

# Effectiveness of ERP Training System in Higher Educational Institution

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## Abstract

Enterprise Resource Planning (ERP) systems are comprehensive and costly IT solutions that address the information needs of organizations. Implementing ERP systems presents significant challenges and is often prone to project failures. To ensure successful implementation, various Critical Success Factors (CSFs) must be met, with user training being one of the most crucial. This study developed a web-based training system tailored to the institution's newly deployed ERP system. The research aims to evaluate the effectiveness of this training system and investigate potential differences in training satisfaction among users based on gender, education level, and age groups. Data were collected through surveys administered to users undergoing the training program. The results indicate that tailored training significantly improves user satisfaction and system adoption rates. Additionally, the study explores how demographic factors influence training outcomes, contributing to a deeper understanding of user needs and preferences. This research underscores the importance of targeted training programs in the successful implementation of ERP systems and provides actionable insights for organizations aiming to enhance user engagement and system efficiency.

**Keywords:** ERP, ERP training system, Critical Success Factors (CSF), user satisfaction, training effectiveness

## 1 Introduction

Enterprise Resource Planning (ERP) systems are IT solutions that provide organizations with information needs and they are continuously replacing old or outdated systems. ERP systems are a crucial factor for the company's success, but possible to show many failed projects during the implementation in the organizations (Bradley & Lee, 2007, p. 37). For ERP systems to be successful, they must be welcomed by their users. As seen in many research papers, the newly implemented system was welcomed by the managers, but unfortunately, it was not easily accepted by everyday users. One of the main reasons for this is that the users are not sufficiently trained. And one factor that should not be overlooked here is that different users have different learning methods (Chayakonvikom et al., 2016, p. 485). User training also requires a budget. IDG tech media company has surveyed 900 IT leaders, line of business participants, and chief information officers (CIOs). According to the research results of IDG, the second most important field of the IT budget is devoted to developing the user experience, with 35% of all IT investment (IDG | Top IT Spending Priorities for 2020, 2020). In most cases, considering the options offered by the ERP system vendors, their training methods are used. Because they are both comprehensive and practical. The most common of these options are computer-based training and on-the-job training (Dorobât & Năstase, 2010). The on-the-job training approach needs a special trainer that is dedicated to training each and every employee during working hours, which is not very efficient if we look at it in detail. On the other hand, computer-based training is available all the time and trainees can access the lessons whenever they are available. The trainer (or in our case supervisor) doesn't have to make appointments with trainees and keep each trainee's progress records. It will save a huge amount of time for supervisors and trainees, so they can focus and improve their academic profiles. And thanks to today's technology, it allows us to make them all possible.

### 1.1 Objectives

The objective of this research is to automate the training process of employees about the newly deployed ERP system and analyze the effectiveness of the training system. The training system will present a dashboard with the record of each trainee. With the help of this training system, the employees will learn about the new ERP system and make a smooth transition to the new system.

### 1.2 Motivation & Problem Description

ERP systems are renewed rational with the advancement of the technology differing from five to ten years, and when this renewal process takes place, it comes with some difficulties. All the staff of the organization should



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be introduced with the system, they need to be trained and the system should be well-received by all members of the organization, which takes time and effort from the upper-level employees. It is also important to note that when a new employee joins the organization, they need time to learn about the new environment as well as processes and systems, despite how much experience they had before joining. Currently, staff at Paragon International University are trained in a traditional way, where the supervisor takes the time, sits with the employee and informs him or her about the system. The problem with this approach is that they both need to find a common time frame and set it aside for training sessions, and frankly, this approach is not efficient.

## 2 Literature Review

In order for the ERP implementation to be successful, some important factors need to be considered during the implementation process. Many studies have been conducted by scholars on these factors. Mahraz et al. described the Critical Success Factors (CSFs) as the limited number of criteria that provide the successful competitive performance to the organization if they are satisfactory (Mahraz et al., 2020, p. 114). From the manager's perspective, it is the purpose of CSF, to identify some factors for the project's success. The collection of small identifiable operational goals that leads to the success of an organization that is chosen by the industry, the firm, the manager, and the environment can be described as critical success factors (Leyh, 2016, p. 20). CSFs provide an overview of what is essential for the success of an organization (Saade & Nijher, 2016, p. 91). Finney and Corbett defined CSFs as the criteria and conditions that make the ERP implementation successful (Finney & Corbett, 2007, p. 335). Mahraz et al. collected 101 articles that are published between 2006 and 2018, they have selected and examined 35 of them. 12 Critical Success Factors out of 40 were considered important for ERP implementation. According to the literature the most studied CSFs are mentioned in Table 1.

Table 1: Most Studied Critical Success Factors (CSFs) for ERP Implementation Identified by Mahraz et al.

CSF	Description	CS F	Description
CSF 1	Top Management Support	F 7 CS	Change Management
CSF 2	Effective Communication	F 8 CS	Project team Composition/ Teamwork
CSF 3	<b>Training, and Education</b>	F 9 CS	Project champion
CSF 4	Business plan and vision	F 10 CS	ERP Choices
CSF 5	Project Management	F 11 CS	Technical Implementation, Technological Infrastructure
CSF 6	BPR Management	F 12 CS	Legacy systems consideration

Finney and Corbett have analysed 70 articles and 45 of them contain CSFs for the success of ERP implementations. In 45 articles 55 CSF were found and grouped together which refer to a similar phenomenon. As a result of the observations, the following information was obtained (Table 2).

Table 2: Grouped Critical Success Factors (CSFs) for ERP Implementation Identified by Finney and Corbett

Strategic critical success factors:		Tactical critical success factors:	
1	Top management commitment and support	1	Balanced team
2	Visioning and planning	2	Project team: the best and brightest
3	Build a business case	3	Communication plan
4	Project champion	...	...
5	Implementation strategy and timeframe	12	Consultant selection and relationship

6	Vanilla ERP	13	Training and job redesign
7	Project management	14	Troubleshooting/crisis management
8	Change management	...	...
9	Managing cultural change	17	Post-implementation evaluation

Ali and Miller (Ali & Miller, 2017, p. 684) have investigated 215 articles from 28 academic journals. They have divided the ERP implementation process into three stages; (1) pre-implementation, (2) post-implementation, and (3) implementation period. Especially, they have focused on the implementation period and have listed 22 CSFs according to their importance as following (Table 3).

Table 3: Critical Success Factors (CSFs) During the Implementation Period Identified by Ali and Miller

1	Top management support	12	Dedicated resources
2	Project team competence	13	Use of steering committee
3	Interdepartmental cooperation	14	User training on software
4	Clear goals and objectives	15	Education on new business processes
5	Project management	16	BPR
6	Interdepartmental communication	17	Minimal customization
7	Management of expectation	18	Architecture choices
8	Project champion	19	Change management
9	Vendors support	20	Partnership with vendors
10	Careful package selection	21	Use of vendors' tool
11	Data analysis and conversion	22	Use of consultant

The articles above mostly show the top-management support is a crucial factor in the success of ERP implementation. But on the other hand, the satisfaction of the users should not be ignored. Mahraz et al, listed users' training and education as the second important CSFs in the ERP's success. Finney and Corbet have divided CSFs into two main categories as Strategic and Tactical Critical Success Factors and they have listed users' training and job redesign in the tactical category of classification. Ali and Miller listed the CSFs according to their importance and have shown users' training on software at the 14th position in their list. User training is the main components of users' satisfaction and implementation success of new ERP. Longinidis has mentioned in his paper about three components of MIS success that were suggested by Zmud, are; (1) user performance, (2) MIS usage, and (3) user satisfaction (Longinidis & Gotzamani, 2009b, p. 635).

The main factor in the success of ERP implementation is dependent on the users' satisfaction. The ERP systems include all the operational units of an organization, so any change on the ERP system affects users at all levels, which ranges from top-level managers to daily users. Studies show that user participation is one of the main factors in the success of ERP implementation (Matende & Ogao, 2013, p. 520). Users' initial thoughts about the ERP change are important for the success of ERP implementation (Abdinnour-Helm et al., 2003, p. 263). Recently, many researchers have emphasized the importance of user satisfaction in ERP project's success and many tools have been developed to measure them. (Longinidis & Gotzamani, 2009c, p. 636). DeLone and McLean have designed six dimensions of IS Success Model, and one of the dimensions is user satisfaction (DeLone & McLean, 2003, p. 14). Reitsma and Hilletoft say that in project development the main factor which leads to failure is the absence of user participation. They also mention that when the ERP implementation project is carried out, the researchers look at it from four perspectives, one of them is the users' perspective (Reitsma & Hilletoft, 2018, p. 296). The duties, tasks, and actions that users and managers carry out during the ERP systems development phase are defined as user participation (Barki & Hartwick, 1994, p. 59). The organizations should be ready and be welcoming for the opportunities and changes (Gargeya & Brady, 2005, p. 509). In order to get the effective and correct use of the system, employees should be provided with adequate training, and it is the most important element in ERP system implementation success (Dowlatshahi \*, 2005, p. 3756). Education should be considered an important part of the project from the beginning of the implementation and the budget should be allocated for education and training (Roberts & Barrar, 1992, p. 34).

### 3 Methodology

In this project, after the successful implementation of the training system we will apply quantitative research within the Paragon International University. Quantitative research provides us with precise results on the training effectiveness. The questionnaire will be conducted to the Heads of Departments of the institution, there are 9 departments at the institution. ANOVA test will be applied to the survey results and we will compare if there are significant differences found between the users' gender, education level, and age groups. Different authors claim that gender, education level, and age affect the user's perception of training. Okpara (2004) did research in the Nigerian context on 360 IT managers and found that gender, age, education level, income, and experience affect the job satisfaction of the managers. According to Harrison et al.'s (1997) investigation on gender differences in computing activities, they have found that male users are more confident than female users when it comes to technology. Bradley (2007) claims that female users are less satisfied than male users with the training provided by the vendor company PeopleSoft. Bilgiç (1998) found that users with higher education levels have fewer complaints about their job. We also want to measure if these factors will affect the perception of the provided training.

There are many training methods to educate the users of the ERP systems. The most commonly used training method is the ERP vendors approach which is accompanied during the implementation period, because it provides education in all important areas (Chayakonvikom et al., 2016, p. 485). They mostly come in two modes; (1) computer-based training and (2) on-the-job training (Dorobăt & Năstase, 2010). Dorobăt & Năstase (2010) identified 26 training methods that can be used in the implementation of the ERP systems and found that there is no specific method that achieves the training goal of the ERP system, but they should be used in a mixed-mode. But even though the mixed mode is suggested, we will be using the computer-based approach in our project to train the instructors. The advancement of technology has provided us with many benefits, and the internet is available almost everywhere and free or very cheap. For this project, we will develop an online learning platform. The platform will provide a dashboard for the managers that shows the progress and analytics on the training of the user.

### 4 Results

After we have done our research on the types of training techniques, we have selected the web-based training, because of its availability and efficiency advantages. Web-based training allows users to access the knowledge anywhere and anytime, without support from anyone. In our web-based training, we have created content in two types; (1) textual content, (2) screen recorded video content. We didn't use the traditional way that is printed documentation, which we believe is not more efficient than web-based training. Most of our users prefer to use video content rather than reading the text because it is easier and clearer to understand. The platform that we have chosen for building our web-based training system is WordPress. WordPress is a free, open-source, and most popular tool to create a website. More than 43.0% of all websites on the Internet are powered by this platform (Kinsta, 2022). The Astra WordPress theme was used for the design. Astra theme offers loads of beautiful and free pre-designed themes to its users. WordPress also allows the developers to add plugins to extend the functionality of the website. Alongside other plugins, the Elementor plugin was selected as our website builder plugin. We additionally bought and installed the LearnDash plugin for Learning Management System (LMS). By using this plugin developers can create the courses on their WordPress site. The structure of this LMS is as follows; first-level is Course, then Lessons, lessons can be divided into Topics, finally, developers can create Quizzes, that can go under Course, Lesson, or Topic.

#### 4.1 The structure of web-based training system

There are two courses in our training system; (1) Paragon.U System Basics, and (2) Paragon.U System Advanced Concepts (Figure 1). The Basics course covers topics such as; Initial access and dashboard of the main ERP system, update personal information, room booking feature, generating and linking Google Meet Links, Creating Syllabus, Grade Categories, Creating Assignments, scheduling an assignment, returning student grades, and recovering the account. The Advanced Concepts course covers the topics such as, managing overall grades and letter grades, leave management, creating assignment rubric, organizing Google Classroom contents, sending request to support system. The courses are free in this training system, but requires users to be registered in order to enrol to the courses.

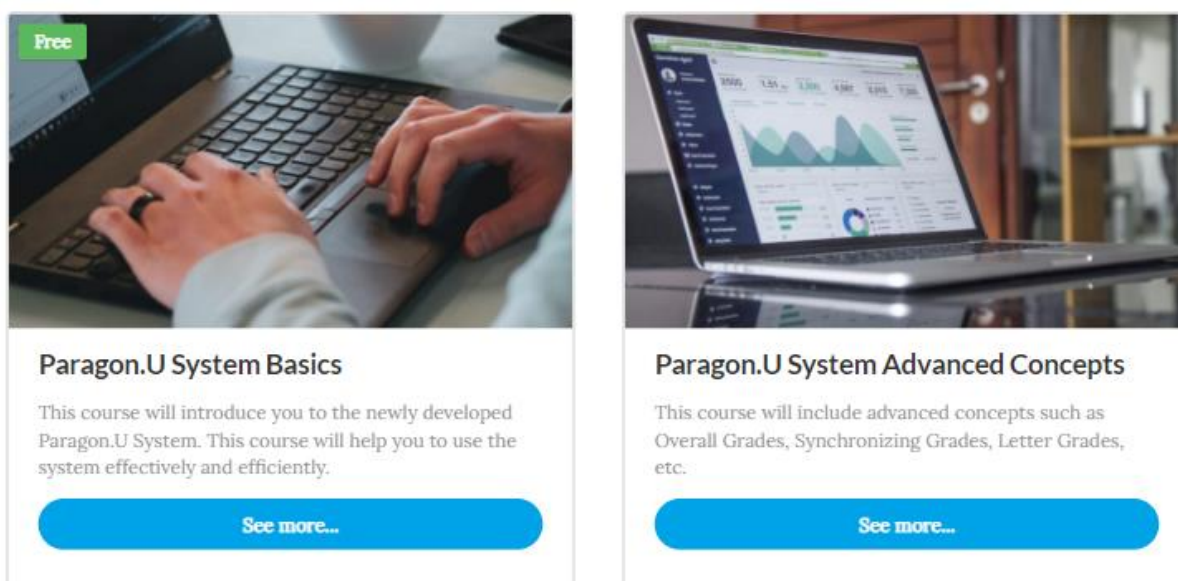


Figure 1: The screenshot of Courses from web-based training

To avoid anyone to register themselves into the system and access the materials, we had the meetings with the Human Resources (HR) department of the University and made the required arrangements to register users. HR department is the most appropriate department to register, since they have the up-to-date information about current academic staff. The registrar role was created in the system and the credentials are provided to the assistant of HR department, so they could complete the registration task. Currently in our training system there are 101 users, including registerers. The number of academic staff only, is 99 users.

To view the information about the course progress we have used the EasyDash plugin (Figure 2). This plugin allows us to view, how many users have completed the course, the progress, and more.

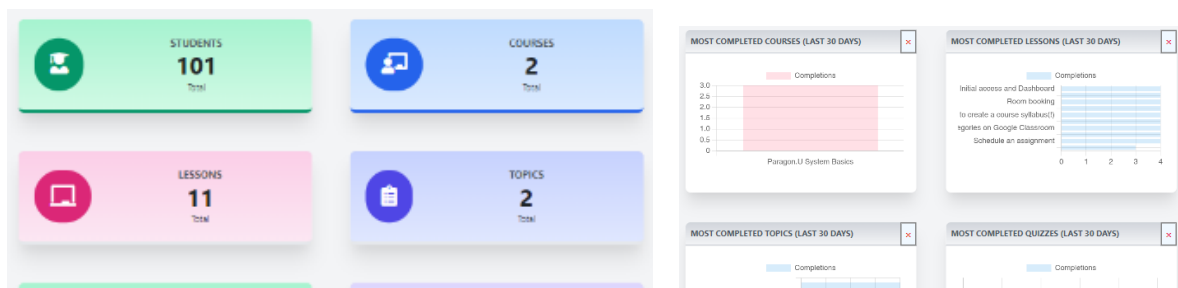


Figure 2: The screenshots of user progress

## 5 Conclusion

ERP systems are large, complicated and expensive systems that covers all the IT needs of the organization. There are many CSFs that needs to be met in order the implementation of the ERP system could be counted as a success. Still there are many examples of the failed ERP implementation projects. One of the main causes of the failures is the lack of training about the newly deployed ERP system. For this project we have successfully deployed our web-based training system for the new version of the ERP system of Paragon.U and registered 99 users. 3 of the users have already completed the training courses provided and others are in progress. Once the users get familiar with the training contents and the navigations of this training platform, we will additionally take a survey from the users of this training system. We will analyze the results to see if there are training satisfaction differences between the gender, level of education, age groups. The questionnaire will be offered to the users in two ways; (1) In person meetings using the printed version of the questionnaire, (2) Online survey using the SoGoSurvey platform.

## 6 Declarations

### 6.1 Competing Interests

The authors declare that they have no competing interests.

## 6.2 Publisher's Note

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### References

- [1] Abdinnour-Helm, S., Lengnick-Hall, M. L., & Lengnick-Hall, C. A. (2003). Pre-implementation attitudes and organizational readiness for implementing an Enterprise Resource Planning system. *European Journal of Operational Research*, 146(2), 258–273. [https://doi.org/10.1016/s0377-2217\(02\)00548-9](https://doi.org/10.1016/s0377-2217(02)00548-9)
- [2] Ali, M., & Miller, L. (2017). ERP system implementation in large enterprises – a systematic literature review. *Journal of Enterprise Information Management*, 30(4), 666–692. <https://doi.org/10.1108/jeim-07-2014-0071>
- [3] Barki, H., & Hartwick, J. (1994). Measuring User Participation, User Involvement, and User Attitude. *MIS Quarterly*, 18(1), 59. <https://doi.org/10.2307/249610>
- [4] Bilgiç, R. (1998). The Relationship Between Job Satisfaction and Personal Characteristics of Turkish Workers. *The Journal of Psychology*, 132(5), 549–557. <https://doi.org/10.1080/00223989809599287>
- [5] Bradley, J., & Lee, C. C. (2007). ERP Training and User Satisfaction. *International Journal of Enterprise Information Systems*, 3(4), 33–50. <https://doi.org/10.4018/jeis.2007100103>
- [6] DeLone, & McLean. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
- [7] Dorobât, I., & Năstase, F. (2010). Personalized training in Romanian SME's ERP implementation projects. *management*, 37, 32.
- [8] Dowlatsahi \*, S. (2005). Strategic success factors in enterprise resource-planning design and implementation: a case-study approach. *International Journal of Production Research*, 43(18), 3745–3771. <https://doi.org/10.1080/00207540500140864>
- [9] Finney, S., & Corbett, M. (2007). ERP implementation: a compilation and analysis of critical success factors. *Business Process Management Journal*, 13(3), 329–347. <https://doi.org/10.1108/14637150710752272>
- [10] Gargeya, V. B., & Brady, C. (2005). Success and failure factors of adopting SAP in ERP system implementation. *Business Process Management Journal*, 11(5), 501–516. <https://doi.org/10.1108/14637150510619858>
- [11] Harrison, W. H., & R. Kelly Rainer, Jr. & Wayne, A. H. (1997). Gender differences in computing activities. *Journal of Social Behavior and Personality*, 12(4), 849–868.
- [12] Kinsta. (2022, January 28). What Is WordPress? Explained for Beginners. Kinsta®. Retrieved February 27, 2022, from <https://kinsta.com/knowledgebase/what-is-wordpress/>
- [13] Leyh, C. (2016). Critical Success Factors for ERP Projects in Small and Medium-Sized Enterprises—The Perspective of Selected ERP System Vendors. *Lecture Notes in Information Systems and Organisation*, 7–22. [https://doi.org/10.1007/978-3-319-27043-2\\_2](https://doi.org/10.1007/978-3-319-27043-2_2)
- [14] Longinidis, P., & Gotzamani, K. (2009b). ERP user satisfaction issues: insights from a Greek industrial giant. *Industrial Management & Data Systems*, 109(5), 628–645. <https://doi.org/10.1108/02635570910957623>
- [15] Mahraz, M.-I., Benabbou, L., & Berrado, A. (2020). A Compilation and Analysis of Critical Success Factors for the ERP Implementation. *International Journal of Enterprise Information Systems*, 16(2), 107–133. <https://doi.org/10.4018/jeis.2020040107>
- [16] Matende, S., & Ogao, P. (2013). Enterprise Resource Planning (ERP) System Implementation: A Case for User Participation. *Procedia Technology*, 9, 518–526. <https://doi.org/10.1016/j.protcy.2013.12.058>
- [17] Okpara, J. O. (2004). Personal characteristics as predictors of job satisfaction. *Information Technology & People*, 17(3), 327–338. <https://doi.org/10.1108/09593840410554247>
- [18] Reitsma, E., & Hilletoft, P. (2018). Critical success factors for ERP system implementation: a user perspective. *European Business Review*, 30(3), 285–310. <https://doi.org/10.1108/eb-04-2017-0075>
- [19] Roberts, H. J., & Barrar, P. R. N. (1992). MRPII implementation: key factors for success. *Computer Integrated Manufacturing Systems*, 5(1), 31–38. [https://doi.org/10.1016/0951-5240\(92\)90016-6](https://doi.org/10.1016/0951-5240(92)90016-6)
- [20] Saade, R. G., & Nijher, H. (2016). Critical success factors in enterprise resource planning implementation. *Journal of Enterprise Information Management*, 29(1), 72–96. <https://doi.org/10.1108/jeim-03-2014-0028>
- [21] Staff, O. (2020, February 25). IDG | Top IT spending priorities for 2020. OneReach.Ai. <https://onereach.ai/idg-top-it-spending-priorities-for-2020/>