

Using ICTs to Teach Love of Country

Ma. Mercedes T. Rodrigo, Ph.D.

Department of Information Systems and Computer Science
Ateneo de Manila University
Loyola Heights, Quezon City
Metro Manila, Philippines
+63 (2) 426-6071
mrodrigo@ateneo.edu

Abstract. The Ateneo de Manila University's Department of Information Systems and Computer Science and the Ateneo de Manila Grade School are developing interactive, multimedia instructional modules for Araling Panlipunan (AP; civics or social studies), one of the most disliked subjects in the curriculum. It is tragic that AP is disliked since AP is the only subject that teaches about Philippine history, culture, and heritage: it is the only subject that teaches love of country. The modules were created in order to add to the available materials for teaching and learning AP; to make innovative use of the school's technology resources; and to help students and teachers reap some of the benefits associated with technology use in teaching and learning. This paper details the process by which these modules were conceptualized, designed, implemented, and tested. It also describes the status and directions of the project, and opportunities for further research.

Keywords. Social studies, computer-aided instruction, Ateneo de Manila University, primary school, middle school

Context

Both the public and the private sector of the Philippines have invested in information and communications technologies (ICTs) as tools to transform teaching and learning. For Philippines and other countries with national information technology policies, infusing ICTs in education is intended to cultivate creative industrial manpower capable of participating in the knowledge society and contribute to economic development (UNESCO Asia and Pacific Regional Bureau for Education, 2002).

In support of these objectives, Philippine society has endeavored to infuse schools with ICTs. In 1996, The Philippines Department of Education (DepEd) undertook a P375 million modernization program for the benefit of Philippine secondary schools (Philippines National Information Technology Council, 1997). The DepEd also forged partnerships with private corporations in which these corporations donated equipment, software, or Internet access to underserved schools (Andrada & Abcede, 2002). On its own part, the Science Education Institute of the Philippines Department of Science and Technology (DOST-SEI) donated computers to 110 schools nationwide (p. 14). The DOST-SEI also created several mobile IT classrooms: air-conditioned buses outfitted with laptop computers and public address systems. These mobile classrooms serviced schools in areas with limited access to ICTs.

There is concern that investments in ICTs are not being maximized. In his book, *Oversold and Underused: Computers in the Classroom*, Larry Cuban (2001) lamented that the

overwhelming majority of teachers used ICTs to sustain existing patterns of education rather than to innovate and that the introduction of ICTs has not achieved the deep and comprehensive changes that their proponents have sought.

On an international level, UNESCO noted that ICTs are introduced as a subject area in themselves, rather than as tools to facilitate the learning of other subject areas. When they are integrated, select subjects such as English, Math and Science are given priority (UNESCO Asia and Pacific Regional Bureau for Education, 2002).

In the Philippines, evidence indicates that Cuban's observations also hold true. A nationwide study conducted by the DOST's Science Education Institute (2001) found that 50% of computers in schools were being used computer literacy. Only 11% of computers were used for science education and only 9% were used for mathematics.

Within the National Capital Region of the Philippines, primary and secondary principals of both public and private schools expressed commitment to using ICTs to promote active, independent, and individualized learning. In practice, however, the acquisition of computer skills was paramount (Rodrigo, 2003b).

Although valuable, teaching about ICTs is deemed by many as a waste of technological muscle (Tinio, 2002). This approach does not maximize investments in multimedia-capable machines or those with Internet connectivity. Furthermore, schools that adopt this approach are unable to effect positive changes to pedagogy such as an improvement in student achievement and a transformation of the learning process (p. 27).

One of the primary reasons for limited use of ICTs is the lack of instructional software (Rodrigo, 2003a). Indeed, there is a dearth of computer-based instructional materials regarding the Philippines and Filipino-related topics. Tinio (p. 13) observed that, while schools may have software for English, Math, and Science, there is a scarcity of software for Araling Panlipunan (AP; civics or social studies) and Filipino, the national language.

Teaching Love of Country

This paper focuses on the use of ICTs to teach AP, one of the most disliked subjects in the Philippines's basic education curriculum. Taught in Filipino, the vernacular, AP is hated because teaching techniques are generally limited to lectures and learning is tantamount to memorization of obscure terms and facts. That this subject is disliked is a tragedy because it is the only subject in the basic education curriculum that explicitly teaches about the geography, history, current events, culture and heritage of the Philippines: It is the only subject that teaches love of country.

In 2001, the AP teachers of the Ateneo de Manila¹ Grade School expressed their desire use the school's ICTs assets to change students' negative attitude towards AP. Because studies have shown that ICTs increase student motivation, retention and transfer of knowledge, the Ateneo faculty believed that the integration of ICTs into the teaching and learning process will increase student interest in and decrease student dislike for AP.

¹ The Ateneo de Manila University is a privately-owned, Jesuit university in Loyola Heights, Quezon City, Metro Manila Philippines. It has an all-boys grade school and high school and a co-educational university.

In response to this expressed need, a partnership formed between Helen U. Amante, the AP coordinator of the middle school, and the author of this paper who was teaching the Computer-Aided Instruction class (CS 178) at the undergraduate level. The objective of this partnership was to produce computer-based learning materials for AP. The grade school teachers agreed to provide the subject matter and instructional strategy expertise, while the author and her students would create appropriate interactive, multimedia learning modules.

The parties involved agreed on several essential module characteristics:

- **Curriculum-based.** The modules were designed based on the minimum learning competencies for AP as prescribed by the Department of Education. The design and development process was overseen by AP teachers who were well-versed in the subject matter and current instructional practices.
- **Brief.** Each module was designed for 20 minutes of contact time with the student. Since each class period was 40 minutes long, the teachers and students needed time to move to the computer laboratory, use the module, process the learning experience, and then exit from the laboratory.
- **Supplemental.** The modules would be used to augment and not to replace classroom instruction. Depending on a module's design, it may be used as a motivational tool, as part of the discussion, as an enrichment activity, or as a review.
- **Multimedia.** The modules made appropriate and judicious use of text, sound, graphics, animation, and video.
- **Interactive.** The modules allowed students to navigate through the subject matter at their own pace. Whenever appropriate or possible, users answered questions or gave inputs that affected the flow and outputs of the module. Whenever appropriate or possible, the users received meaningful and constructive feedback in response to their actions.

The parties involved believed that these modules would

- increase the variety of learning materials for AP
- promote innovative utilization of the school's ICT resources, and
- help students and teachers attain some of the benefits associated with ICT-based learning, e.g. increased student motivation, increased retention, and increased transfer.

Module Development Lifecycle

The module development lifecycle had several stages, most of which had deliverables that were submitted for review and feedback. These deliverables represented project milestones that enabled the AP teachers and the author to assess the status and directions of the students' work.

Identification of learning goals and objectives

The module development process began with an identification of learning goals. The AP teachers gave the CS 178 students a list recommended topics. These included but were not limited to parts of the globe, the various regions of the Philippines, Philippine heroes, uprisings during the Spanish era, religious diversity, and environmental issues.

The CS 178 students formed groups of up to three people. Each group then selected a single topic which they would implement throughout the semester. The students' first task was to

break down the broad learning goal into specific, measurable learning objectives (see Table 1). This task often required the CS 178 students to refer to existing AP textbooks.

Learning goal: This module will acquaint the learner with the parts of the globe.
Specific learning objectives: <ul style="list-style-type: none">• The learner will state that the globe is a representation of the earth.• The learner will state that the North Pole is the northernmost point of the earth.• The learner will locate the North Pole on the globe.• The learner will state that the South Pole is the southernmost point of the earth.• The learner will locate the South Pole on the globe.• ...

Table 1. Example of breakdown of a learning goal into specific learning objectives.

Through this exercise, the CS 178 students established the breadth and depth of their modules. The breakdowns were submitted to the AP teachers, who checked them for accuracy and completeness. Modules that contained too much information were trimmed.

Gathering of source materials

When the scope of work was established, the CS 178 students with the help of the AP teachers gathered the source materials that they could use to develop the modules. These materials came in the form of additional text or reference books, magazines, videos, and Internet-based materials.

Learner analysis

Concurrently, the CS 178 students interviewed the AP teachers regarding the characteristics of the target learners. A specific topic was targeted at particular grade level—4, 5, 6, or 7. The CS 178 students profiled these learners according to their academic background, computer literacy, interests, media preferences, social characteristics, and other dimensions that may be useful in the design of the module.

It was established that the Ateneo grade school learners were generally above-average. They had access to technology and were proficient at working with ICTs. They were generally visual learners who did not enjoy listening to lectures. They preferred to see or, better yet, interact.

Formulation of instructional strategy

Once the CS 178 students were familiar with the material and the target learners, they formulated their instructional strategy. Some students opted for a tutorial approach where the students would be guided through the material and then quizzed at the end. Other students preferred game or simulation approaches. For example, one group teaching about the parts of the globe asked learners to return animals to their appropriate latitudes. A common technique was to send learners on scavenger hunts throughout various Philippine provinces, to become acquainted with the history, culture, trade, and interesting sites of those locales.

The proposed instructional strategies were presented to the AP teachers for comment. A few AP teachers wanted to take conservative presentation formats, such as page-turning, electronic book approaches. The CS 178 students had to explain that these types of approaches were too limited and did not make good use of the technology and that these projects were opportunities to depart from convention, to experiment with something new

and different. Confronted with these arguments, the AP teachers consented to more innovative designs.

Scripting and storyboarding

The instructional strategy was articulated in scripts and storyboards. The scripts contained all the subject-matter related text and dialogue. They indicated opportunities for learner interaction with the module and module responses to learner inputs. Scripts also contained secondary details such as navigation, directions, control features, and help.

Storyboards showed templates for various screen layouts. The CS 178 students had to define screen areas for information, learner input, feedback, control, and navigation.

The scripts and storyboards were again submitted to the AP teachers for review. The AP teachers generally responded positively to the submissions.

Implementation

The CS 178 students then implemented the modules using a suite of multimedia tools. Some of the media had to be processed using Adobe Photoshop or Adobe Premiere. Additional media sometimes had to be developed using Macromedia Flash. However, the principal authoring tool used to create the final deliverable was Macromedia Authorware.

Halfway through the implementation stage, the modules were presented to the AP teachers for comment. The AP teachers gave suggestions regarding font sizes, colors, media quality, and other design details. The CS 178 students accommodated these suggestions whenever possible.

Testing

When the modules were completed, they were tested with members of the target audience. Three to five Ateneo grade school learners were asked to test each module. They were observed as they used the modules. When they were finished, the CS 178 students asked them for feedback using questionnaires and interviews.

The grade school learners were generally pleased with the modules. They were excited about the prospect of using these modules during their AP classes. They liked the use of various types of media and were particularly captivated by modules that used game and simulation approaches.

Some areas for improvement did emerge from the observations, questionnaires, and interviews. Some games were deemed frustrating. Some media quality, particularly sound, was difficult to understand. Some modules were too long and too monotonous. They were unable to sustain the students' interest.

Classroom use

Despite the modules' limitations, some were used for actual classroom instruction. The learners who used them were generally positive about the modules. The learners enjoyed the variety of media that the modules made available to them. A module on the presidents of the Philippines left them singing *Mambo Magsaysay*, the campaign song of the late President Ramon Magsaysay.

The learners were entertained even by themes that may be considered corny or campy. For example, one group used puns or plays on words to help students remember the cities within the province of Bicol. An elf-like character in the module, representing Legaspi City, was named Legolaspi, after Legolas of *Lord of the Rings* fame. Another character, representing Daet City, was overweight and hence needed to go on a diet. Another module on the Autonomous Region of Muslim Mindanao, learners developed an affinity to a character named Pawee, short for *pawikan*, the Filipino word for turtle.

Note that, since there were no regularly scheduled computer laboratory hours for anything other than computer classes, the AP teachers had to make special arrangements. Classes had to be interchanged for students to have computer laboratory time for AP. As a consequence, though, not all classes were able to use the modules. Those classes that were unable to use the modules complained to their teachers, citing the deprivation as unfair.

Next Steps

Because these modules were created by college students, the modules' quality was variable. Some were well-designed and well-executed. Others simply met the minimum requirements for passing CS 178. Also, program maintenance was impractical. Although the students left their source files, there was no organizational support to make modifications or improvements after the CS 178 students had finished the course.

In 2003, the faculty members from the grade school and the author agreed that time had come to professionalize and standardize the production of these modules. A development team was created to design, implement, test, and maintain the AP modules.

The Ateneo has not undertaken this project for financial gain. Although the members of the team will be compensated, the modules themselves are not envisioned as a commercial product. Rather, the development team envisions making these modules available to the public free of charge or at a subsidized price.

The financing of the production cost is therefore a major issue. Although the Ateneo has generously consented to providing some financial support, the development team is also seeking funding from public and private organizations to augment the Ateneo's budget. At the time of this writing, no public or private funds outside of the Ateneo have been made available. The development team is currently seeking permission from the Philippines National Center for Culture and the Arts to make use of their pictures and audiovisual materials on a royalty-free basis.

Conclusion

The partnership between the grade school and the CS 178 classes has been successful in reaching its objectives. Through predominantly volunteer and college student effort, and at little to no cost to the university, the parties involved have been able to increase the variety of learning materials for AP. Because of the availability of these modules, the computer laboratories of the grade school are being used innovatively, to support achievement in AP. Finally, there is anecdotal evidence that the use of ICTs is increasing student interest and affinity for AP.

The next phase of the partnership—professionalizing and systematizing the development effort—will demand further monitoring, evaluation, and innovation. There is a need to manage the development process to ensure that deadlines are met and that deliverables reach an acceptable level of quality.

There is a need to systematically monitor and document the effects of the ICT interventions on the teaching and learning process. Since this application of ICTs is intended to be transformative, the parties involved must observe, quantify, and record these changes.

Attitudinal changes are of particular interest. Will these interventions make learners like AP better? Will the interventions motivate learners, will they captivate learner interest? Will interest and motivation then translate to a more positive attitude towards the country as a whole?

Finally, from the technical perspective, the parties involved should, whenever possible, experiment with emerging technologies. For example, it may be necessary to design these modules in compliance with the Sharable Content Object Reference Model (SCORM). There may also be applications that lend themselves to mobile or wireless devices. The parties involved in this process should be cognizant of these possibilities and be open to exploring them.

Acknowledgements

The author sincerely thanks:

- Rev. Fr. Bienvenido F. Nebres, SJ, President, Ateneo de Manila University
- The Department of Information Systems and Computer Science
- John Paul C. Vergara, Ph.D., Associate Professor, Department of Information Systems and Computer Science, Ateneo de Manila University
- The CS 178/215 classes of school years 2000 to 2004
- Ma. Celeste T. Gonzalez, Ph.D., Chair, Education Department, Ateneo de Manila University
- Fr. Jose Moises Fermin, SJ, Headmaster, Ateneo Grade School
- Romeo de la Trinidad, Assistant Headmaster for Academics, Ateneo Grade School
- Helen U. Amante, Subject Area Coordinator for Araling Panlipunan, Ateneo Grade School
- Marcelino A. Arabit, Subject Area Coordinator for Filipino, Ateneo Grade School
- Daniel Gonzalez, Computer Coordinator, Ateneo Grade School

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