

## ERP IN AN INTEGRATED BUSINESS COURSE: STUDENT REACTIONS TO IN-CLASS

### INTRODUCTION OF SAP R/3

Dana K. McCann, Central Michigan University, mccan1d@cmich.edu

Hillary N. Mellema, Central Michigan University, melle1hn@cmich.edu

#### ABSTRACT

*Enterprise resource planning (ERP) systems continue to permeate the business community. ERP providers have moved from a focus on larger businesses to creating solutions for small and medium-sized enterprises. This paper introduces the importance of integration of ERP in business courses. Programs that offer an introduction to the use of ERP systems will provide students with the advantage of familiarity with systems and management skills that are becoming more prevalent in small to medium-size businesses. A survey/questionnaire was conducted to determine student perception of the value of learning about ERP systems in a classroom setting..*

**Keywords:** SAP, SAP University Alliance, SAPUA, ERP Education, Enterprise Resource Planning, student perception

#### INTRODUCTION

ERP is becoming an essential part of running a business, whether big or small. It is also becoming the norm to establish a compatible network with other companies, suppliers, and resources in an effort to run an effective business [5, 12]. There are numerous ERP providers, with SAP AG in the forefront of those providers. The following list of companies shows the estimated revenue of firms that offer ERP system products (See Table 1). SAP leads the industry by a large margin. The dollar amounts in Table 1 are based on worldwide revenues from ERP and SCM software [11]. Studies have affirmed the claim that students with experience in one or more SAP courses in their area of study have higher starting salaries than student who have no SAP experience [1, 6] ERP is becoming prevalent in the business world and it is important for students graduating from business programs to be familiar with how these systems work and the process behind implementing an ERP system in firms that do not currently have integrated systems [3, 7].

This paper will focus on the SAP R/3 ERP system because (1) it is the leading software in the ERP

industry and (2) because CMU is a member of the SAP University Alliance. Central Michigan

	Supplier	Estimated 2006 revenue
1	SAP	\$735 million *
2	Oracle	\$585 million *
3	Infor	\$348 million **
	Manhattan	
4	Associates	\$289 million
5	i2 Technologies	\$280 million
6	JDA Software	\$278 million
7	RedPrairie	\$189 million
8	IBS	\$178 million
9	Epicor	\$124 million
10	Aldata	\$99 million

**Table 1.** Top 10 ERP Software Providers [11]

University offers 17 undergraduate and graduate business courses that integrate ERP concepts into finance, accounting, information systems, supply chain management, human resources, and logistics courses [4].

The purpose of this paper is to determine the student perception of the quality of their experience with the SAP R/3 software in the classroom setting. Students enrolled in an upper-level undergraduate class were surveyed using a short questionnaire on a number of elements related to the course. The students were not required to fill out the survey, but were given the option to participate in the study upon completion of the course.

#### THE GROWTH OF ERP: TARGETING SMEs

By the late 1990s, most Fortune 500 companies had already implemented ERP systems. The systems were too expensive for small and medium sized enterprises (SMEs) to afford, and they simply did not need all of the functionality of an entire ERP system. To deal with this issue, and expand the market for ERP systems in the United States, SAP AG developed

preconfigured, industry-specific bundles for SMEs. SAP currently serves more than 89,000 customers worldwide [10]. The firm has been counting on 40-45% growth in the mid-sized company market from 2007 to 2010. Other ERP providers have followed suit, offering products with fewer modules and online platforms to cater to businesses that could not afford to buy, and did not need, a complete system [9].

There has been rapid growth in the ERP, SCM, and CRM sectors as companies struggle to keep their suppliers and business relationships intact [2]. The ERP software requires good knowledge of business processes. The implementation of ERP systems requires a good understanding of the firm's business processes. Without this understanding, the company will experience implementation issues and users will not have a clear understanding of how to use the system. A more critical issue for firms to consider is the inability of managers to troubleshoot simple or complex problems that result from inexperienced users. These growing pains have led to the need for graduates with technical experience with ERP systems [8, 11]. Companies are willing to pay a premium salary for graduates that have experience with ERP systems [1, 6].

### **ERP IN BUSINESS COURSES**

The SAP University Alliance program is a major breakthrough in the education of ERP systems. It provides the university faculty with necessary resources to teach students how the business processes are integrated in the SAP system. The alliance is one of the largest academic/business collaborations in the world. Membership in the program is by invitation and includes 500 universities around the world. Each year, thousands of students are introduced to a real world business management application through the program. With University Alliance resources, the student learning experience is enhanced while interest in learning about ERP is increased [9].

Some universities are provided the resources to offer an official certification via SAP America. The certification program is based on specific business processes that are related to supply chain management principles.

#### **CMU Program Details**

Central Michigan University is one of the few SAP Alliance programs equipped to offer the SAP certification program. In order to prepare for this

certification exam, students are required to complete at least one course with an interactive SAP R/3 component and attend a two week intensive seminar on specific SAP R/3 skills. Course curriculum of ERP should include the courses that involve understanding of business problems, evaluating case studies and also good knowledge of modules which determine the working structure of an organization.

#### **Course Details**

The course used for this study was an upper level undergraduate course in the College of Business program titled *Integrated Business Experience*. Three sections of the course were used to gather the questionnaire data. Each section was made up of 38 students for a total of 114. As a class, students were introduced to sales order processing, human resource management, production, and pricing activities within the SAP R/3 system using predefined datasets.

The students are given instructional materials that walk them through the steps to complete transactions within the process examples given in the paragraph above. The materials are based on the Fitter Snacker Company, a fictional company used in Concepts of Enterprise Resource Planning by Monk & Wagner [9]. The textbook gives the students a view of what a company looks like without integrated systems and explains the benefits of implementing an ERP system solution [3, 9]. The course introduces the full SAP R/3 solution, an introduction to SAP AG's competitors, application service provider (ASP) solutions, pre-configured bundle packages for medium-sized businesses, and the online solutions [9].

The students are required to complete the SAP R/3 assignments in a computer lab outside of class. Each student is provided a unique data set that is linked to his user identification code. The assignments are very specific and provide the students with menu paths and transaction codes they can use to navigate the system. Students are also given input data that result in predictable outcomes and can be easily graded by the instructor.

### **QUESTIONNAIRE**

A questionnaire was developed to survey student satisfaction with their classroom introduction to the SAP R/3 ERP system. The survey results were expected to assist in determining how students felt the training they received would assist in preparing them for a career. The questionnaire was distributed

to all three sections of class via email using surveymonkey.com and the responses were analyzed. The following questions were included in the survey:

1. The Concepts in Enterprise Resource Planning text by Monk & Wagner (2009) was a helpful resource in learning about Enterprise Resource Planning.
2. How much do you agree with the following statement?: I was frequently confused on what to do in SAP R/3
3. How much do you agree with the following statement?:The instructor’s lectures on Enterprise Resource Planning helped clarify questions I had about SAP R/3
4. How useful did you find the SAP lab days in the class?
5. How much do you agree with the following statement?: I feel like the knowledge I acquired about SAP R/3 will give me a competitive advantage in the workplace
6. Answer true or false to the following statement: I plan on taking the CMU SAP certification program sometime in the future.

For questions 1-5 the students were asked to rate their responses on a scale from 1 to 5, with 1 meaning that they strongly disagree with the statement and 5 meaning that they strongly agree with the statement. The final question asked for a true or false response on whether they planned on participating in the CMU SAP certification program.

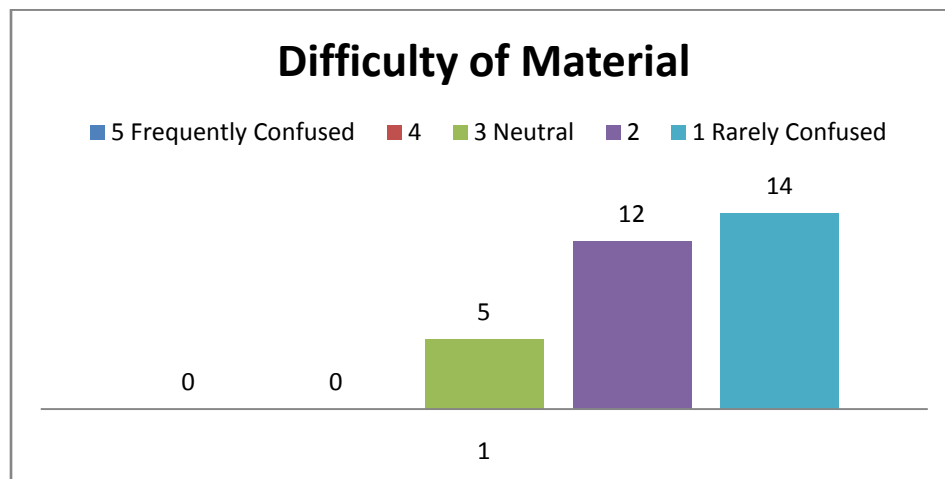
The question regarding lab days refers to the opportunity to work on the SAP R/3 assignments while the instructor was present to help with the assignment.

**RESULTS**

The findings from the survey reflect student attitudes towards the resources provided to facilitate their understanding of the SAP R/3 system.

In response to question 1, regarding the textbook used to introduce ERP concepts, 19 students (63 percent) were satisfied with the current textbook. Seven students (23 percent) had a neutral opinion, and 4 (13 percent) did not think the book was a helpful resource.

When asked if they were frequently confused while using SAP R/3, the students either had a neutral (16 percent) or negative (84 percent) response. This would imply that none (0 percent) of the students felt that working with SAP R/3 was too difficult, or beyond their capability (See Figure 1). This is not meant to imply that using the SAP R/3 system is simple, but references that the materials used to explain the SAP R/3 system were not presented in a confusing manner.



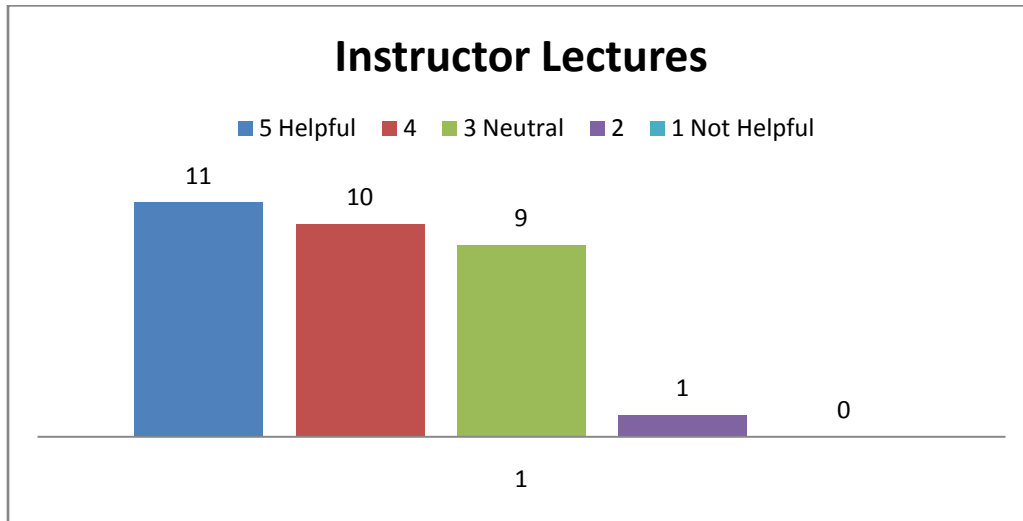
**Figure 1.** Students Rate Confusion Level

Twenty-one (68 percent) of the students found that the instructor’s lectures helped them when using the SAP R/3 system. Nine (29 percent) maintained a

neutral opinion. Of the respondents, 23 students (74 percent) claimed that they were extremely satisfied with SAP lab days in the class. Five students (16 percent) were moderately satisfied with the lab days

and nobody (0 percent) was extremely dissatisfied (See

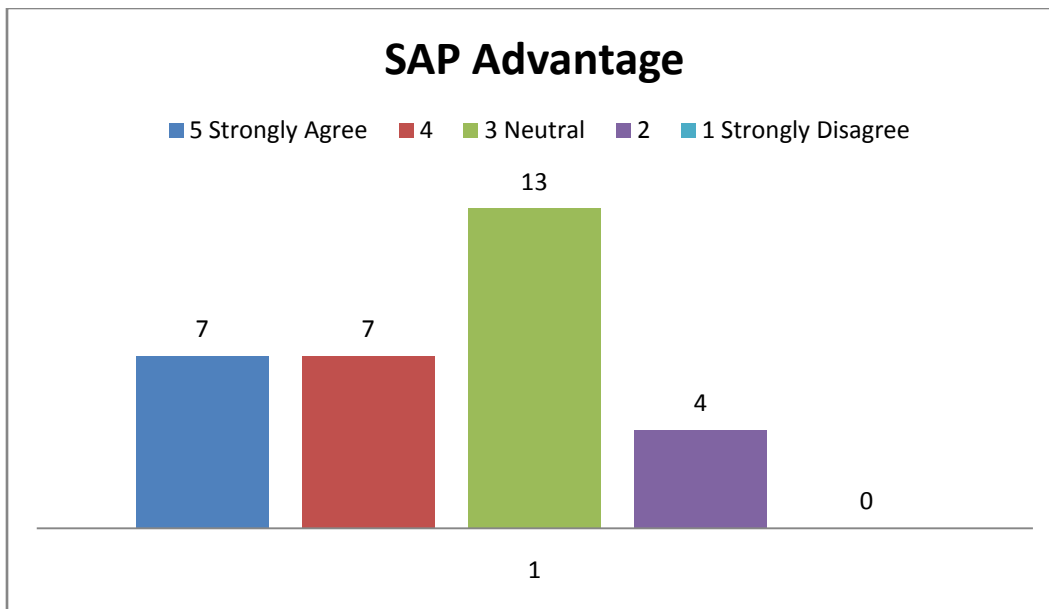
Figure 2).



**Figure 2.** Usefulness of Instructor Lectures

The students were also asked if they perceived an advantage to learning SAP R/3 as it related to them finding and maintaining a job once they had finished their business degree (See Figure 3). The survey revealed that 7 students (23 percent) expected to gain advantage in the workplace.

Thirteen students (42 percent) neither agreed nor disagreed with the statement. Four (13 percent) of the students did not anticipate any improvement in their marketability as job seekers. This could be the result of these students planning to enter a field that is not currently using an ERP system.



**Figure 3.** Advantage Gained as a Result of Taking an SAP R/3 Course

Nine of the 31 students that took the survey are planning on taking the CMU SAP certification program sometime in the future. While this may not

look like a large number, it is significant because a majority of the students had never encountered an ERP system before taking the course.

## CONCLUSION

The findings of this study imply that students in the course were satisfied with how the SAP R/3 material was presented and taught in the specific courses that were surveyed. Overall, the students found the support material and the SAP R/3 assignments to be helpful and clear. The data shows that more students found the opportunity to use the lab while the instructor was present (74 percent) was more helpful than the instructor's lecture materials (68 percent).

The findings regarding perceived advantage in the workplace reveals the misunderstanding that students have regarding the prevalence of ERP, or similar systems that are being used in the workplace. There are 85,000 companies using SAP R/3 alone, not to mention the companies that use Oracle, Infor, Epicor, and other ERP systems. This paper may have started with the intent to gauge student satisfaction in an SAP R/3 integrated course, but there is obviously more work that needs to be done in educating the students on how mainstream these software packages are becoming. If they are indeed aware of the presence of ERP, they should be additionally aware of how it will affect them, regardless of what concentration their business degree happens to be.

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