AIS RAIL SYSTEM: A COMPUTER-BASED JOB-ORDER COST SIMULATION

A. James Mckee
College Of Charleston
mckeej@cofc.edu

ABSTRACT

This module portrays an accounting information system as a subway rail system. Specifically, the AIS sub-systems are analogous to the color-coded rail "lines" that constitute a rail system map. The module's functionality is restricted to the conversion cycle (or the "red" line). The red line consists of eleven subway stops--Transaction data entry capture points. Additionally, the module employs graphics and animation so as to provide an alternative database perspective on cost flows through a job order system. Many of the computer-based controls found in commercial packages are operational in the module.

The objective of the interactive session is to demonstrate the potential of multimedia in accounting pedagogy. With today's computer technology, the only thing holding accounting instructors back from truly effective instruction is their own lack of creativity. AIS Rail System demonstrates that by combining a proper mix of images, integrating text, and animation, and making the materials interactive, potentially powerful and entertaining teaching and learning devices can be created. The AIS Rail module provides students with an opportunity to observe the dynamic nature of cost accounting data extracted from the manufacturing process. This paper first discusses the merits of multimedia as a pedagogical tool. Next, the paper discusses how multimedia technology was integrated into the instructional design of the AIS Rail module.

Merits of Multimedia Technology. Accounting education is in the midst of a dramatic transition from traditional (bookkeeping) focus to emphasis on knowledge and skills related to accounting technology. Various critiques ("Bedford Committee" [American Accounting Association Committee 1986]; the Big Six "White Paper" [Perspectives on Education 1989]; and the Accounting Education Change Commission's Position Statement Number One [AECC 1990]) have urged a focus shift towards knowledge and skills related to information technology, computing, and systems. AECC's Position Statement Number Two (1991, 250) asserts the first accounting course should address "…the principles underlying the design, integrity, and effectiveness of accounting information systems". It is not obvious how accounting educators can meet these objectives without using technology itself. Multimedia seems to be the obvious pedagogical tool for meeting the objectives identified above.

Some research has resulted in high expectations for computer-assisted teaching/learning. Some (Clark 1983 and Solomon 1994) believe that this direction has the potential to change the foundations of education. They have asserted that the use of such technology is in the third revolution in higher education in recent years (after television and the microcomputer). With today's affordable and user-friendly development software, accounting educators can build their own applications-- accounting systems-- that display the same fundamental controls and functionality embodied in commercial accounting packages. Yet they are designed so that the (student) user can better focus on concepts and architectural design of accounting systems. One argument against the commercial packages is that they potentially reduce the user's role to that of simply performing clerical input of transactions. Consequently, the system is viewed as a black box.

Multimedia Technology Applied to Cost Accounting. The motivation for this module was to address the AECC's Position Statement Number One—shift focus towards "knowledge and skills related to information technology, computing, and systems". A schematic was applied to a job-order cost system. Then, the cost flow schematic was transformed into an electronic cost engine. Specifically, various (schematic) transaction nodes were made into data access points for raw data entry. Other basic features commonly associated with computer-based accounting packages were added as well. Each PC screen was designed to depict a specific type of event, e.g. receiving raw material, processing time tickets, transfers to warehouse.

AIS features. It was tempting to incorporate a lot of "whistles and bells" into this module. However, the primary purpose of the module design was to draw attention to cost accounting systems—not computer-based accounting systems per se. Hence, the AIS features were restricted to, (1) pre-numbered source documents, (2) authorized: vendors, raw material, employees, jobs, and customers, (3) assumed cost flow: LIFO, FIFO, weighted average, and garden variety completeness and field validity (alpha, numeric) tests

Audit trail. The user can select various buttons to confirm what is going on behind the scenes. That includes, (1) journal entries, (2) transaction files, (3) master files, and (4) trial balance. Additionally, the user can (incrementally) expand the trial balance into a set of financial statements.

Animation. The user can (optionally) display animated clips that simulate 'being there." Examples include, receiving raw material, stockroom requisitions, time card

punching, transfers to warehouse, and shipments to customers. There are several white-collar events that have correspondingly supporting identical animated clips. (Could this suggest "lack of segregation of duties?") The cost engine's dynamically-linked display of selected accounts can be characterized as a transparent box, whereas the commercial packages are all black boxes. True, one can get inside the black box, but is allowed only a narrow path to trace through, say, an audit trail of any particular transaction.

1. Target audience: Instructors of managerial/cost accounting and AIS.
2. Time needed: Forty-five minutes.
3. Target number of participants: Whatever room capacity allows.
4. Materials required: None.
5. Equipment required and room setup: Projector and support system for presenting a Flash module (loaded on my laptop). Attendees would need to provide their own laptops. CDs will be made available.
6. Theoretical framework: I am not planning to (though I am prepared to) preface my demonstration with a brief discussion of prior published research on accounting pedagogy.
7. Pedagogical implications: Hopefully, academicians participating at the conference will recognize the real potential for accounting pedagogical innovations will involve multimedia.

REFERENCES

Accounting Education Change Commission (AECC). Objectives of education of accountants: Position statement number one. *Issues in accounting education* 5 (2):307-312.

---------. 1991. AECC urges decoupling of academic studies and professional examination preparation: Position statement number two. Issues in Accounting Education 6 (2):313-330.

Clark, R. E. 1983. Reconsidering research on learning from media. *Review of Educational Research* (Winter): 445-459

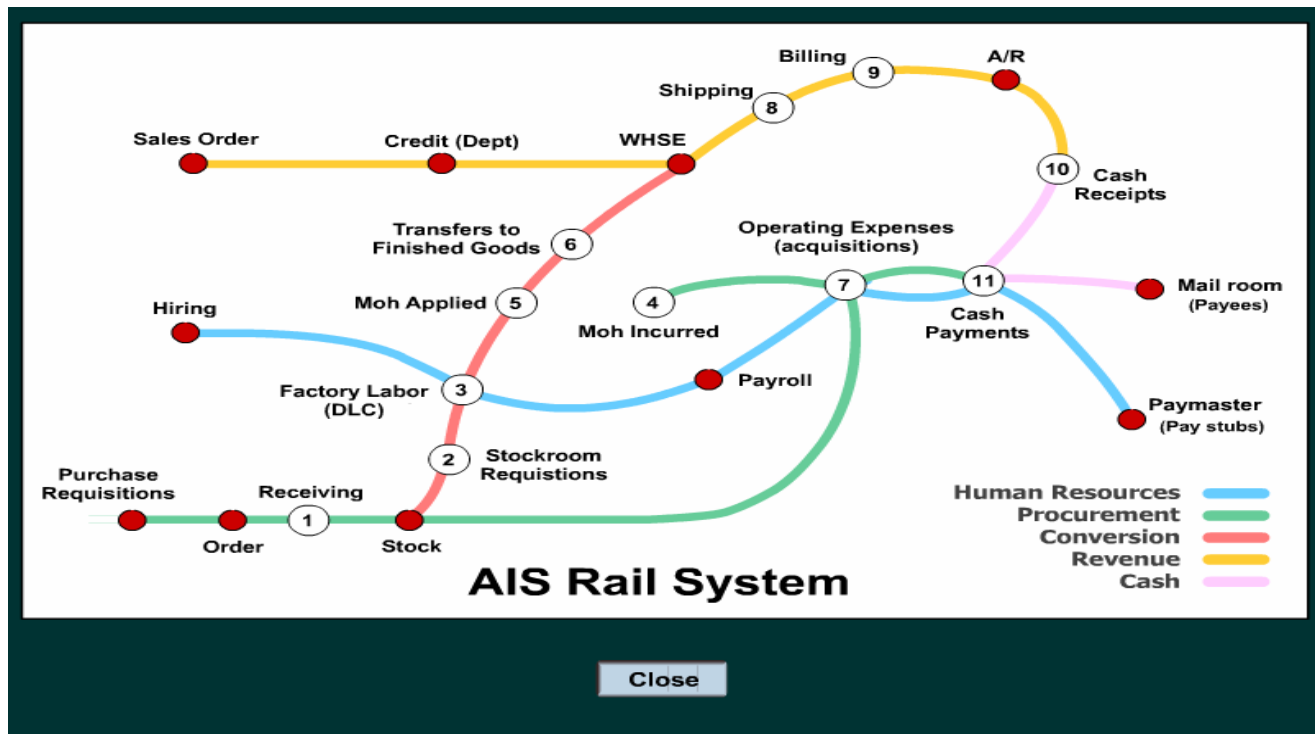Solomon, M. B. 1994. What's wrong with multimedia in higher education?

APPENDIX
Sample Screenshots of AIS Rail System Introduction.
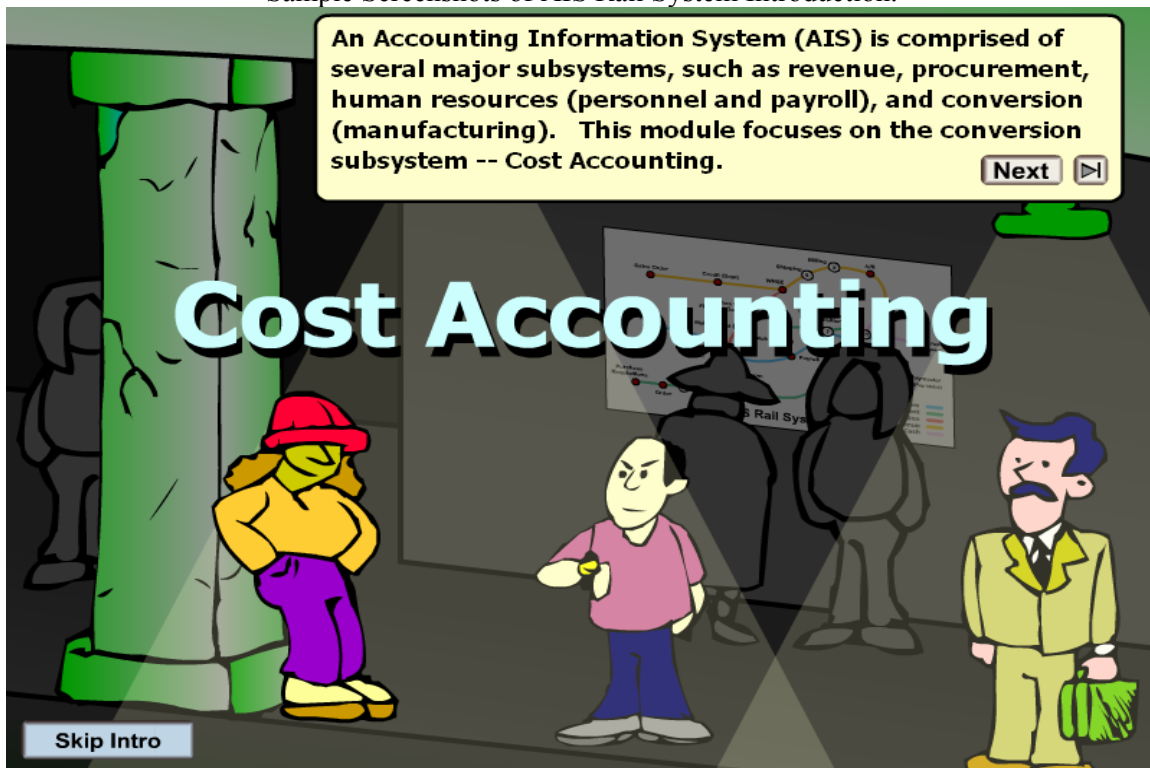
The module contains an exhaustive tutorial that discusses the objectives, the alternative perspectives (cost accounting or AIS) for navigating the cost system, as well as the help index.

AIS Rail System map.

The module's scope is restricted to the eleven data entry capture points comprising the conversion cycle, or the "red" line.

AIS or database perspective.
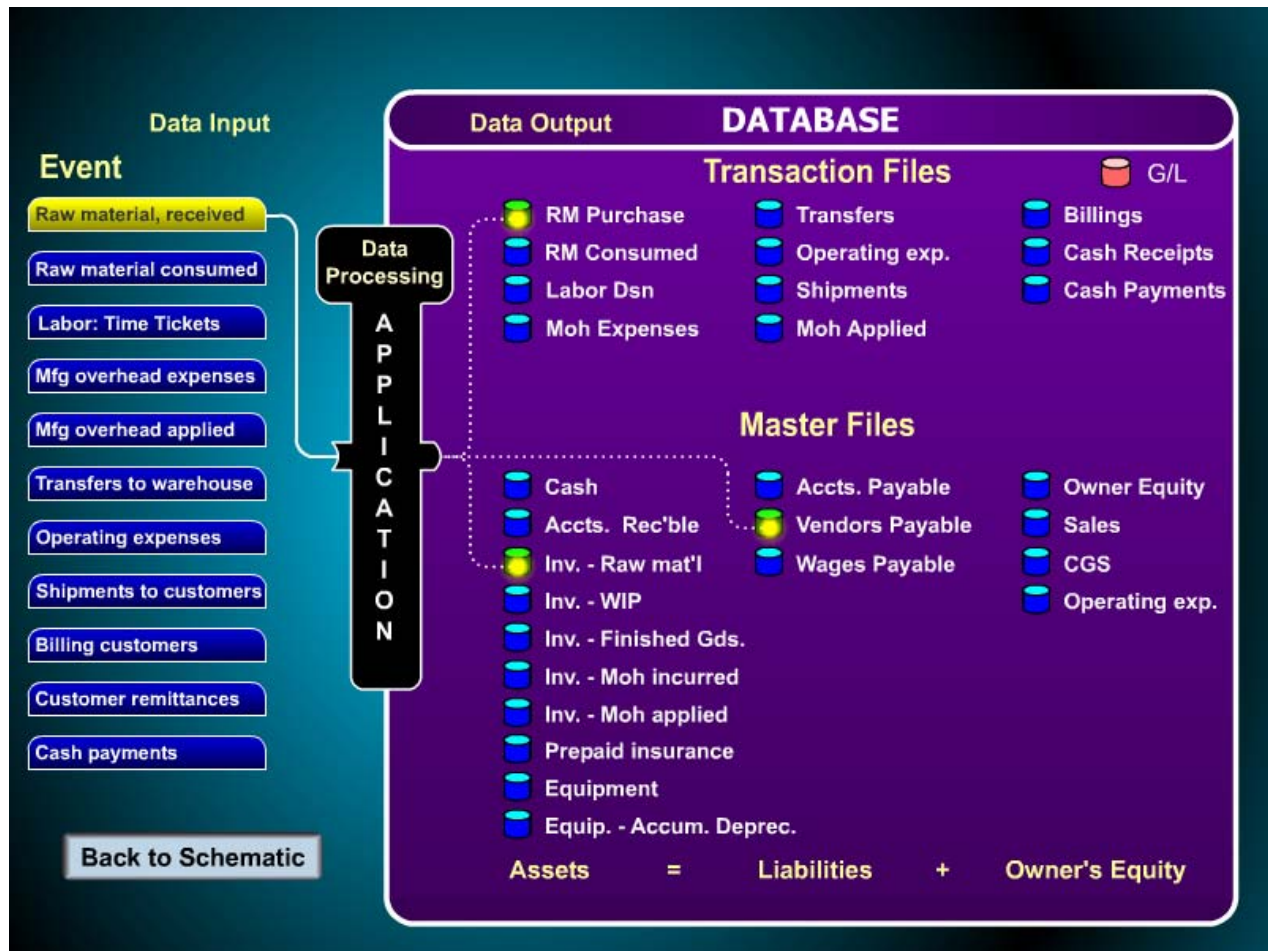
The user may wish to navigate cost flows from an AIS perspective. The above user interface permits processing of the same eleven transaction types (comprising the red line) which comprise the "Event" menu. Observe the dancing sunballs, positioned atop the various transaction and master files. They serve as a summary reminder of the consequence of the user's having entered a raw materials purchase transaction. The user may click on those files (or any of the others displayed) to view the detail recording in the account.