# Introduction

My previous experience with technology spans twenty years and starts with the long-obsolete green-on-black screens of Wang computers, followed by a few happy years with Apple before switching permanently to the Microsoft environment. I have been using MS Word, Excel, and PowerPoint for quite a few years, expanding my knowledge on an as-needed basis as new functions and options became available. During my career as a real estate agent I briefly owned a website that could be customized to a certain degree. As a classroom teacher, I quickly embraced technology as a time-saving tool that allowed me to connect to the school-age generation and, at the same time, as a tool to bring the world right to their doorstep, an important factor in my role as a German teacher. By taking this class, I fulfilled the ISTE goals two and five for teachers to “model digital-age work and learning” and “engage in professional growth”. More on ISTE standard for teachers and students can be found on my website under the *Standards* tab.

Having arrived at the end of online class INDT 501 on Instructional Technologies it is interesting to review what we have accomplished, what new ideas have been disseminated, and how we achieved the class goals of developing technology literacy by investigating, planning, creating, and accessing instructional materials; of integrating appropriate technologies and explaining the use and underlying theories of instructional materials; and finally, of evaluating instructional materials and instructional strategies by developing, demonstrating and supporting the use and integration of instructional materials. The next few pages will demonstrate the ways I have pursued and achieved these goals. All work I have accomplished in the Instructional Technology class and that is referred to in this paper as “my website” has been published on the website I have created in the frame of this class: <http://www.deutschfueralle.weebly.com>

# Technology Literacy

As already mentioned in the introduction, each student created a website for the web authoring portion with multiple pages, specific features and hyperlinks, both internal and external with the option to further personalize it as needed. This website had to include a home page, an ‘About Me’ page and a link to our resume, a ‘Contact’ page through which we could be directly e-mailed, a ‘Philosophy’ page describing our educational and content-area-specific philosophy, a ‘Search Engines’ page as described in the following paragraph, a *Resources* page featuring web resources in our content area, a ‘Standards’ page listing the suggestions and guidelines of the International Society for Technology in Education (**ISTE**) for students and teachers, and finally a ‘Technology’ page which highlights our newly acquired or enhanced skills in the field as well as demonstrates ways each student has found to integrate these skills into their particular content area. These skills involved MS Word and Excel, PowerPoint, Access, and Desktop Publishing with Adobe 9, as well as synchronous and asynchronous telecommunication. All internal links connect to a hidden *Filing Cabinet* page.

We pursued our goal of technological literacy by experimenting with three types of search engines in order to investigate and access instructional material. First, we explored **general search engines** that crawl through the web like spiders and cache information. Under this category I used and analyzed Yahoo!, Alta Vista, and the Germany-specific GermanyCrawler as an alternative to the Google default. Under the category of time-saving **multi**-**threaded** and **meta**-**search** **tools** which direct a search to multiple Internet search engines, I examined and analyzed Metacrawler. Search results under this category can be more relevant and comprehensive. Finally, we looked at **categorical search engines**, which are very useful when one knows exactly what type of media or other general area of interest one is looking for. I explored YouTube, SwissInfo.ch and various German, Austrian, and Swiss city web sites. The results to my research can be found on my website under the *Search Engines* tab. In addition to the required tabs I created an Administration tab and a German lessons tab which branches out into multiple additional pages to set up a system for use in my daily function as a German teacher.

Under *Resources*, I analyzed and described six websites in and outside Germany that provide useful information about either German language learning, or German culture, or both. Under the same heading I linked a multi-cultural bibliography for German I through AP level that I had created in another class.

As for the technology skills and techniques, I created and/or demonstrated the following:

In **MS Word**, I created a tutorial that explained to students how to access a specific document on our class page within the county school website. The tutorial involved writing an introduction to the assignment, then creating a two-column table, converting screenshots into images in **Paint**, then inserting them in the Word document, providing a step-by-step description of the process while inserting shapes such as arrows and circles and highlighting text in order to help student maneuver through the tutorial.

In **MS Excel**, I created a design spreadsheet report of a student survey on their experience of a project called “Virtual Trip to Germany”. I displayed the results in a pivot table with interactive cells and also provided a multi-color pie chart of unprompted non-trip-related things that students felt they had learned.

In **PowerPoint**, I created a presentation on the German holiday of St. Nicholas involving too many specific skills to list here which included an interactive quiz at the end of the presentation, timed animation of text and pictures, external links, compressing pictures, and various types of formatting.

 Under **Desktop Publishing**, I created a stats card with a photo for myself in MS Word and converted it into a PDF file with **Adobe 9**. I then uploaded the card to our university class website, downloaded the other students’ stats cards. Next, I created a front and back cover as well as a table of content, assembled these documents with the states cards into a binder. Finally I created bookmarks throughout the document.

I used the **MS** **Access** software to create a database for a multi-school German Club, ran a query and a report on how many students had made a down payment for a trip and/or had completely paid.

Besides programs, we also learned techniques. I demonstrated my **Web Authoring** skills by creating my Web site as described at the beginning of this section. I named my Web site *Deutsch für alle* (“German for everyone”) because I believe that everyone can learn German despite its reputation of being difficult and because I am a firm supporter of the integration of foreign languages and technology in an effort to prepare students for a competitive global job market.

Finally, for the **Telecommunications** portion—which, like web authoring, constitutes a technique rather than a program—I completed two assignments: one synchronous and one asynchronous example. For the synchronous part, I organized a meet for my group in a chat room where we discussed three articles on Reflective Practice.  Then I edited the transcript by including an introduction and background, examples of the chat, and a discussion of my experience. For the asynchronous portion I read three articles on 21st-century skills, and then posted my thoughts on a discussion board. I also responded to other posts, edited the discussion with focus on my input and concluded by summarizing my experience. I also communicated with the instructor and other class members via e-mail with attachments, used a USB drive, and posted assignments to and downloaded information from the online discussion board.

# Technology Integration

Before applying technology to our own teaching, we explored various theories on instruction in general and technology instruction specifically. We reviewed the action verbs of Bloom’s Taxonomy and compared them to the Dick and Carey Model which describes nine phases of an iterative process, a model which starts by identifying instructional goals and ends with summative evaluation. Next we looked at fusing these two models with Lawrence Tomei’s six-step taxonomy for the technology domain which are literacy, collaboration, decision-making, infusion integration, and tech-ology.

Through the Discussion Board, the class evaluated 21st-century skills as presented by the Metiri Group’s brochure (2003) which tries to define the parameters of digital-age literacy, inventive thinking, effective communication, and high productivity in a rapidly changing world and an unknown future for which today’s teachers are trying to prepare their students.

We read three articles by or about Donald Schön written by Joan M. Ferraro (2000) and M. K. Smith (2005) about the importance of reflection, involving notions such as “learning society”, “double-loop learning”, “reflection-in-action” and “reflection-on-action”, and the need to develop new systems from the periphery rather than from the inside of the system. These articles served as foundation for the telecommunications discussion, as described in the previous section on Technology Literacy.

# Evaluation of Technology Integration

Combining technology skills and turning the theory of technology integration into practice, I integrated the skills as outlined in the section on Technology Literacy into lesson plans and activities in my content area. In addition to using the skills myself to produce material for my classroom, as mentioned in the Technology Literacy section, I created an either a full or condensed lesson plan, or a shorter reflection on the possibilities that each skill set offers in a German classroom setting.

I have confirmed old instructional habits as valid, such as using technology for quarterly projects, where students create PowerPoint presentations on a theme, such as a German-American of their choice or on one of the German or Austrian states or Swiss cantons; use MS Word to create a brochure, such as a menu or to showcase a city or region; or use Excel to create schedules to demonstrate knowledge of the German school system. I also had my students use flash drives and e-mail with an attachment in the past to transfer their presentations, of course, conduct internet research and web quests (after completion of their book and periodical research). I have also used asynchronous telecommunication in my German IV class with one student at one school and two students at the other school which enabled all three to discuss a trade book in a non-traditional way that could be monitored by me outside classroom hours. In the future I will apply my newly acquired knowledge by introducing students to the different types of search engines and give them more specific instructions via tutorials. I plan on including the conversion into portable document format (PDF files) to help showcase student work without having to destroy their creative formatting, while at the same time protecting their documents from alterations by third parties and enabling them to be published in a more user-friendly format. Given the opportunity, I would like to experiment with Web authoring by having students create class, group, or German club Web sites. I also plan on expanding telecommunications to include synchronous chat-room style options as an additional way to express themselves through media that they are familiar with and use on a day-to-day basis, while also serving as proof for participation.

# Conclusion

In retrospect, I have expanded my knowledge on instructional technology in many ways. First, I have learned of the existence of actual standards for the field both for teachers and students, which lends more structure to my own goals for and requirements of students and has helped me understand Virginia Standard of Learning and Spotsylvania County curriculum requirements much better. Second, I have learned new skills, such as working with new programs such as Adobe 9 or MS Access, and new techniques, such as web authoring which I had never attempted from scratch and the use of html formatting, which I am proud to say I have taken a first stab at in my online German I first Quarter weather unit—even if only by copying and pasting—and synchronous telecommunication by participating in a chat room, an experience that I do not necessarily consider to be my preferred type of communicating ideas but for which I have come to understand a definite use for impromptu discussion of a subject with a student body that is characterized by a short attention span.

I appreciated exposure to the theoretic side of integration into the classroom by perusing the works of groundbreakers and frontline groups in the field of instructional technology who have given focus and direction to the world of increasing information and channeled this focus towards furthering education rather than for shallow entertainment. I enjoyed being given a variety of viewpoints, all of which admitted the field to be rather new and requiring further research and constant updating.

Finally, I gained an edge by being prompted to put my newly acquired knowledge into practice, not just by using the technology skills, techniques and strategies myself, but by having to create actual lesson plans (or—due to time restrictions—at least thoughts on how to turn them into lesson plans) by requiring my students to learn and apply these skills, techniques, and strategies themselves and thus be prepared for joining academia, the work force and a competitive global society.

# References

Department of Education. Division of Technology Department of Educational Technology. Retrieved April 16, 2010. http://www.doe.virginia.gov/VDOE/Technology/techstds.html

Ferraro, J. M. (2000, October). *Reflective practice and professional development. ERIC Digest.* (Monograph). Retrieved from http://www.ericdigests.org/‌2001-3/‌reflective.htm

Lee, H.-S., & Lee, S.-Y. (1996, November 27). Dick & Carey instructional design model. In *Education 626: Educational software design and authoring* (class presentations) [Presentation]. Retrieved April 17, 2010, from University of Michigan website: http://www.umich.edu/‌~ed626/‌Dick\_Carey/‌dc.html

METIRI Group. (2003). *EnGauge 21st Century Skills* [Brochure]. Retrieved from http://www.ncrel.org

The International Society for Technology in Education. NETS 2000 for Teachers. Retrieved April 16, 2010. http://www.iste.org/Content/NavigationMenu/NETS/ForTeachers/2000Standards/NETS\_for\_Teachers\_2000.htm

The International Society for Technology in Education. NETS 2007 for Students. Retrieved on April 16, 2010.
<http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_>

 Students\_2007.htm

Pody, B. (2010). *Deutsch für alle*. Retrieved April 17, 2010, from http://www.deutschfueralle.weebly.com

Schön, D. (1987). *Educating the reflective practitioner*. Presentation presented at American Educational Research Association, Washington, DC.

transcribed by Jan Carrick, January 1998, posted by Tom Russell, Queen’s University, January 1998, http://educ.queensu.ca/‌~ar/‌schon87.htm

Smith, M. K. (2005, February 11). Donald Schon (Schön): Learning, reflection and change. In *Infed, encyclopedia-archives-extras* [book review]. Retrieved from http://www.infed.org/‌thinkers/‌et-schon.htm

Tomei, L. A. (2001).  Writing learning objectives using a taxonomy for the technology domain.

Duquesne University, School of Education. Unpublished manuscript.