

## **OFFERING PROCESS-CENTRIC EDUCATION BY WAY OF AN SAP SIMULATOR**

*Ed Lindoo, Ph.D*

*Nova Southeastern University  
3301 College Avenue  
Fort Lauderdale-Davie  
Florida 33314-7796 | 800-541-6682  
772-260-1910 direct  
[ed.lindoo@scripps.com](mailto:ed.lindoo@scripps.com)*

*John L. Wilson, D.B.A.*

*Nova Southeastern University  
3301 College Avenue  
Fort Lauderdale-Davie  
Florida 33314-7796 | 800-541-6682  
920-869-3446  
[johnwilson@netnet.net](mailto:johnwilson@netnet.net)*

### **ABSTRACT**

As businesses world-wide adopt Enterprise Resource Planning (ERP) systems, it is becoming even more important for business schools to offer ERP-based process-centric education to better prepare students as prospective employees. Some universities have chosen to include full-scale SAP R/3 software in their curricula and are successful while others fail. As an alternative to SAP R/3 software, an SAP simulator may be the right tool to include in business schools' curricula, especially if the overall goal is to teach ERP processes as opposed to learning how to use SAP R/3 software. This paper focuses on an SAP simulator created by Simha R. Magal and Jeffrey Word [4] in partnership with SAP. Topics covered in this paper include the WileyPLUS Website where the simulator is housed, setting up courses and assignments, course administration, automatically grading assignments, and an overall discussion of the pros and cons of using an SAP simulator versus SAP R/3 software.

### **INTRODUCTION**

It is always difficult to design courses that not only challenge students but also achieve the desired outcomes for the class. At a U.S. university, faculty within the School of Business realized their management information systems (MIS) class in the MBA program needed to be revamped. After thoughtful discussions of business school faculty members, the lead MIS faculty member recommended incorporating a full-scale ERP system into the MIS class, as many other business schools have done [1, 2, 3].

The Office of the Dean of the School of Business, and the Program Chair for the MIS curriculum, agreed with the lead faculty member's recommendation for joining SAP's University Alliances (UA) program, which offered full-scale SAP R/3 ERP software, data center support (called the University Competency Center, UCC), and "hands on" SAP. During the first semester of the MIS class when SAP R/3 software was used, the implementation failed miserably, because there was no buy-in from anyone within the School of Business, except from the lead and MIS faculty members teaching the course. It also failed because SAP R/3 software requires a major install on each student's PC. With a multitude of operating systems, patch levels, etc., it just was not feasible to expect students to do this without a lot of hand-holding. With no support from the School of Business' Help-Desk, the start of every subsequent semester was hectic. Something had to be done to rectify all the frustrations and very verbal complaints from students. As a result, the Office of the Dean of the School of Business, and the Program Chair for the MIS, opted to move away from using SAP R/3 software. Instead, they decided to focus on process-

centric education using an SAP simulator created by Simha R. Magal and Jeffrey Word [4] in partnership with SAP.

## **FOCUSING ON PROCESS**

Because process flow within businesses can be complex, we believe it necessary to narrow the focus of process-centric curriculum to three generic processes in a manufacturing environment: Procurement, fulfillment and production, including integration of the three. This will provide students with a clear understanding of how various functional groups within a company interact to efficiently accomplish work. While some universities have included full-scale SAP R/3 software into their curricula, we found this does not work well when doing so in a single course. We also found that by using a simulator instead of a “live” SAP R/3 system, students focus much more on understanding the process flow, as opposed to trying to understand SAP R/3 instructions to obtain a correct final answer in a “hands on” SAP exercise.

## **SETTING UP SIMULATOR**

Within a single MIS class, we accomplished our process-centric goals by using the SAP simulator at the WileyPLUS Website created by Simha R. Magal and Jeffrey Word [4] in partnership with SAP. The first step in getting started was to contact WileyPLUS and obtain instructor access, so we could setup a simulator for the MIS course. Once we had access, setup was straightforward and very intuitive. After setting up the simulator for a course, you automatically have a URL that you provide to students, so they can gain access to the course. If students purchase a new Magal & Word book [4], they are provided with an access code. If they purchase a used book, however, they have to purchase an access code at the WileyPLUS Website, with a current cost of \$8.00.

## **SETTING UP STUDENTS**

Once a student has access, they self-register to class, which means there is no involvement by the instructor. Throughout the course, students complete pre-defined exercises assigned on a week-by-week basis. The WileyPLUS SAP Website has five process simulators and five quizzes – one for each simulator. The simulations are automatically graded as a percentage of completion. That is, if a student starts a simulator exercise and completes 75% of it, then 75 is their grade. Most students complete the simulator exercises and end up with 100 on each of five exercises. The quizzes on the other hand can be a bit challenging. Some only have four questions, so if a student misses two, they drop their score to a 50 for that quiz. We encourage students to run a simulator exercise over and over, and to take detail notes about the exercise until they are very familiar and comfortable with the process flow. That way, they are better prepared to answer quiz questions.

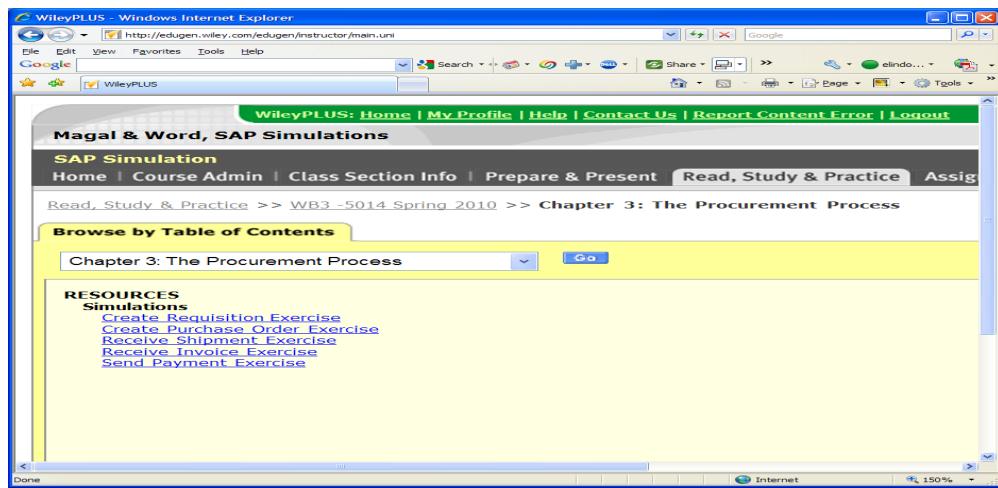


Figure 1. Typical Simulator List of Exercises.

Exercises to be completed for a typical simulator exercise are shown in Figure 1. This particular simulated exercise is for the Procurement Process. As can be seen, there are five exercises within this simulator describing the process flow for procuring goods or services from a vendor. If we click on “Create Purchase Order Exercise”, the following screen shown in Figure 2 will launch. Each step in the process flow for creating a purchase order is described and then simulated using screens as they would actually appear in SAP R/3.

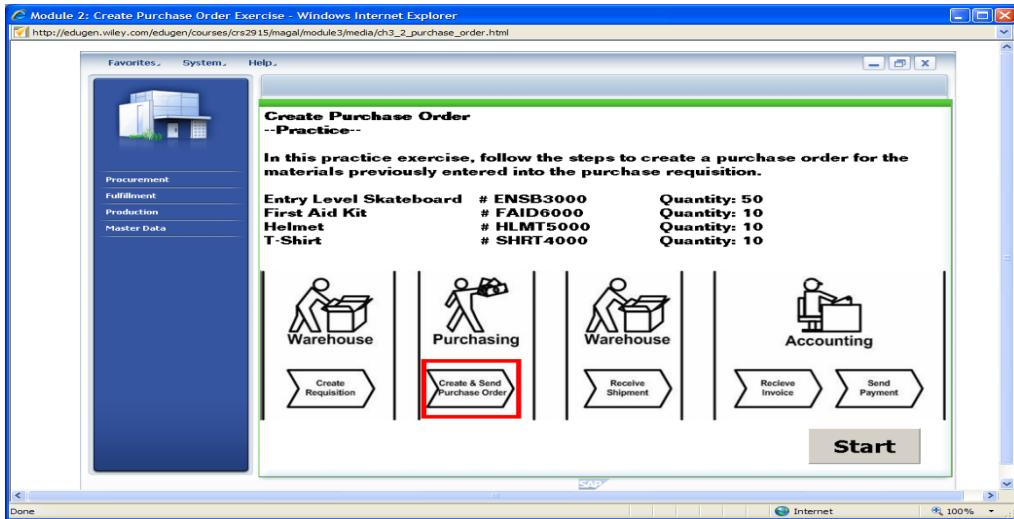


Figure 2. First Screen of Create Purchase Order Exercise.

The simulator is a Java-based program running in a browser and is extremely easy to use. Clicking the start button, and working through a few simple simulated SAP R/3 screens for inputting and/or retrieving data stored in a database, the student is brought to the following screen in Figure 3. The student is shown a list of open Purchase Requisitions in the database, and the simulator places the cursor over the field to select an already defined Purchase Requisition, #

10000102. On every screen from the start of the simulator to the end, the student is lead by the simulator from field to field, and screen to screen. The simulator instructs the student on what to do, and even prompts with a red highlight on what fields or instruction set they need to click to work their way through the process flow. This is shown in Figure 4, below.

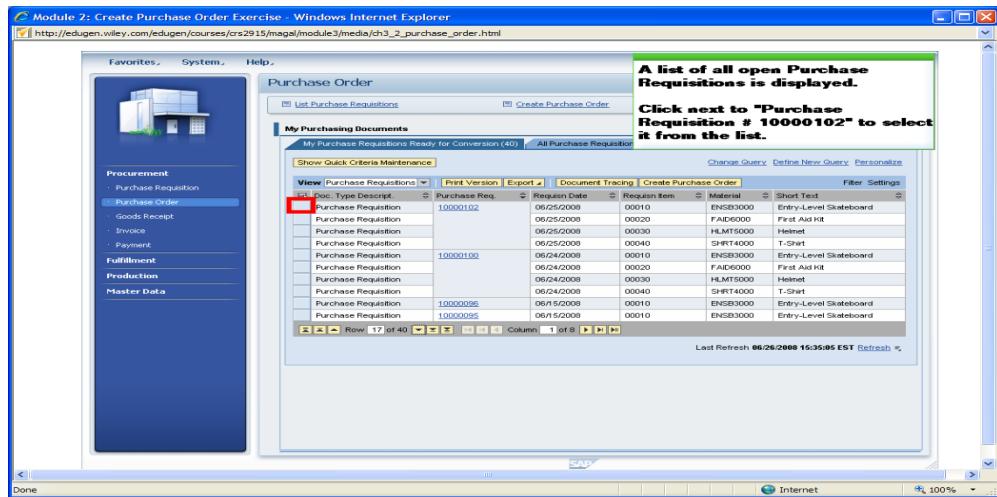


Figure 3. List of Purchase Requisitions.

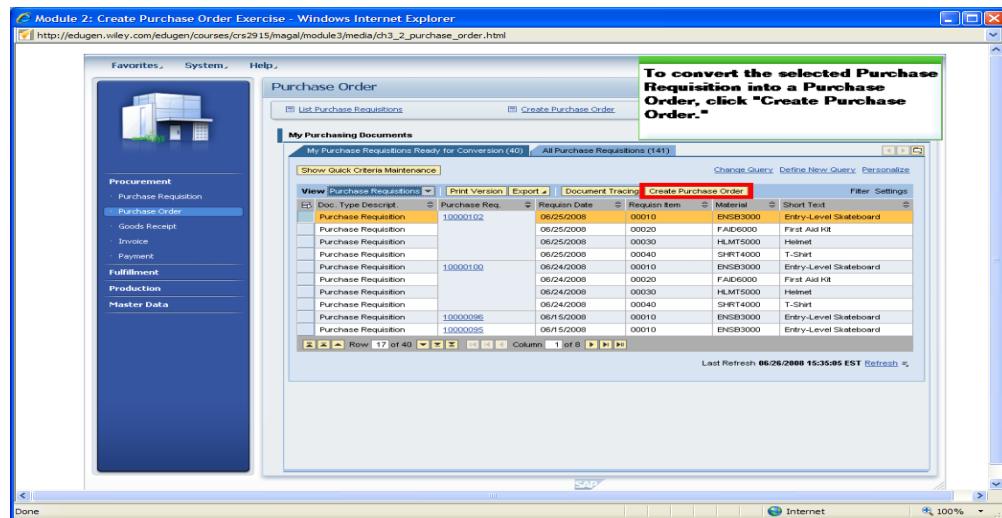


Figure 4. List of Purchase Requisitions – Second Screen.

## COURSE ADMINISTRATION

For an instructor and students, the simulator Website is quite straightforward. The instructor creates a new course for each semester by assigning five simulation exercises and five quizzes to specific weeks of the course. Students self register on the Website, and then perform the assigned exercises – once with the simulator performing all the steps, and then three times on their own with the simulator guiding them through the processes. A quiz measures students'

comprehension of process flow. A student's progress is recorded in their grade book, as shown in Figure 5.

Student Name	Class Section Name	Assignment ID	FulfillmentOut	IPQ	MDQ	02-02	PP
1. Ahmed, Javed	WB4 -5014 Spring	1.	0%	/100	0%	/100	0%
2. Auguste, Wanda	WB4 -5014 Spring	2.	100%	/100	0%	/100	0%
3. Bernard, Perija	WB4 -5014 Spring	3.	100%	/100	0%	/100	0%
4. Blair, Calinity	WB4 -5014 Spring	4.	0%	/100	0%	/100	0%
5. Bohorquez, Johana	WB4 -5014 Spring	5.	0%	/100	0%	/100	0%
6. Bruce, Ace	WB4 -5014 Spring	6.	0%	/100	0%	/100	0%
7. Buddon, Mirace	WB4 -5014 Spring	7.	0%	/100	0%	/100	0%
8. Clark, Sam	WB4 -5014 Spring	8.	0%	/100	0%	/100	0%
9. Luria, Kimberly	WB4 -5014 Spring	9.	54%	/100	0%	/100	0%
10. Dehnkeis, Robin	WB4 -5014 Spring	10.	100%	30/100	60%	/100	0%
Class Section Averages:			52.70%	1.07/100	4.39%	0/100	0%
						58.12/100	70.73%
						59	

Figure 5. Student's Grade Book.

All of this grading information can easily be downloaded to an Excel spreadsheet to perform calculations for determining students' overall weighted grades for the simulations and quizzes.

## PRO'S AND CON'S OF USING AN SAP SIMULATOR

Businesses world-wide are adopting ERP systems to reduce processing delays, cycle times and paper clutter within their organizations. In addition, businesses use ERP systems to eliminate time consuming manual steps, and facilitate communication and coordination of work between different functions by integrating steps in a computer assisted process with a centralized database. Better coordination leads to increased process efficiency, as tasks are completed faster and with fewer errors. With ERP systems, information needed in businesses to monitor the state of a process is available by retrieving status information, providing a variety of reports, and responding to specific inquiries about the status of transactions in a particular process.

When ERP software is used in a single class environment, students should be learning how process flow is improved and how the benefits described above are achieved. In a single class environment, such as the described MIS course, students are not necessarily familiar with generic processes like procurement, fulfillment and production in a manufacturing environment. Consequently, when performing exercises involving these generic processes and how ERP software can be used within them, students get "caught up" in trying to understand how the ERP software works. This is in contrast to how processing flow can be improved by using ERP

software and is especially true when a full-scale SAP R/3 software system is used to perform “hands on” exercises. Students get lost in the details of how to perform processing transactions using SAP R/3 “live” software, especially when problems occur when not correctly used.

That’s how SAP simulation software can enhance learning about process flow and benefits for businesses using ERP software. The simulation software takes away the need for a student to know all the details about how to perform a process transaction. Instead, the simulator takes students through processing steps with a concentration on explaining how ERP systems allow processing to flow across organizational functions, insuring communications between involved departments, and allowing processing to be completed efficiently, timely and with fewer errors, as compared to manual processing. Process-centric education is enhanced when simulators, such as the SAP simulator discussed in this paper, are used to “hold the hands of students” by guiding them through the processing details. The described “SAP on training wheels” simulator allows students the opportunity to understand the process flows, and appreciate the benefits that occur, when using ERP systems in businesses.

On the other hand, simulators can have quirks that frustrate students. For example, if instructions are not clear, students may try to enter incorrect data in a field, or select the wrong area of a screen to click – both of which cause a simulator to freeze. Developers of simulators often overly simplify process flows, sometimes leaving out major steps, which confuse students as to how an overall process can be completed when steps are missing. In conclusion, we’ve found that learning about process flows is enhanced when a simulator is used, and learning about process flows is “lost in the details” when full-scale “live” software is used.

## REFERENCES

- [1] Becerra-Fernandez, I., Murphy, K.E., & Simon, S.J., Integrating ERP in the business school curriculum, *Communication of the ACM*, 43 (4), 39-41, 2000.
- [2] Cannon, D.M., Klein, H.A., Koste, L.L. & Magal, S.R., Curriculum integration using enterprise resource planning: An integrative case approach, *Journal of Education for Business*, 93-101, 2004.
- [3] Corbitt, G., Integrating SAP R/3 into a college of business curriculum: Lessons learned, *Information Technology and Management*, 1(4), 247, 2000.
- [4] Magal, S.R. Word, J., *Essentials of Business Process and Information Systems*, Hoboken, NJ: John Wiley & Sons, Inc., 2009.