

A Weighted Checklist Based Comparison Framework For The Evaluation Of Educational ERP Systems

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Abstract

As the size of educational institutions is increasing in terms of number of courses running, number of students, no. of faculty members and many more, so the amount of related data that needs to be managed and maintained is also increasing at an exponential rate. Due to this, educational institutes can not think of success without having an educational ERP system at their place and that in turn has increased the demand of educational ERP systems. To satisfy this demand many companies are stepping into the development of educational ERP systems and launching their ERP products in the market. Now as there are so many educational ERP products in the market, the educational institutes are in such a dilemma that which product they must go for the implementation at their place. Keeping this issue in mind, we have proposed a comparison framework that can be applied for the evaluation of various educational ERP products to achieve a quantitative measure about the products in terms of their respective evaluation score. This comparison framework makes use of a weighted checklist of factors that may have varying degree of influence on the comparison and, evaluation of ERP products. The evaluation score obtained by the application of this framework score can then be used to make a smart decision that which product one educational institution must go for the implementation at their site.

Keywords: educational institutions, educational ERP systems, comparison framework, evaluation score, weighted checklist.

1. Introduction

In its basic definition, ERP is an enterprise wide information system that integrates and controls all the business processes in an organization [1]. Due to the involvement of business as well as academic processes with their inherent complexity, educational institutions are the promising candidates to host an ERP implementation. Rising stakeholders' expectations (particularly students and government), quality and performance requirements, and competitive education environment, along with decreasing government support, have pressured educational institutes world wide to adopt new strategies in order to improve their performance [2]. An educational ERP system may prove out to be a strategic solution so as to fulfill many of the requirements mentioned above. The main advantages of ERP for higher education institutions are, according to ECAR organization, the following [3]:

- Improved information access for planning and managing the institution;
- Improved services for the faculty, students and employees;
- Lower business risks;
- Increased income and decreased expenses due to improved efficiency.

With the growing need of computerization of academic and business activities in educational institutions, ERP vendors quickly perceived a new market opportunity [4] and launched their respective products in to the market and this has raised a new issue as now there are various options in the

form of various educational ERP products in the market out of which one has to select a product that is most suitable for their institution. There can be various aspects and factors that need to be considered before making this choice and these factors may in turn have their varying amount of impact as some factors are very crucial to have where as some are moderate and some are like that they are nice to have but one can survive without those factors even so this impact analysis may also have considerable influence on the ERP selection process. Despite promises for improved organization and more effective management in the company, a number of research activities have shown a rather high failure rate in the implementation of integrated information solutions, which, in some cases, even involved a high degree of risk [5]. The investment in ERP systems represents the biggest investment for higher education institutions [6], so one has to be very careful and attentive while making a choice for an ERP implementation. Taking all the above mentioned points in mind, a framework is proposed in the paper to provide an effective and efficient solution towards the comparison, evaluation and selection of educational ERP products.

In section 2, the framework for the comparison and evaluation of educational ERP systems is presented. In section 3, the benefits and challenges of applying the framework are outlined and finally section 4 concludes the paper.

2. The Comparison Framework

The proposed comparison framework comprises of certain elements and their interconnections and is represented through the figure 1.

The different elements of the framework are described below:

I. Influencing Factor List:

There are certain factors that must be considered while evaluating an

educational ERP product such as its functionalities, performance characteristics, cost etc. These factors drive the comparison and evaluation of different ERP products.

II. Weighted Checklist of Influencing factors:

As all of the factors in the list do not have the same influence on the selection of an ERP product so a weight is assigned to each and every factor in the list of influencing factors that will represent its associated impact or influence on the comparison, evaluation and selection of a potential and suitable ERP product.

III. Educational ERP Product List:

This list includes various educational ERP products in the market out of which one has to select the best and suitable one.

IV. Potential ERP Product List:

As mentioned above the list of educational ERP products will be exhaustive and it will require much effort to apply comparison process on this long list of ERP products. So to cut short this list, a brief initial screening is carried out to obtain a reasonably short list of potential ERP products on which we can apply the comparison process cost effectively.

V. Evaluation Data:

We must be having the required data for the evaluation of the potential educational ERP products. This data involves the information about which product possess which factor like if we are evaluating the product on the cost factor, so we must be having the cost data of each and every product under evaluation.

VI. Comparison Process:

This is the central element of the framework. Once we have the weighted checklist of influencing factors and

potential ERP products with us, then the comparison process needs to be applied by evaluating each one of potential ERP product on every influencing factor and if the product possess the factor under consideration we have to credit the associated weight of the factor in the evaluation score of the educational ERP product being evaluated. By moving on this way, on the completion of this process we will be having the list of all the potential ERP products with their respective quantitative evaluation score.

VII. Evaluated and Ranked Educational ERP Product List:

After the comparison process is successfully over and each and every educational ERP product is having its

respective evaluation score, the evaluated products can be ranked in decreasing order of their evaluation score.

VIII. Suitable Educational ERP Product:

This will be the final outcome when this framework will actually be applied for the comparison and evaluation of educational ERP products. As we are having a list of ranked ERP products, one can easily make a decision by selecting the product with highest evaluation score as this is the product that is having the highest suitability for the institution.

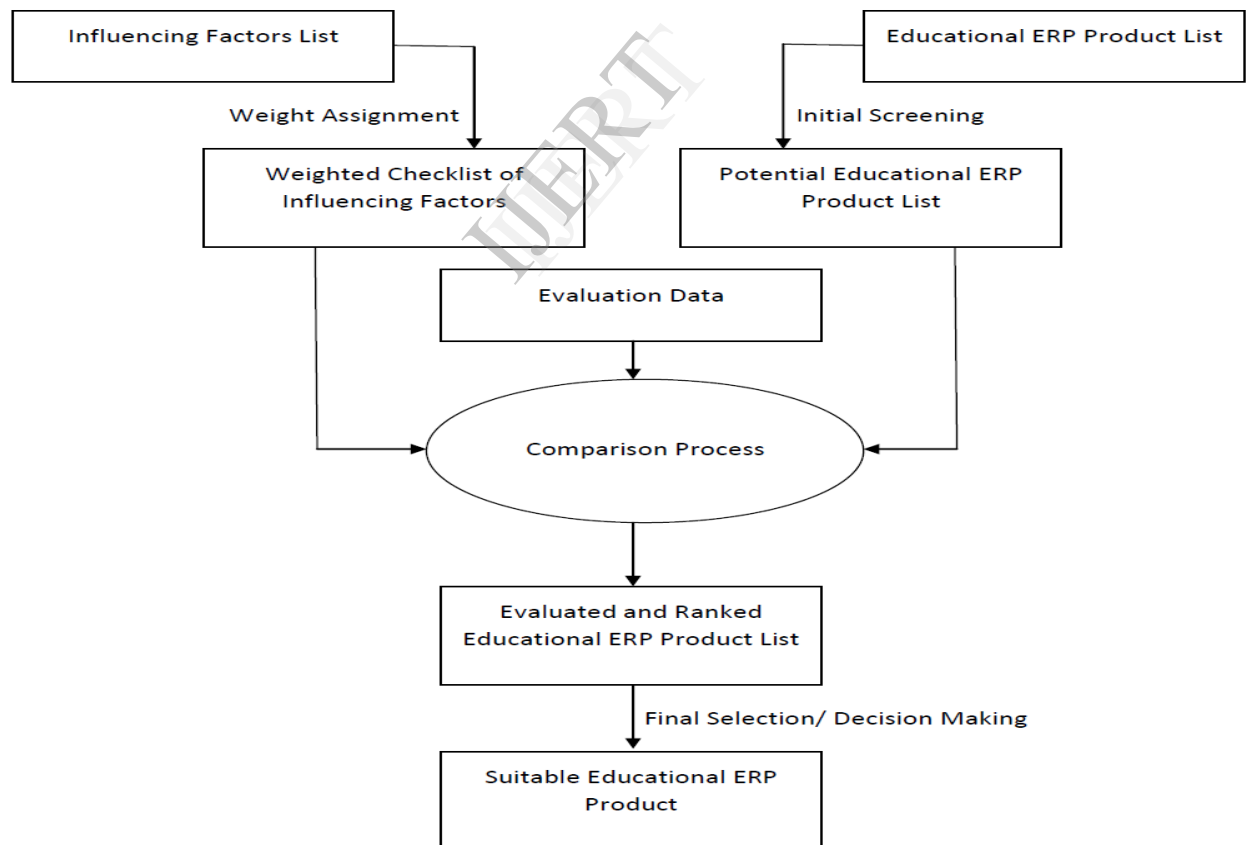


Figure 1: The Comparison Framework for the evaluation of educational ERP systems

3. Benefits and Challenges

To get a glimpse of the importance and applicability of the proposed framework, the *benefits* that can be derived from the application of the framework are listed here in this section:

1. The framework puts up the results in quantities in the terms of *evaluation score* and it is always said that *quantitative approach* is always better for the comparison and evaluation purpose rather than an approach that is subjective in nature.
2. The framework enables to make most suitable selection of an educational ERP product for the implementation as it involves the *selection of factors* that are most influential as per our own criteria.
3. The framework achieves one more level of *refinement* in the comparison, evaluation and selection process by considering the *relative importance* of each influential factor reflected through their respective *weights* in the comparison process.
4. Some authors describe the implementation of ERP solutions in higher education institutions as extremely difficult. *Expenses and risk* involved are high whereas the *return on investment* is medium to long term [7]. So the proposed framework bounds the elements and activities of evaluation of ERP products very carefully so as to justify the criticality and expenditure involved in the ERP implementation project.
5. As the framework adopts quantitative and formalized approach for the evaluation of educational ERP products, so the framework is also a perfect candidate for *automation*.

As the framework involves a number of elements put together to achieve a specific purpose of comparison and evaluation of educational ERP systems, so this integrated framework poses certain challenges that once

taken and handled carefully, one can successfully apply this framework and the intended objective can be achieved, the *challenges* in the application of this framework are as follows:

1. One of the first steps in ERP implementation project is evaluating the needs and requirements that will drive the implementation of an ERP system. A proper *needs assessment with a definition of requirements* is essential not only to guide the start of the project, but also to gauge the success of the project after completion [8].
2. As the *evaluation data* plays an important role in the comparison and evaluation process, so it is required that this data is correct and is collected from authentic and trust worthy sources.
3. One is required to be very careful while identifying the *influencing factors* to be considered for the comparison and evaluation process as these factors reflect that what actually we are looking for in the educational ERP product for our institution.
4. As mentioned previously that all the influencing factors are not equally important, so the *relative importance of the factors* should be judged meticulously because this in turn is reflected in terms of the weights assigned to each of the influencing factors.
5. As the application of this framework is an effort taking endeavor, so it requires that we put in a *careful analysis and thought process* in selecting the *potential educational ERP products* out of all the available products.
6. Apart from maintaining the quality of all the inputs to the comparison process, it is required that we carry out the *comparison process* itself with great accuracy and precision so as to reach at the correct and suitable outcome.

Proper and careful attention must be given to the above mentioned points so as to go for a well

informed and convinced application of the proposed framework by knowing all its pros & cons and making it out to be fruitful.

4. Conclusion

ERP implementation is a complex, costly and risky venture that needs to be dealt with very carefully. No doubt, if everything goes well, ERP implementation will render enormous benefits but if something goes wrong, the consequences will surely be drastic. For an educational institution the situation is a bit more complicated as the educational concern not only has business processes but also the academic processes alongside. So the situation becomes more critical because the future of students is at stake. So it would be business as well as academic threat if we opt for an educational ERP product without any guidance or applying a careful thought process.

So the proposed framework is like a solution measure or a guiding entity that will help in comparing and evaluating the potential educational ERP products in the market and to select a one that suits the best to our institution. As described in the paper, the framework takes care of each element that can play an important role in the evaluation and selection process of educational ERP products. The approach for the application of the framework is tried to kept as simple as possible so that one can easily understand the constituting elements and then can apply the framework with an ease. So the framework, taking all the criticality of ERP implementation in to account, has the potential of comparing and evaluating the educational ERP products with accuracy and precision and then to have a justified educational ERP product selection for the implementation.

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