

Problem Simulation Authoring System VAGUS

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Introduction

The VAGUS authoring system is a program designed for subject matter experts who want to create computer assisted instructional material, (CAI materials), in a relatively short period of time.

VAGUS is a powerful authoring system designed to simplify the creation of computer-based, interactive learning tools. The program is based on a broad spectrum of special features and options that can be combined to offer the ultimate flexibility in lesson-authoring. In addition, VAGUS performs extensive error checking to facilitate the location and correction of errors.

An author should not feel constrained in any way when using this system. It is very flexible and easy to use. The only real constraint is the author's own creativity.

The Problem

For several years veterinary education has been under pressure from two directions; decreasing financial resources, and pressures to reduce or eliminate the use of animals in teaching. In response to these pressures we began to seek alternative teaching methods which would reduce cost and animal usage without decreasing the quality of education.

Computer assisted instruction (CAI) utilizing a random access slide project and/or a video disc player appeared to offer great potential in this area. CAI lessons can be written using a computer language or a CAI lesson authoring system. Writing lessons in a computer language requires computer expertise and is time consuming. Using an authoring system can make the process easier and more efficient. Because there was no suitable lesson authoring system available at the time we began our effort, we started development of an authoring system.

Development of Authoring System

The initial version had limited capabilities and was quite specific in its application, i.e., clinical

case simulations. It was written in BASIC and ran in a 64K RAM system.

These limitations quickly proved to be unacceptable. We needed a system that was very flexible. It must be able to run on a variety of hardware and it must be suitable for writing a wide variety of lessons.

VAGUS (our authoring system) is now written in the 'C' language. As a result VAGUS is very portable and can be easily enhanced as lesson requirements are expanded. VAGUS can run on essentially all PC compatibles and on some UNIX based machines. A minimum of 256K of RAM is required. A lesson written on a DOS system can be run on a UNIX system with little or no changes to the lesson.

Lessons may be written using any word processor that can create an ASCII DOS file. Thus the author may work in a familiar environment. VAGUS can convert an existing disk file of a multiple choice test into a CAI lesson.

Features of the VAGUS System

The name VAGUS is from the tenth cranial nerve which supplies a large portion of the body and performs a wide variety of functions. VAGUS can perform a wide variety of functions.

VAGUS is quite versatile and easy to use. The complexity of a lesson may range from very simple to very complex. A simple lesson may be a set of multiple choice questions or questions where the student is required to enter an answer which may be either a few words or a numerical value. Very complex lessons may be developed which simulate real-life situations, situations in which cost, time and the sequence of events influence the outcome.

Vagus has the capability of simulating the changing blood level of a drug, for example, and responding to the changing blood level.

Lessons may incorporate material from a video disc and/or 2 by 2 slide. Graphics display and mouse input are planned for the near future.

VAGUS has the capability of tracking the

student through the lesson. This allows the student to interrupt a lesson and then resume the lesson at a later time, starting at the point of interruption. Information about the student's progress through the lesson may be saved for statistical analysis.

VAGUS can branch from one lesson to another, carrying some information with it, or branch to another program or batch file and return to continue. As a result, the sophistication of the lesson can be very great. We have very recently explored clinical case simulations that can use a computer aided diagnoses system as a resource while running the case simulation. This opens some very exciting possibilities for lesson development.

Some Applications

VAGUS has been used to develop a wide variety of lessons. A sixth grade student wrote a lesson to help her in social science class. A senior high school wrote a lesson for a science project and won a state award. Several veterinary students have used VAGUS to develop lessons for their own uses. A senior clinician has written more than 80 clinical case simulations for teaching and clinical competency evaluation. An instructor at a community college is developing lessons for an accounting course.

These lessons range from multiple choice test format to complex clinical case simulations containing both multiple choice and fill in formats. Some of the lessons use interactive video disc or interactive slide projector. The lessons have been used for drill, self instruction and testing. Student response has been excellent.

Clinical case simulations are quite realistic in that the flow and outcome of the simulation can be influenced by many factors such as: the cost of items or procedures selected, how quickly a student can recognize an emergency condition and respond to it, etc. These clinical case simulations are used as both a learning tool and for student evaluation.

The portability of VAGUS provides many opportunities. Lessons can be developed on a MS-DOS machine and run on a UNIX machine with little or no modification. This is a very important feature since it will allow sharing of lessons without a specific hardware requirement. In addition, no special equipment is needed to get started. In many cases this permits a school to use existing hardware. Many interesting and useful lessons may be developed which require only a modest computer. VAGUS also provides the means of creating very sophisticated lessons.

Availability of VAGUS Authoring System

The software and user's manual for this system are available to educational institutions for the cost of postage and materials. (\$15)

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