants indicate that they are "very satisfied" with the class (defined as an overall "A" rating). Results: PubMed for Librarians: 82% out of 541 evaluations; PubMed for Trainers: 81% out of 144 evaluations; TOXNET and Beyond: 73% out of 59 evaluations; Teaching with Technology: 82% out of 56

evaluations.

Indicator 2: A significant increase in skills and knowledge based on pre- and post test scores. PubMed for Trainers and PubMed for Librarians are the only classes where pre- and post- tests were administered. The average score for PubMed for Trainers increased by 16 percentage points, while the average score for PubMed for Librarians increased by 17 percentage points.

**Attachment 1: Tabular report of AR activity data for
contract year: NTC staff activities**