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# Implementing Oracle Products in the Curriculum: The Good, the Bad, and the Ugly

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## Abstract

A number of universities are using Oracle Corporation's software as part of their curriculum. The use of this software allows students to supplement the conceptual material they learn with hands-on experience. Since Oracle software is widely used in the business world, experience with the software can also assist the student when trying to find a job. However, not everything is sweetness and light for the faculty. Faculty who try to implement the software find a number of obstacles in their way and become frustrated trying to overcome these obstacles.

This article is broken into three major sections. The first section looks at Oracle's initiative to allow eligible schools to have access to their software at an extremely low cost. The next section looks at one university's experience with implementing Oracle's products into the curriculum and the final section looks at the bigger picture associated with using Oracle's software in the classroom.

## Oracle Academic Initiative – The Good

Oracle Corporation is primarily known as the developer of the Oracle line of database products. Oracle is the number one vendor of database products overall with a market share of 31% (Gartner, 2000; McGeever, 2000). In addition to their database products, Oracle is also involved with system analysis and development tools as well as with e-commerce and enterprise resource planning (ERP) software.

Because of the widespread use of Oracle products, not surprisingly, there is also a large demand for people who have experience with Oracle products. Companies are willing to pay a premium for people with experience (Alexander, 1999; Goff, 2000).

It is obviously to Oracle's advantage to help ensure that there is a steady stream of people who have experience in using Oracle's various products. Oracle has their own "university" where people can go and be trained and certified on Oracle software. An additional approach that Oracle has implemented is "Oracle's Academic Initiative". The Oracle Academic Initiative is a program to provide various software products and support services to universities at a very low cost<sup>1</sup>.

The program is roughly 3 years old and Oracle has invested over 500 million dollars in this program

(Guernsey, 1997; Parrish, 1997). To become a member, schools must be accredited and non-profit<sup>2</sup>. Schools must incorporate Oracle curriculum into their programs, however, the Oracle coursework can not exceed 70% of the total credits. Presently, approximately 900 schools are members of the initiative.

There is a \$500 annual fee for the program. For this fee, the school receives a variety of software packages including Oracle databases, Designer, Developer, Discoverer, and Web DB. Just as importantly, Oracle Silver support services are included as part of the \$500 fee.<sup>3</sup> Not unexpectedly, the software provided as part of this program can not be used for any commercial purposes.

The \$500 annual fee allows unlimited numbers of copies of the software to be installed on the school's computer. This can easily work out to be over a million dollar "gift" for even small schools. Making this program even more valuable is that copies of the software can be made for student use on their own machines. Students must become student members of Oracle's Academic Initiative and agree to the licensing agreements.

Not included in the \$500 fee are curriculum course offerings or training. Oracle does provide a discount for both the curriculum and training for faculty members.

## One University's Experience – The Bad

University of Indianapolis is a small, private university located in Indianapolis, Indiana. The School of Business is relatively small with approximately ten full time faculty members. This author was hired in the summer of 1997 and was the only full-time faculty member teaching information systems classes. From a previous school, I had a passing awareness of Oracle's initiative but not first hand experience in Oracle software.

I decided to try incorporating Oracle's software into the academic program. Until this point, Microsoft Access had been used as the primary database in the upper-level information systems classes.

I joined Oracle's Academic Initiative in the summer of 1997. I had decided to incorporate Designer into my system analysis class and follow-on database class. Designer incorporates front-end analysis tools such as data flow diagramming, entity relationship diagramming,

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<sup>2</sup> Commercial schools may join the program with special approval of Oracle Education.

<sup>3</sup> Oracle has recently started to provide their e-commerce and ERP software to interested schools however, there is a different fee structure associated with this software.

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<sup>1</sup> To get more information on Oracle's Academic Initiative, go to <http://oai.oracle.com>

and process flows, and back-end development tools such as forms and report generators.

Thus in terms of Oracle software, Personal Oracle 7 and Designer 1.3.2 were the key items to get up and running. All I had for documentation were the manuals that come with the software. I decided to install Oracle in standalone mode so that each machine was separate.

I found the manuals less help than needed and I really didn't have anyone to contact. After a fair amount of trial and error, I managed to get the software installed and running.

At this point, I started creating individual accounts for the students who would be taking Oracle classes in the fall. It was a tedious process and involved a great deal of "cutting and pasting" but with some effort, I eventually had accounts for everyone.

In terms of the labs, our computing services staff creates a single machine with all the software installed exactly as desired. Once this one machine is created, a hard disk image is created on the network and all the machines in the lab have this image copied on their hard drive. Thus I only needed to create the accounts on this one machine and after this "ghosting" process, all the computers on campus would have the accounts.

Once the semester started, some problems started to crop up. Not surprisingly, class rosters had additions and these people did not have accounts. With standalone systems, there was no easy way to add new accounts to all the machines. The solution was to have students log in as "scott" which is a predefined account that is created whenever Oracle is installed. Having students log on as "scott" allowed them to access any machine. Unfortunately, it also created problems being able to uniquely identify individual's work.

The next big problem to be overcome was being able to save students' work in progress. In Designer, "save" saves the work to the repository. However the repository was 150 megabytes and thus wasn't easily copied to the student's floppy disk. A work-around was found using Designer's "archive" function which allows a particular application to be saved to a floppy. However, the archive and associated restore procedure was time consuming and could easily eat up 15 minutes of a 50 minute class. It was also sometimes difficult to get students to archive their work on a regular basis but this problem is not unique to Oracle.

While all these problems with installation and set-up were time consuming and annoying to deal with, the effort of actually incorporating Designer into the curriculum proved to be the most frustrating aspect of all.

Students coming into my system analysis class had no previous exposure to data flow diagrams, entity relationship diagrams or other analysis procedures. My intent was to use Designer as the hands-on tool for class. In addition to eliminating the need for students to create diagrams by hand, they would be learning a software package used in industry.

Unfortunately, the incorporation of Designer into my class caused more frustration than value gained. Problems cropped up in the conceptual portion of the class as well as the hands-on portion.

The single biggest problem with Designer was (and still is) documentation. The manuals that come with Designer do not provide any real reference material. In terms of the manuals, the most useful manual is a tutorial and its use is extremely limited.

Unfortunately, there is also only a limited number of third party books for Designer. I have used the books available and they provide some general guidance on how to use the tools but that is it. When students have questions or problems, the books do not provide assistance. While Designer has a nice set of built-in documentation, finding and solving problems using this documentation is problematic at best, especially for students.

I had no better documentation than the students did. I certainly was not an expert using Designer and had no access to an "Oracle" (pun intended). While it was possible to use Oracle's on-line support service, MetaLink, the response time was typically 24 hours which doesn't really help when a student would like an immediate response.

Adding to the problem were the bugs that arose when using the software. Designer's overall philosophy emphasizes the use of process flow diagrams in lieu of data flow diagrams. However, the process modeler seemed to be full of bugs. While running the process modeler, Designer would produce fatal errors or be unable to save or modify the diagrams. One unfortunate student group ended up redoing a simple process flow about 5 times before I told them to give up.

Even when things went smoothly with the software, which was rarely, its use negatively impacted the entire course. Students ended up spending too much time on the software which detracted from the time I had available to explain the concepts of system analysis.

Because of the time spent on Designer, I didn't give the students as good a background in the concepts of system analysis as I would have liked. Because of the problems using Designer, students were frustrated with the software and never wanted to see it again. Nor did students gain an appreciation of the overall benefits that a good CASE tool can provide in developing systems.

The system analysis class and database class can be considered a single yearlong course. I have tried teaching the course two different ways that can be categorized by the book selected for the course. The first time I used one of the third-party Designer books for the primary text and used Designer as the general method to teach the conceptual aspects of system analysis. The next year, I picked a traditional system analysis book and used Designer to demonstrate the concepts used in the book. Neither of these approaches was satisfactory although the second approach worked better.

For this upcoming year, the role of Designer will be severely curtailed. Students will learn the concepts of system analysis from a traditional book and their initial work in creating diagrams will be done in an easy to use tool such as Microsoft Word's built-in drawing program. Eventually, I will introduce Designer and have students duplicate a small portion of their previous work using Designer.

## The Bigger Picture – The Ugly

At this point, the question arises over whether my problems are unique or whether my problems are a microcosm of the bigger picture. Unfortunately, it appears that a number of people trying to use Oracle products are running into similar situations.

In May of 1998, I created an "Oracle in Academia" mailing list for faculty who are using Oracle products in their classrooms<sup>4</sup>. Over the past few years, numerous messages from many institutions who have run into the same problems have raised the same questions. Some of the most common problems are:

- Installing the software
- Allowing remote access to the database
- Configuring the system for student use
- Finding useful books and documentation

In addition to these frequently asked questions, there are many questions asking for assistance in solving a problem that someone has run into. Since the hardware and software associated with Oracle has been changing so rapidly, many times previous responses to a similar situation doesn't help.

Looking at the overall picture of using Oracle software in academia, there appear to be some common threads between the problems that keep cropping up. These threads comprise many of the major differences between Oracle's use in industry and it's use in academia.

The biggest problem is related to personnel training. Most companies have a number of people responsible for maintaining the Oracle products such as database administrators. These people typically have had years of experience working with Oracle and related products. They spend much of their workweek on these products. For people with no experience in Oracle who join a company, they can be sent to training on Oracle products and, more importantly, have more senior personnel they can ask when problems arise.

Contrast this with faculty members. Many do not have much experience with Oracle products, typically do not have other experienced people around who they can ask, have full time jobs aside from trying to incorporate Oracle into the curriculum, and may not have training on using the products.

While Oracle does offer training courses and provides major discounts to members of Oracle's Academic Initiative; for many schools, the cost and time needed is prohibited. A first course in Designer costs \$1,000. This does include the curriculum, however, the cost is prohibitive at my school and many others. Additionally, faculty can not be away from their classes to attend the Oracle classes in many cases. This is especially true when you consider that this course is only one of a number of courses that should be taken.

While it must not be forgotten that the cost of Oracle's Academic Initiative is only \$500, academic users require some other support. Most crucial is access to documentation on the products being used. This documentation should include both tutorials to assist students in using the software along with reference documentation for both the faculty and the students.

In conclusion, Oracle has been very generous in providing their software products to academic institutions they could still improve the program. While Oracle has invested \$500 million in the program, they need to increase support services for the faculty involved in the program.

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<sup>4</sup> To get further information about this mailing list or to join, go to <http://business.uindy.edu/oia.html>