

# This Library Orientation is Fun!: Building a Successful Virtual Tour Experience for Students

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## **Introduction**

Founded as a North Carolina teacher preparation institution in 1899, Appalachian State University (ASU) prides itself on the quality of its teacher candidates and its strong teacher preparation curricula. The resources of the Justice-Query Instructional Materials Center (IMC), a model school media center located in the Belk Library and Information Commons, support these curricula. IMC librarians work and collaborate with students to design research projects and lesson plans and to create learning objects. They teach students information literacy skills and co-teach children's and young adult literature classes with professors from the College of Education.

Education majors must become proficient with information literacy skills in order to graduate as certified teachers.<sup>1</sup> As a first step in the process of understanding how to find, analyze, and use information IMC librarians believe that it is important to introduce these students to the variety of resources available in this special library collection. For a number of years librarians provided face-to-face instruction and tours to accomplish this goal. Informal conversations with IMC users, evaluation of course assignments, and feedback from education professors provided evidence that these instructional efforts were useful to students. However, librarians questioned whether they were reaching the majority of beginning education majors effectively.

The redesign of the core courses for majors in the

College of Education in 2009, growing numbers of education students on and off campus, instructional space constraints, and librarian burnout provided an opportunity to rethink and redesign our IMC orientation. This paper highlights the creation and assessment of a successful web-based virtual orientation tour that integrates video and 360-degree panoramic images by the E-Learning and Digital Initiatives Librarian and the Instructional Material Center Coordinator. The tour may be accessed at <http://www.imc.library.appstate.edu/imc-tour>. We began the creation of our tour with a review of the literature.

## **Literature Review**

Library orientation tours have been a staple of academic library instruction for many years, although tour formats changed with the advent of various technologies. Walk-around tours led by librarians, slide/tape or closed-circuit television presentations, self-guided tours using booklets, cassettes, CD players, iPods or QR codes, and games have been designed as the first step in introducing college students to library resources.<sup>2-5</sup> The use of the walk-around tour is still popular in many academic libraries.<sup>6</sup> However, many of the other formats have been discarded and replaced with virtual tours delivered via the Internet and mobile devices. Since we wanted our tour to be available on and off campus and to engage student interest by appealing to them as digital natives, we chose to investigate the literature on virtual library orientations.

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Computerized tours began to evolve as early as 1989. Librarians at the University of Houston, Central Missouri State University, and the University of Southern Colorado designed and evaluated computer assisted instruction (CAI) modules and tours. They concluded that CAI was an effective alternative to face-to-face library instruction and tours. However, they also noted that limited numbers of computers were programmed with library instruction software, restricting student access to the orientation.<sup>7</sup>

The issue of access was solved in the mid-1990s when librarians began to use the Web as a platform for library orientation tours. Mosely and Xiao used graphics, hypertext links, and clickable objects to design a web-based orientation tour for the Evans Library at Texas A&M University in 1995. These early developers found that this tour was well received by students comfortable using a computer-based learning environment. However, they also noted that the visuals in their tour did not provide the realistic 360-degree perspective students obtained from walking around a library and looking at resources identified by a librarian.<sup>8</sup> Xiao solved this problem when he created a tour using panoramic virtual reality technology. The use of 360-degree views of library spaces merged the concept of a walk-around tour with traditional virtual tour design, offering students remote access to a more realistic learning experience.<sup>9</sup> The literature does not reflect that other academic librarians chose to use the technology in this way.

In 2000 Oling and Mach published results of a survey that examined the use of librarian-guided, self-guided, and virtual Web tours in 111 academic libraries that were members of the Association of Research Libraries (ARL). Their findings indicated that 93 percent of the sixty-eight responding libraries offered guided tours as a means to introduce students to library facilities and services. Self-guided tours were the second most popular tour option and virtual tours ranked third in popularity for introducing library resources.<sup>10</sup> Given the date of the survey it is not surprising that virtual tours ranked third in prevalence. It is interesting to note that these virtual tours were often included in library instruction sessions rather than being offered as an independent learning option for students. Oling and Mach also discovered that 65 percent of the libraries surveyed did not formally evaluate or solicit feedback on tour effectiveness, regardless of format.<sup>11</sup> In the same year Tolppanen,

Miller and Wooden reported findings from their survey of the websites of 133 medium-sized academic libraries and found that twenty-four of these libraries provided web-based virtual tours. They concluded that "... library Web sites are underused in providing self-guided library instruction to students,"<sup>12</sup> and noted the absence of evaluative components in the tours and tutorials that did exist. They suggested that librarians develop virtual tours and other self-paced learning objects to supplement classroom bibliographic instruction.<sup>13</sup>

Mach and Oling surveyed Association of Research Libraries again in 2002 and discovered that the use of virtual tours in ARL libraries had increased since their 2000 survey. Sixty-six ARL libraries (54 percent of respondents) offered virtual tours in 2002. Noting this, Mach and Oling recommended that librarians evaluate the use and effectiveness of these tours to determine their instructional value.<sup>14</sup> Tolppanen et. al. repeated their survey of 133 medium-sized libraries in 2003 and found results somewhat similar to Mach and Oling. The number of virtual tours in their population increased from twenty-four to forty-three, an increase of 14.3 percent. However, they noted that the use of audio and video capabilities was being underused in the development of tours and other instructional objects, and that only four of the virtual tours contained an assessment.<sup>15</sup>

This interest in the development of virtual tours in academic libraries increased, in part, because of the use of other types of online instruction. For example, Kocour found that the inclusion of a virtual tour in his library's online instructional tutorials expanded students' knowledge of library facilities and services and gave students a foundation for face-to-face library instruction. He also noted that the use of the Internet made basic library instruction accessible to distance learners.<sup>16</sup> Another factor influencing the development of web-based instruction were publications such as Dewald's article, "Web-Based Library Instruction: What is Good Pedagogy?"<sup>17</sup> and Smith's book, *Web-Based Instruction: A Guide for Libraries*.<sup>18</sup> These tools, and others like them, helped librarians to understand the value and uses of online instruction, and provided guidelines for designing electronic instructional objects. Both publications continue to be referenced in the literature and Smith's book is now in its third edition.

One can see the influence of these publications on web design in articles that describe the creation of

web-based tours at specific academic libraries. Hickok pointed to the need to evaluate virtual tours formally and informally in a discussion of a tour incorporating streaming video and interactive tutorials at California State University.<sup>19</sup> Kittelson and Jones discovered that students appreciated the organizational features of a tour developed using the constructs of good web design at the University of Otago Science Library in New Zealand. While they enjoyed the organizational structure, remote access, convenience, self-paced nature, and flexible options that the tour provided, students noted that they could not ask questions about unclear materials and that it was difficult to visualize library spaces.<sup>20</sup>

In their case study describing the creation of a virtual tour at Mississippi State University, Ashmore and Grogg emphasized the need for collaboration between librarians, the importance of beginning tour development with a good design concept, and the need to test the tour repeatedly during the design process.<sup>21</sup> Sciammarella and Fernandes noted the importance of recognizing the needs and characteristics of the population for whom a tour was being designed.<sup>22</sup> A preliminary study at Kent State University by Burhanna, Voelker, and Gedeon compared the effectiveness of online and face-to-face tours. They found that both tour formats were equally effective in helping students obtain positive perceptions of the library and understand the availability of library resources, although students liked the convenience of the virtual tours.<sup>23</sup> Incorporating these design recommendations into new virtual tours will result in a more effective learning tool.

### **Creation of an Instructional Materials Center (IMC) Virtual Tour**

We designed our virtual tour in collaboration with College of Education professors supervising the field component of PSY 3010, Psychology Applied to Teaching, and a small group of education majors. Three educational goals were established for the tour. First, we wanted students to become familiar with the types of IMC materials and services available. Second, we wanted to illustrate how these resources could be used to design and complete class projects. Third, we wanted to demonstrate how students could use IMC resources to complete a specific field experience assignment in the class. Based on recommendations in the literature, we decided that the tour should be ac-

cessible remotely, self-paced, interactive, and easy to navigate. Completing the tour required students to come to the IMC to locate a title, reinforcing instructional content. We also wanted to evaluate student learning and reaction to the tour with summative and formative assessments.

The tour asks students to navigate through four sections of the IMC via 360-degree panoramic images and to view photographs of the types of library materials housed in each location. This helps them visualize the physical space. Four videos are integrated into the tour to illustrate the process of working with librarians to identify and locate resources. The videos also show students ways that IMC materials can be incorporated into lesson plans and other assignments. Upon completing the tour students must come to the IMC, find a specific title in the collection using the search strategies illustrated in the videos, and note the barcode for that title. Use of the bar code permits access to a quiz that evaluates student learning and reaction to the tour.

We began the process of designing the tour by creating the learning objectives we wanted to meet. Based on the content delivered in the previous in-person library instruction sessions, we decided to provide pictures and text of the various types of materials and services that were available in the IMC. Panoramic images were selected for several reasons. The first was our decision to provide a sense of the physical space in the IMC. Second, the panoramas offered an innovative presentation of the information that would engage our students. We hoped that this would overcome their preconceived notions about the usefulness of the tour.

Once the format of the tour was determined, four areas were selected based on the size and layout of the IMC space. Each of these locations would be the focal point of one of the 360-degree panoramas. Game-like elements were included with the addition of a jigsaw puzzle that needed to be filled in to complete the tour. The puzzle element provided students instant feedback on their progress within the tour and kept engagement high over its course. We selected a graphic with sixteen puzzle pieces and then assigned each piece of the puzzle to one of the four locations depending on the space in which they were located. For example, the five hotspots in the Idea Factory (location four) were placed there because the five resources available to students were located in that area.

An additional hotspot, not connected to the puzzle or content, is found when hovering over the image of the life-sized stuffed bear ("Fred") housed in the IMC.

We also embedded movies into the tour explaining how students could use IMC resources to design a required course assignment. The IMC Coordinator thought that a key piece of content to be delivered to students was a model of a successful interaction between a librarian and a student. This had not been included in the face-to-face tour. We felt that it was important for education majors to learn to interact with librarians throughout their school and teaching careers. The movies serve the dual purpose of highlighting a successful librarian-student interaction and giving them guidance for their classwork.

After the topic areas for the hotspots and the locations were selected, the IMC Coordinator was responsible for writing scripts for the videos, photographing the materials included in each hotspot, creating the text that accompanied each hotspot, and designing the quiz questions. She wrote the scripts in consultation with several education majors who were familiar with the class assignment. These students provided valuable feedback about information they thought should be included in the videos. The E-Learning and Digital Initiatives Librarian was responsible for programming the application, creating the panorama and hotspot images for the four areas, placing the quiz content in appropriate software, and making the programs interact.

An informal web survey of available tours and software did not find any applications that met our needs for the project, so we designed and developed a unique tour using JavaScript and the JQuery framework. The panoramas were created by stitching together sixteen pictures for each area into three or four pictures using the open source program Hugin (<http://hugin.sourceforge.net/>). The quiz is delivered via a Flash file created in Adobe Captivate, with a JavaScript wrapper that checks the credentials of the student before allowing them access to the quiz. This ensures that each student takes the tour and completes the quiz independently. The credentials consist of the student's name, University ID, and the barcode of the title they retrieve after completion of the tour. If the ID and barcode do not match the data in the database the student is denied entry. The titles the students are asked to locate are provided by a MySQL database containing 450 items selected by the IMC Coordina-

tor. As each title is used by a student, a field in the database is incremented as a counter that records title usage. Each student who completes the tour is provided the next title with the lowest usage count in the MySQL database, so a title can not be selected again until all titles have been used. This avoids multiple students looking for the same title at the same time. It also prevents students from using the same barcode to access the quiz.

The tour starts with a page that provides directions for the student. After clicking to begin the student enters his/her credentials. The tour begins at Area One, where the first of four movies depicting a model librarian-student interaction plays. The movies will play in the correct sequence, regardless of the order of the areas the student chooses to visit. After the completion of the first movie three popup boxes explain the directions again. This was added after the first round of testing with the tour, because students often began the tour after skipping the explanatory text and did not understand what to do or how to do it.

The student is then free to move between any of the four areas looking for the hotspots. A piece of the jigsaw puzzle is filled in every time a student finds a hotspot. Once the student finds all the hotspots in an area a checkmark is placed on that area in the overhead map to mark it as completed. Once all sixteen hotspots have been found and the jigsaw puzzle filled in the students are shown a congratulatory message and the title and bibliographic information of an item in the IMC collection. They are asked to locate the item on the shelf and copy the sequence of letters and numbers on the barcode. The correct barcode information will allow the student to gain access to the quiz.

### Assessment

Both summative and formative assessments are included in the quiz taken at the end of the tour. The summative assessment consists of a pool of fourteen multiple choice questions. One of the questions is answered by all students and nine additional questions are selected randomly from the pool. The quiz evaluates student recall of information about IMC resources and services.

Summative results gave strong evidence that the tour was effective in achieving its learning goals. On seven of the fourteen questions, respondents were

able to identify the correct answer 100 percent of the time. Four more questions yielded correct results for over 90 percent of respondents. Only one question had a correct response rate less than 80 percent.

The formative portion of the assessment asks the respondents if they agree with the statement “I think that the IMC Orientation will help me in my Education classes.” The responses were overwhelmingly positive, with 86.1 percent of respondents saying that they “Somewhat Agree” or “Agree” with the statement.

There was also a space provided for open-ended comments, and many respondents provided enthusiastic responses. An example of these positive comments states:

I thought the IMC orientation was a very well thought out and well put together tour. I thought it was very helpful and I enjoyed the way it was set up. I thought it was really amusing that you could click on the bear and that made me happy. I liked the video clips that showed an actual example of something a teacher would need for her class and how to go about putting that together.<sup>24</sup>

### Lessons Learned/Next Steps

We encountered several problems after making the tour live. Some students were unable to access the quiz because they attempted to use an incorrect barcode. This usually happened when they found the wrong copy of a title. We responded by removing all titles with multiple copies from our database. In addition, we discovered that students did not take the tour at the beginning of the semester as instructed, and some tried to avoid it altogether. We asked the instructors to make the tour mandatory with a deadline for completion to ensure the greatest amount of participation. The instructors were happy to comply with this request.

We also discovered just before the tour went live that some students who would be asked to take the tour were online-only students in remote locations. This made it unfeasible for them to travel to the Instructional Materials Center to locate an item. To accommodate these students, we created a ‘magic’ barcode number that would provide entry to the quiz. We distributed it only to the online students.

After the first two semesters of use, we realized other librarians may be interested in adapting the tour

for their own instruction. We decided to rework the programming so that the application could be freely available to others. We also created instructions for adaptation. As part of this reworking of the code, flexibility for other users was considered, so options for movies, sound, and hotspots are now included.

### Conclusion

The IMC Virtual Tour has been in use for five semesters as of Spring 2013. Students continue to respond to it favorably. The success of this project was due in large part to the collaboration between the IMC Coordinator, the E-Learning and Digital Initiatives Librarian, two professors from the College of Education, and input from education majors. The time spent at the beginning of the project articulating learning objectives, thinking through the steps of the tour from the user’s perspective, designing the technical aspects of the tour, and creating an assessment instrument based on the learning objectives were crucial to the project’s success. We viewed this tour as the basis of the IMC’s information literacy instruction program, so we were careful to limit the information covered. In subsequent library instruction, more sophisticated information literacy and research skills are introduced.

The tour itself has many aspects that contribute to its success. An emphasis on interactivity, the innovative look and feel of the tour, and its game-like elements engage students quickly and keep their interest. There is even a small element of surprise, as students discover when they click on the bear only to have it growl at them.

This positive experience has encouraged us to look for collaborative opportunities to develop other online components for the IMC’s information literacy program. We also hope that other librarians will take advantage of this application to develop virtual tours.

### Notes

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