

# Perception and Evaluation of Enterprise Systems Education in University of Ibadan, Nigeria

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## Abstract

This paper examined the perception and evaluation of enterprise systems (ES) education in University of Ibadan, Nigeria. A total of 108 students who participated in the ES fundamentals course were interviewed through the use of structured questionnaire. Data were analysed using descriptive statistics and the Likert rating scale. Results show that the participants specialised in Engineering (64.8%), Computer Science/Information Technology (37.0%), social and human sciences, natural sciences and accounting. The motives of students for participating in ES fundamentals course include interest in ES education (76.9%) and SAP software knowledge (75.9%), obtaining SAP UA certificate (63.0%), and integration of ES curriculum in departmental courses (11.1%). The Likert rating scale shows that course structure, delivery by lecturers, and preparation of students for ES fundamentals exams were reasonable. Participating students expect to have competitive advantage over others in the job market (87.0%), more diverse job responsibilities (67.6%), and more job interview invitations (50.0%). Also, students acquired substantial understanding of the basic ES knowledge, fundamental integrative business processes in procurement, sales and inventory management, and financial accounting within the SAP ERP application. However, as much as the navigation exercises helped the students through the understanding of different course modules, more time should be given to the navigation tutorials and SAP tutorial software should be more user-friendly to facilitate proficiency. Therefore, there is great potential to achieve the proficiency of students in ES education in Nigeria.

**Keywords:** ES education, SAP ERP, Business processes

# 1. Introduction

In the context of its current application, the ERP (Enterprise Resource Planning) has been defined as enterprise-wide information system software designed to coordinate all resources, information, and activities needed to complete business processes and measure performance. ERP is the foundational layer that provides information structure, knowledge capture and business control (Freyermuth & Sheperd 2010). An ERP system is packaged enterprise system software that covers most core business functions including finance, accounting, sales, operations management, purchasing, and human resource management (Jansen van Vuuren & Seymour 2013:1-9).

ERP systems are an extension of prior Materials Requirements Planning (MRP) and Manufacturing Resource Planning (MRP II) systems. MRP systems form the base of many ERPs and are used to plan production and raw materials purchases for future periods. Information used in MRP runs would include supplier lead times and finished product recipes or bills of material (BOMs). An ERP system is a comprehensive software package that incorporates all modules needed to run the operations of a business. It should include the following modules: Manufacturing/operations management, Accounting and Finance, Human resources, Sales, and Purchasing.

Enterprise resource planning (ERP) systems integrate internal and external management of information across an entire organisation embracing finance/accounting, manufacturing, sales and service, customer relationship management, and etcetera. ERP systems automate this activity with an integrated software application. The purpose of ERP is to facilitate the flow of information between all business functions inside the boundaries of the organisation and manage the connections to outside stakeholders.

Enterprise systems promise integration on many levels such as system integration, interface integration, global integration, data integration, and business integration. The main reason for implementing ERP systems in organisations is the improvement in business processes. ERPs can assist in improving business processes by the automation of work practices, data integration, and central storage and protection of data, as well as business integration. The current top ERP vendors include SAP, Oracle, Sage, Infor and Microsoft. The market has increased from mainly large organisations to include small and medium sized organisations and many ERP vendors are targeting niche vertical segments with ERP products. Some of the products in this space include software as a service (SaaS) ERP solutions which are attracting growing interest in the marketplace (Faasen et al. 2013:35-47).

SAP (Systems application Products) is a German multinational software corporation that makes enterprise software to manage business operations and customer relations. The SAP ERP application is the software foundation that large enterprises and midsize companies trust to provide the best business insight and enable operational excellence and innovation. The SAP ERP application has an extensive range of functionality including personalized information access and tailored reporting to help in all areas of any business.

With full support to integrate core business processes such as customer relationship management, supply chain management, supplier relationship management, and product life-cycle management. SAP ERP provides a foundation for growth, innovation, and end-to-end business process excellence.

The identified problems in business operations include ERP skill shortage and knowledge gap, lack of qualified talents, scope overruns and suboptimal realization. Yet organizations report high level of satisfaction with ERP software choices. This forms the basis of the main goal of the enterprise systems (ES) education.

There have been discussions by computing professionals about how best to respond to the developments in the information technology and communications industry (Stein et al. 2007). At the same time, there has been a downturn in employment opportunities in this industry. For instance in Australia, various scholars have revealed that many of the entry level positions that graduates normally entered have diminished due to the economic downturn and to companies outsourcing positions to off shore companies. This prompted an intervention by the Victoria University (Australia) school of information systems to introduce multiple programs in an endeavour to compliment traditional course delivery and to better connect a university school with industry requirements.

Tethered to the foregoing, Enterprise System Education for Africa (ESEFA) seeks to replicate this intervention in Africa, through the introduction of enterprise system education in universities in sub-Saharan Africa (SSA). The Enterprise Education programs include the use of SAP hosting centres for access to ERP systems, conducting an ERP visiting expert teaching delivery model for SAP content and multiple SAP certification programs.

According to Stein et al. (2007), several universities across the globe have committed time and resources in modifying their curriculum to incorporate enterprise resource planning systems (ERP) which is not evident in most African universities. But as the use of ERP system by foreign and local companies and industries are becoming more strategic, there is need to commensurably equip students who are potential employees. The importance of information technology education development in Africa, most especially sub-Saharan countries cannot be overemphasized. The unavailability and/or shortage of ERP systems is not a recent phenomenon in Africa.

It is against this backdrop that ESEFA initiative seeks to address the shortage of ES skill in Africa by enabling local universities produce highly qualified ICT and ERP professionals. This is being achieved by offering high quality enterprise system education programme in partner universities which will in turn create job opportunities for graduates and contribute to an increase in Africa's competitiveness, productivity and growth, which are the backbone of economic development. The need for enterprise system education stems from the fact that over the last decade in Africa, the information science discipline has become an essential component in the employment industry which requires job seekers to have at least an intermediate ICT knowledge and skills.

The objective of the ESEFA program is to partner at least one university in each of the ten sub-Saharan Countries, implement and integrate the ESEFA's curriculum into the existing programmes by providing access to the ESEFA curriculum and SAP ERP system. Also, to develop a community of universities across SSA for enterprise system education which helps to establish a sustainable business model for future Enterprise System Education at universities in SSA. The targets/beneficiaries are the Universities across sub-Saharan Africa (Partners), partner University Lecturers, and University Students.

African Universities would be able to join the ESEFA programme and integrate the Enterprise System (ES) curriculum content into their business and technical study programmes. The course content will be available in a blend of online and offline formats for modern blended learning scenarios and self-directed learning. The modular curriculum design will help universities to adapt courses and learning material to meet their course requirements.

Train-the-lecturer courses with an associated ES fundamentals qualification by SAP University Alliances will assist lecturers in gaining the requisite enterprise systems and curriculum alignment knowledge required to teach enterprise systems in curricula. Lecturers are trained to teach; they learn about a number of theoretical and practical issues concerning business processes and their mapping into an enterprise system. After the training, the lecturers are able to identify and match real life business processes into ES business processes.

The University of Ibadan identified the value of partnering and supporting the Enterprise System Education for Africa in providing students with 'hands on' experience with SAP ERP systems in a bid to produce graduates with sound ERP knowledge and high employment prospects. Following the approval and signing of a 3-year partnership contract by the Vice Chancellor on behalf of University of Ibadan (UI) with the Otto-von-Guericke University, Magdeburg (OVGU), Germany, UI is one of the eleven partner universities in Africa for the delivery of ESEFA curriculum.

The ESEFA initiative at UI is being coordinated by the Department of Industrial and Production Engineering (IPE). It involves the integration of ES curriculum into selected courses in the participating departments; IPE, Agricultural Economics and Computer Science, as well as into courses at the UI Business School. Also, there will be regular SAP ERP short courses for interested students of the university to obtain proficiency certificate.

In line with the qualification of eleven UI lecturers trained in Ghana in the ES fundamentals in November 2014, UI qualified to train lecturers and students in SAP ERP courses. Therefore, ES curriculum have been integrated into selected courses in the participating departments and short courses have been run between April and July 2015, leading to the participation of more than one hundred students. It is in the light of the foregoing that this study analyzed the perception and evaluation of the ES fundamentals course in the University of Ibadan.

The following questions were answered by this study:

- i. What are the characteristics of participants in the ES fundamentals course?
- ii. What are the motives of students for participating in ES fundamentals course?
- iii. How do students perceive the course structure, delivery by lecturers, and preparation for ES fundamentals exams?
- iv. Does the ES fundamental course meet students' expectations? and
- v. What are the constraints to learning through the ES fundamentals course?

### **Aims and objectives**

This paper is mainly based on the perception and evaluation of ES education in University of Ibadan, Nigeria. The specific objectives are to:

- i. profile the characteristics of participants in the ES fundamentals course,
- ii. examine the motives of students for participating in ES fundamentals course,
- iii. examine the perception of students on course structure, delivery by lecturers, and preparation for ES fundamentals exams,
- iv. evaluate the effect of ES fundamental course on students' expectations, and
- v. identify the constraints to learning through the ES fundamentals course.

## **2. Literature review**

Enterprise systems have received substantial attention from both academia and practice (Haddara and Zach 2012:106-116). Ang et al., (2010:3-10) posited that the U.S. and other developed nations are experiencing competitiveness in offering higher educational degree programs. Due to the rise of more private and online educational institutions, existing traditional classroom teaching institutions are facing the impact of intensifying competition in recruitment and graduation. This stresses the need for enterprise system education.

In recent times, managers are concerned that it takes long time to train graduates with skills and knowledge required to perform at work place. This therefore poses a challenge to the educational system. As more and more businesses around the world adopt enterprise systems, it becomes increasingly important for students to develop a more process-centric perspective that reflects the realities of the modern business environment in which they will work (Magal and Word, 2012). Enterprise education presents methods of restructuring business curricula in order to use Enterprise System solutions. It also helps ES vendors understand the higher education environment so they can support college and university programs.

ESEFA has the goal of working to sustainably develop local skills in SSA, that is, Western region: Nigeria, Ghana; Eastern region: Kenya, Tanzania, Uganda; Southern region: Namibia, Botswana, Mauritius, Angola, and South Africa (UP

partner). Furthermore it partners with at least one large university close to a metropolitan in each of nine sub-Saharan countries, as well as one other university in South Africa, this being the University of Pretoria which has already signed a partnership contract.

ES courses are significant supplement to business and Information Technology study programmes at universities. These courses provide a comprehensive understanding of business processes and enterprise systems. Beyond that, specific application knowledge of SAP ERP software is highly relevant for all fields of business activity of the most diverse enterprises. Enterprise systems qualified personnel are in high demand and are particularly sought after by organisations. Ability to understand and work with these software applications is a major advantage for students in Africa who will be in the job or labour market in the near future.

In addition, ES education enhances student marketability and prepare them for project and management positions in complex working environments. The SAP ERP system incorporate best practices for many of the business processes they support, which makes it an ideal teaching tool, while at the same time increasing the employment prospects of graduates. The ES education which involves the learning of basic ES knowledge; fundamental integrative business processes in procurement, sales and inventory management, and financial accounting within the SAP ERP application. The basic ES knowledge introduces the theoretical and practical issues concerning business processes, their implementation, their management and their mapping into an enterprise system. It enables the students to understand how ES software supports business processes and how enterprise systems are implemented to match organizational business processes. The students will understand organizational data and master data as well as how they are implemented in SAP ERP.

The current challenges in teaching ERP include:

- i. High cost of server infrastructure
- ii. High cost for teachers and tutors to learn ERP
- iii. Student's struggle to relate to existing scenarios and data in many current systems. This has been reduced with the Zambike experience
- iv. Non user friendly course delivery courseware, especially the navigation tutorials.

### **3. Methodology**

This study was carried out in University of Ibadan, Nigeria. The University of Ibadan is located in Ibadan which is the capital city of Oyo State. Oyo state has 33 Local Government Areas with an estimated population of 5.6 million (NPC, 2006). Oyo State is located between latitude 2° 38' west and 4° 35' east of the Greenwich meridian. The land area is 35,743 square kilometers. Ibadan is a major central city in the southwestern Nigeria. Thus, the city is important in terms of educational activities, starting with many private and public primary schools, to higher educational institutions such as The Polytechnic, Ibadan and

The University of Ibadan which are Federal Government owned institutions. The city has 11 local government areas (LGAs); five of these are in the main city while six are in the suburbs. The University of Ibadan is located in Ibadan North Local Government Area of Oyo State. The University of Ibadan has many Faculties. The Department of Industrial and Production Engineering and the Department of Computer Science are in the Faculty of Technology while the Department of Agricultural Economics is in the Faculty of Agriculture and Forestry.

Questionnaire was used to obtain information from the participating students to assess their perception and evaluation of the ES education. All the participants were 128 but only 108 responded to the evaluation of the ES fundamental course in four training sessions that have been held in the University of Ibadan.

<b>Training session</b>	<b>Date</b>	<b>No of students</b>
1 <sup>st</sup>	13 <sup>th</sup> – 17 <sup>th</sup> April, 2015	19
2 <sup>nd</sup>	20 <sup>th</sup> – 24 <sup>th</sup> April, 2015	20
3 <sup>rd</sup>	15 <sup>th</sup> – 19 <sup>th</sup> June, 2015	38
4 <sup>th</sup>	6 <sup>th</sup> – 10 <sup>th</sup> July, 2015	31
Total		108

The analytical tools used in this study were descriptive and Likert Rating Scale. The descriptive statistics such as frequency counts and percentages were used to profile the characteristics of participants and the motives of students for participating in ES fundamentals course (objectives 1 and 2), the results were presented using frequency distribution tables. The perception of students on course structure, delivery by lecturers, and preparation for the ES fundamentals examinations (objective 3), and the evaluation of the effect of ES fundamental course on students' expectations (objective 4) were examined using the Likert scale. The responses of the students on the constraints they face in learning through the ES fundamentals course were identified and presented (objective 5).

### **Survey Analysis: Likert Scale**

#### **Perception of students on course structure, delivery by lecturers, and preparation for ES fundamentals exams**

##### **Perception of students on course structure**

The perception of students on course structure was assessed through eleven statements to which the students expressed their agreement or disagreement in four response categories. The attached weight to the responses are as follows:

Strongly disagreed                      1

Disagreed	2
Agreed	3
Strongly agreed	4

### Calculations

The weight of each response category was multiplied by the frequency, summed up and divided by sample size. This gives the mean value of responses.

$$\frac{\text{Attached Weight} \times \text{frequency}}{\text{Number of respondents}}$$

Likert rating =

$$\frac{WF}{N}$$

=

Where W = attached weight to each response category  
 F = frequency of the response  
 N = number of respondents

Decision Rule: Any mean value greater than or equal to 3 will show that the agreement of the respondents to the statement is statistically significant.

### Perception of students on course delivery by lecturers

The perception of students on course delivery by lecturers was assessed in four different response categories to two questions:

Poor	1
Average	2
Good	3
Excellent	4

Decision Rule: Any mean value greater than or equal to 3 will show that the agreement of the respondents to the statement is statistically significant.

### Perception of students on preparation for ES fundamentals exams

For perception of students on preparation for ES fundamentals exams, the response categories were five and the attached weight:

Not well prepared at all	1
Not really well prepared	2
Reasonably well prepared	3
Well prepared	4



Very well prepared

5

The students gave responses on each of the four course module – ES knowledge, procurement, sales and inventory management

Decision Rule: Any mean value greater than or equal to 3 will show that the agreement of the respondents to the statement is statistically significant.

### **Prior knowledge and acquired knowledge on ES – perceived impact of ES education on students**

The response categories on the prior and acquired knowledge on ES to assess the impact of ES education on students:

Not at all	1
Slightly	2
Somewhat	3
Substantially	4

Decision Rule: Any mean value greater than or equal to 3 will show that the agreement of the respondents to the statement is statistically significant.

## **4. Results and Discussions**

### **Characteristics of participants in the ES fundamentals**

The personal characteristics of students who participated in the ES fundamentals training in the University of Ibadan are presented in Table 1. From the results, the participants were mostly between the age of 25 and 30 years (40.7%), 38.9% were older than 30 years while the least percentage (20.4%) were between 18 and 24 years. Also, majority of the participants (81.5%) were male. The participants were mostly students that specialised in Engineering (64.8%), followed by those who specialised in Computer Science and Information Technology (37.0%). Other students specialised in management, social and human sciences, natural sciences and accounting. It is also to be noted that majority of the students (71.2%) were studying for Masters degree; there were also fourth year undergraduate students, final year students and Ph.D. students. This is to say that students in different fields at different levels of studies took part in the ES fundamentals course.

<b>Variable</b>	<b>No of students</b>	<b>%</b>
<b>Age</b>		
18 - 24	22	20.4
25 - 30	44	40.7
≥ 31	42	38.9
Total	108	100.0
<b>Gender</b>		

	88	81.5
15.7	20	18.5
5.6	108	100.0
64.8		
37.0		
6.5		
0.9		
Male		
Female		
Total		
<b>Level of tertiary studies</b>		
Fourth year undergraduate level	14	13.0
Final year undergraduate level	7	6.5
Masters	77	71.2
Ph.D.	10	9.3
Total	108	100.0
17		
6		
70		
40		
7		
1		
<b>Areas of specialisation</b>		
Management		
Natural Sciences		
Engineering		
IT/Computer Science		
Social and Human Sciences		
Accounting		

**Table 1: Characteristics of students**

Source: Data analysis, 2015

### **Motives of students for participating in ES fundamentals course**

The different reasons why students participated in the ES fundamentals course are presented in Table 2. Many of the students (76.9% and 75.9%) went through the course because of the general interest they had in ES education and SAP software knowledge respectively. Also, 63.0% participated in the course to obtain SAP UA certificate. Some others (11.1%) took part because the curriculum has been integrated as a requirement in their courses, especially in the three participating departments in the University of Ibadan.

<b>Reason</b>	<b>No of students</b>	<b>%</b>
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General interest in ES	83	76.9
Integrated part of a required class	12	11.1
SAP software knowledge	82	75.9
SAP UA certificate	68	63.0

**Table 2: Students' motives for studying Enterprise Systems**

Source: Data analysis, 2015

## **Perception of students on course structure, delivery by lecturers, and preparation for ES fundamentals exams**

### **Perception of students on course structure**

The perceptions of students on the structure of ES fundamentals course are presented in Table 3. Mean value of 3 and above is considered to be statistically significant. The highest percentage of the students (61.1%) strongly agreed and 36.1% agreed that the course objectives were clearly stated. The mean score of 3.6 shows that the responses of the students were statistically significant, that is, the course objectives were clearly stated.

From the results, 59.2% and 37.0% of the students agreed and strongly agreed respectively that the starting standard of the course was at the right level for them. With a mean value of 3.3, it shows that the mean value is statistically significant, that is, the starting standard of the ES fundamentals course was right for the students. With the majority of students (63.9%) who agreed, 34.3% who strongly agreed, and mean value of 3.3, the course structure was coherent, the organization is good.

Also, majority of the students (60.2%) agreed, 37.0% strongly agreed, and mean value of 3.3 significantly show that the course topics give a good overview of ES integrated aspects such as ES knowledge, business processes; procurement and sales, and SAP ERP knowledge. About 48.1% each of the students agreed and strongly agreed that the selected navigation exercises are beneficial for the understanding of business processes in ES and this resulted to a mean value of 3.4 showing that the responses were statistically significant.

Students had different motives for participating in ES fundamentals course. The motivation of 85.1% of the students was increased by the Zambikes story and 94.4% believed that the Zambike's story was authentic. Mean values of 3.1 and 3.2 show that the responses were statistically significant. The context provided by the Zambike's business case was helpful to improve the comprehension of the students as originally intended. Further, 92.6% of students have been inspired by the Zambike's video (mean value of 3.3).

Despite the motivation for learning, 37.1% and 35.2% of the students agreed and strongly agreed that the navigation workshop was easy for them and the navigation software is user friendly respectively. Mean values of 2.2 and 2.3 shows that the responses were not statistically significant. This is to say that

the navigation workshop was not so easy for the students and the navigation software was not really user friendly.

Statement	SD		D		A		SA		Mean	Decision
	No.	%	No.	%	No.	%	No.	%		
The course objectives were clearly stated	3	2.8	0	0.0	39	36.1	66	61.1	3.6	Sig.
The starting standard was at the right level for me	2	1.9	2	1.9	64	59.2	40	37.0	3.3	Sig.
The course structure was coherent	1	0.9	1	0.9	69	63.9	37	34.3	3.3	Sig.
The course topics gave a good overview of ES integrated aspects	2	1.9	1	0.9	65	60.2	40	37.0	3.3	Sig.
The selected navigation exercises are beneficial for the understanding of business processes in ES	2	1.9	2	1.9	52	48.1	52	48.1	3.4	Sig.
My motivation for this was increased by the Zambikes story	2	1.9	14	13.0	65	60.1	27	25.0	3.1	Sig.
The Zambike's story was authentic	0	0.0	6	5.6	72	66.7	30	27.8	3.2	Sig.
The context provided by the Zambike's business case was helpful to improve my comprehension	2	1.9	5	4.6	60	55.6	41	38.9	3.3	Sig.
I have been inspired by the Zambike's video	1	0.9	7	6.5	60	55.6	40	37.0	3.3	Sig.
The navigation workshop is easy for me	28	25.9	40	37.0	30	27.8	10	9.3	2.2	Not Sig.
The navigation software is user friendly	20	18.5	50	46.3	28	25.9	10	9.3	2.3	Not Sig.

**Table 3: Perception of students on course structure**

Source: Data analysis, 2015

### Perception of students on course delivery by Lecturers

The assessment of course delivery by the lecturers shows statistically significant mean value of 3.3 (Table 4). The majority of the students (57.4%) agreed that course preparation by lecturers was good and 37% agreed that it was excellent. In the same vein, 53.7% of the students agreed that the knowledge of the lecturers in the ES fundamentals course was good and 37.0% assessed the knowledge of the lecturers as excellent.

Questions	Poor		Average		Good		Excellent		Mean	Dec.
	No.	%	No.	%	No.	%	No.	%		
How did you find the course preparation by lecturers?	0	0.0	6	5.6	62	57.4	40	37.0	3.3	Sig.
How knowledgeable were your lecturers?	0	0.0	10	9.3	58	53.7	40	37.0	3.3	Sig.

**Table 4: Perception of students on course delivery by Lecturers**

Source: Data analysis, 2015

### Perception of students on preparation for ES fundamentals exams

The highest percentages of students agreed that they were reasonably well prepared for the ES fundamentals examinations on the basis of different course modules. From the results in Table 5, 37.0% agreed that they were reasonably prepared for ES Knowledge, 44.4% agreed that they were reasonably prepared for procurement, 42.6% each agreed that they were reasonably prepared for sales and inventory management. Also, more students agreed that they were well or very well prepared in different course modules while lower percentages of students agreed that they were not well prepared at all for the ES fundamental exams. Statistically significant mean values of 3.6, 3.4, 3.2 and 3.3 show that the students were well prepared in different course modules for the ES fundamental exams.

Statement	Not well prepared at all		Not really well prepared		Reasonably well prepared		Well prepared		Very well prepared		Mean	Decision
	No.	%	No.	%	No.	%	No.	%	No.	%		
ES Knowledge	1	0.9	12	11.2	40	37.0	36	33.3	19	17.6	3.6	Sig.
Procurement	2	1.9	12	11.2	48	44.4	35	32.4	11	10.1	3.4	Sig.
Sales	3	2.8	23	21.3	46	42.6	26	24.0	10	9.3	3.2	Sig.
Inventory Management	3	2.8	17	15.7	46	42.6	28	25.9	14	13.0	3.3	Sig.

**Table 5: Perception of students on preparation for ES fundamentals exams**

Source: Data analysis, 2015

### Effect of ES fundamentals course on students' expectations

The effect of ES fundamentals course on students' expectations is presented in Table 6. From the results, the pace of instruction was rated to be just right by 70.4% of the students while about one-quarter (25.9%) believed that the pace

of instruction was a little too fast. Based on this, the questions of 57.4% of the students regarding SAP ERP were mostly answered, and for 32.4% of the students, their concerns about SAP ERP were completely explained.

Results show that students who participated in the ES fundamentals course had great expectations. Most of the students (87.0%) expected to have competitive advantage over others in the job market. Also, the students expected to have more diverse job responsibilities (67.6%), more job interview invitations (50.0%), higher entry level position (39.8%), and higher entry level salary (29.6%).

How do you rate the pace of instruction?	No of students	%
A little too slow	4	3.7
Just right	76	70.4
A little too fast	28	25.9
Total	108	100.0
Were your questions regarding SAP ERP answered	No of students	%
Somewhat	11	10.2
Mostly	62	57.4
Completely	35	32.4
Total	108	100.0
How will taking this course help your career?	No of students	%
More job interview invitations	54	50.0
Competitive advantage	94	87.0
Higher entry level position	43	39.8
More diverse job responsibilities	73	67.6
Higher entry level salary	32	29.6

**Table 6: Effect of ES fundamentals course on students' expectations**

Source: Data analysis, 2015

### Perceived impact of ES fundamental course on students

The impact of ES fundamentals course, as perceived by the students, is presented in Table 7. Prior to the participation in the course, low percentages of students (8.5%, 24.1% and 16.7%) had substantial understanding of ES knowledge, business processes (procurement, sales and inventory management) and SAP ERP respectively. Also, mean values of 2.4, 2.8, and 2.0 show that the responses of the students were not statistically significant. After the ES fundamentals course, 61.1% each of the students had substantial understanding of ES knowledge and business processes with statistically significant mean values of 3.3 and 3.4 respectively. In the same vein, 53.7% of the students had substantial understanding of SAP ERP with statistically significant mean value of 3.2.

Prior knowledge	Not at all		Slightly		Somewhat		Substantially		Mean	Decision
	No.	%	No.	%	No.	%	No.	%		
Understanding of ES	27	25.0	35	32.4	26	24.1	20	18.5	2.4	Not sig.
Understanding of business processes	7	6.5	39	36.1	36	33.3	26	24.1	2.8	Not sig.
Understanding of SAP ERP	54	50.0	19	17.6	17	15.7	18	16.7	2.0	Not sig.

SAP ERP	Not at all		Slightly		Somewhat		Substantially		Mean	Dec.
Acquired knowledge after ES fundamentals	No.	%	No.	%	No.	%	No.	%		
Understanding of ES systems	8	7.4	15	13.9	19	17.6	66	61.1	3.3	Sig.
Understanding of business processes	2	1.9	14	13.0	26	24.0	66	61.1	3.4	Sig.
Understanding of SAP ERP	16	14.8	8	7.4	26	24.1	58	53.7	3.2	Sig.

**Table 7: Prior knowledge and acquired knowledge on ES**

Source: Data analysis, 2015

### Constraints to learning through the ES fundamentals course

The following are the constraints to learning through the ES fundamentals course as identified by the students:

- i. Some basic terms were taken for granted and this makes understanding of the course a little difficult
- ii. The course period is too short because there is much to learn
- iii. There are no real life examples and exercises that are related to Nigeria
- iv. There are not enough practice exam questions
- v. The time given to workshop/navigation is too short
- vi. The SAP tutorial software are not available to the students to facilitate proficiency
- vii. The study manual is not user-friendly

### 5. Conclusion

Students that participated in ES fundamentals in the University of Ibadan were both male and female from different areas of specialisation and from the undergraduate, masters and Ph.D. levels. The students had significant positive perception about the course structure, course delivery by lecturers and preparation for ES fundamentals exams. ES education had been perceived by students in the University Ibadan as having great impact on their understanding of enterprise knowledge. The students acquired substantial understanding of the basic ES knowledge, fundamental integrative business processes in procurement, sales, and inventory management, and financial accounting within the SAP ERP application. However, as much as the navigation exercises helped the students through the understanding of different course modules, the students requested that more time should be given to the navigation tutorials. Also, SAP tutorial software should be more user-friendly to facilitate proficiency. Therefore, there is great potential to achieve the proficiency of students in ES fundamentals in University of Ibadan and Nigeria at large.

## 6. Recommendations

In the light of the findings of this study, the following recommendations were made

- i. There should be basic definition of all the terms used in the course modules
- ii. The course period should be extended to enhance better understanding and performance because there is much to learn within the short period and there is not sufficient time to comprehend some of the technical issues discussed before being assessed
- iii. More real life examples and exercises should be used especially as related to Nigeria
- iv. There is need for more practice exam questions
- v. More time should be given to workshop/navigation for improved proficiency
- vi. The SAP tutorial software should be available to the students to facilitate proficiency
- vii. The study manual should be more simplified
- viii. This programme should be extended to students of other institutions in Nigeria, and higher levels of training in the SAP ERP will be a welcome development in Nigeria.

## 7. References

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