

## A STUDY ON POSITIONING OF COMPETENCY BASED LEARNING MANAGEMENT SOFTWARE IN EDUCATIONAL INDUSTRY

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**Abstract** -This Study explores the efficacy of Competency-Based Learning Management Systems (CBLMS) in modern educational environments. Utilizing a descriptive research design, data were collected from a sample of 274 respondents within the company environment through primary data collection methods. The study aimed to understand the relationship between various dimensions of e-learning technologies. This study addresses this gap by integrating competency-based evaluations within a LMS to offer personalized educational experiences tailored to individual learning speeds and needs. By conducting an in-depth market and competitor analysis within the educational technology sector, the project aims to uncover key trends and challenges, assess customer preferences, and evaluate the technological landscape.

**Key Words**- Competency-Based Learning, Learning Management Systems ,E-learning Technologies.

### I.INTRODUCTION

E-Learning has become increasingly popular and rapidly growth of web technology and educational institution. Smart learning could mean also customized learning that improves learning pathways engage learning positive interaction guides instruction in a goal- oriented fashion. Competency is most important nerve center for organizational functions to link to the overall performance. It aligns strategies with priorities of the educational institution. The Internet and related web technologies offer excellent solutions for presenting, publishing, and sharing learning content and information. This is special software called a Learning Management System (LMS). Learning management systems such as Model are a popular tool in higher education. They allow teachers to present their courses virtually. In these virtual courses, they can provide learning objects such as lecture slides or videos, quizzes, or forums where students can interact with each other. Many LMSs offer instructors descriptive statistics to evaluate their courses. However, these statistics usually only provide insight into individual learning objects, such as how often a quiz was accessed. But there is a lack of information and data on the acquisition of competencies within a particular course or a particular topic. The result of human development is the acquisition of skills that represent the person and are important for employment.

**II.NEED**- The study effectively addresses the shifting paradigms in education, it's crucial to study the positioning of competency-based learning management software (LMS) within the educational industry. As educational systems globally pivot towards personalized learning experiences and competency-based education (CBE), the need for LMS that support such frameworks is increasing. This study is vital to evaluate how current technologies are meeting these requirements and to identify gaps in functionality. Moreover, with the surge in digital learning, especially highlighted during the COVID-19 pandemic, the role of robust, adaptable LMS solutions has become more pronounced, underscoring the necessity for this research.

### III. OBJECTIVES

- To find out what special features make some learning software better than others.
- To figure out what schools and colleges are looking for in learning software.
- To look into the problems and chances for learning software companies to grow and meet customer needs.
- To predict what will happen next in the learning software market and give advice to both new and old companies on how to be more successful

### IV REVIEW OF LITERATURE

#### **Andika Bagus (2020)**

The research focused on innovating Learning Management System (LMS) technology by integrating a Makerspace approach with Massive Open Online Courses (MOOCs) to create unique, experiment-based learning experiences, which were then rigorously tested for product validation and effectiveness in enhancing vocational students' professional competencies. The comprehensive results indicated substantial benefits in various educational aspects, suggesting that this novel LMS model significantly boosts vocational training outcomes and warrants further development and broader application.

#### **Manisha Paliwal, Archana Singh (2021)**

Corona virus (COVID-19) outbreak has utterly disrupted the worldwide education system and compelled an emergency immersion of unplanned and rapid online teaching-learning. The online teaching readiness would highly depend on the competencies of teachers and skills to adapt the pedagogy and new roles by the teachers. In this context, this study aims to assess higher education institutions (HEIs) teachers' readiness to handle online education based on the online teaching readiness competencies model.

#### **Nikhil Kant, K.D. Prasad, Kumari Anjali (2021)**

This paper aims to derive criteria for a strategic selection of learning management system (LMS) after making an analysis of the feedback data collected from learners and academic counselors in open and distance learning (ODL) to evaluate their perceptions. This analysis hints at the need to implement a learning management system (LMS) in ODL. Selecting an appropriate LMS can prove to be a strategic approach for ODL in achieving self-reliance and competitiveness.

#### **Tanmay Kulshrestha , A Ravi Kant (2022)**

Learning Management Systems (LMS) streamline education by digitizing course management and evaluations. They enhance learning efficiency, particularly in Indian technical institutions, by facilitating resource sharing and communication beyond classrooms. Educators upload materials online, allowing easy student access through secure logins. Limited Indian research contrasts with global studies that affirm LMS's positive impact on education. Essentially, LMS revolutionizes traditional teaching, making it more interactive and accessible.

#### **Andrii Kopp (2023)**

The study enhances tracking of student competencies by analyzing and visualizing Learning Management System (LMS) data. It develops software for a competency-based approach in LMS, focusing on students' competency acquisition. Techniques include analyzing LMS data, modeling the learning process with Petri nets and BPMN, and proposing a structured data algorithm. The software processes LMS data, builds models, and visualizes learning, aiding in data storage and further analysis. These advancements aid in detailed monitoring and visualization of the learning progress and competency development.

## V. RESEARCH METHODOLOGY

### DESCRIPTIVE RESEARCH

Descriptive research includes surveys and fact finding enquiries of different kinds and it can report only what has happened. The purpose of the research is description of the state of affairs as it exists at present. Descriptive research, also known as statistical research, describes data and characteristics about the population or phenomenon being studied. Descriptive research answers the question who, what, when, where and how. A descriptive study is undertaken in order to ascertain and able to describe the organization constantly engaged themselves in studying and analyzing issues and hence are involved in some form of research activity as they make decisions.

#### NON PROBABILITY SAMPLING

Non-probability sampling is defined as a sampling technique in which the researcher selects samples based on the subjective judgment of the researcher rather than random selection. It is a less stringent method. This sampling method depends heavily on the expertise of the researchers. It is carried out by observation, and researchers use it widely for qualitative research.

#### PILOT STUDY

$$n = (Z^2 * (PQ)) / E^2$$

- n is the required sample size.
- Z is the Z-score corresponding to your desired confidence level.
- p is the estimated proportion of the population with the characteristic of interest.
- E is the margin of error.
- $n = (1.96^2 * (0.767*0.233)) / 0.05^2$
- $n \approx 274$

#### SAMPLE SIZE

The sample size is defined as the number of observations used for determining the estimations of a given population. The size of the sample has been drawn from the population. The sample size for this study is 274.

## VI. DATA ANALYSIS AND INTERPRETATION

### KOLMOGOROV SMIRNOV TEST

**Null Hypothesis:** The data follows normal distribution.

**Alternative Hypothesis:** The data significantly deviates from normal distribution.

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
market position and unique value	.148	274	.003	.960	274	.000
features and function	.117	274	.000	.960	274	.000
customers needs and preference	.139	274	.000	.958	274	.000
market challenges and opportunities	.126	274	.000	.970	274	.000
future trends and strategic recommendation	.129	274	.001	.967	274	.003

### Findings

From the above, it is inferred that the significant value for the dimensions is market position and unique value, features and function, customer's needs and preference, market challenges and opportunities, future trends and strategic recommendation lesser than 0.05 which indicates data was not normally distributed.

### Inference

It is concluded that the Null hypothesis is rejected. Therefore, Non parametric tests should be performed.

### NON-PARAMETRIC TEST

#### MANN - WHITNEY U TEST FOR GENDER

H0: There is no significant difference between the mean rank of men & women with respect to the factors.

H1: There is a significant difference between the mean rank of men & women with respect to the factors

	market position and unique value	features and function	customers needs and preference	market challenges and opportunities	future trends and strategic recommendation
Mann-Whitney U	7982.500	8222.000	9255.000	9253.500	6457.000
Wilcoxon W	18860.500	19100.000	17383.000	20131.500	14585.000
Z	-2.076	-1.707	-.123	-.125	-4.436
Asymp. Sig. (2-tailed)	.038	.088	.902	.901	.000

## FINDINGS

From the above table, it is inferred that p value is greater than 0.05 hence there is no significant difference between gender and dimensions, features and function, customers' needs and preference, market challenges and opportunities and p value is lesser than 0.05 hence there is significant difference between the gender and dimensions market position and unique value and future trends and strategic recommendation.

## INFERENCE

It is concluded that the Null hypothesis is retained for the dimensions features and function, customers' needs and preference, market challenges and opportunities and the null hypothesis is rejected for the dimensions market position and unique value and future trends and strategic recommendation.

## CHI-SQUARE TEST

### Comparative analysis of age and competency based the learning software adapts to individual student learning style and competencies effectively

**H0:** There is no significant difference between age and competency based the learning software adapts to individual student learning style and competencies effectively

**H1:** There is a significant difference between age and the learning software adapts to individual student learning style and competencies effectively

	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	104.868 <sup>a</sup>	16	.235
Likelihood Ratio	134.833	16	.003
Linear-by-Linear Association	24.218	1	.001
N of Valid Cases	274		

## FINDINGS:

From the analysis, the P value .235 is greater than 0.05 so we accept the null hypothesis.

## INFERENCE:

It is concluded that there is no significant difference between Gender and optimizing product recommendations based on user interaction and past purchases.

### SPEARMAN CORRELATION

**Null Hypothesis:** There is no significant relationship between the dimensions

**Alternative Hypothesis:** There is no significant relationship between the dimensions

	market position and unique value	Feat ure and function	Cust om prefe re nce and need s	mar ket challenge s and opportuni ties	future trends and strategic recommendati onn
marke position and unique value	.164	.039	.000	.385	
	274	274	274	274	274
features and function	.084	1.000	.246	.196	.262
	.164	.000	.001	.000	.000
	274	274	274	274	274
customers needs and preference	.125	.246	1.000	.160	.160
	.039	.000	.008	.008	.008
	274	274	274	274	274
marke challenges and opportunitie	.232	.196	.160	1.000	.039
	.000	.001	.008	.008	.521
	274	274	274	274	274
future trends and strategic recommendat or	.053	.262	.160	.039	1.000
	.385	.000	.008	.521	.000
	274	274	274	274	274

## **Inference**

It is concluded that there is positive relationship between the dimensions market position and unique value, features and function, customer's needs and preference, market challenges and opportunities, future trends and strategic recommendation.

## **FINDINGS**

- The Mann – Whitney U test was conducted on the sample data, and it is found that the significance value for all the variables is greater than 0.05 hence there is no significant difference between gender and dimensions, features and function, customers' needs and preference, market challenges and opportunities and p value is lesser than 0.05 hence there is significant difference between the gender and dimensions market position and unique value and future trends and strategic recommendation.
- The Kruskal Wallis H test was conducted on the sample data, that p value is greater than 0.05 hence there is no significant difference between age and dimensions market position and unique value, features and function, customer's needs and preference, market challenges and opportunities, future trends and strategic recommendation.
- The spearman correlation was conducted on the data, positive relationship between the dimensions market position and unique value, features and function, customer's needs and preference, market challenges and opportunities, future trends and strategic recommendation.

## **SUGGESTIONS**

- The study is based on a survey with a female majority, primarily consisting of young adults and individuals who have completed their master's degree.
- Responses highlight a mixed perception of the software's unique features and its value proposition, with varying degrees of agreement on its clarity and effectiveness.
- Many agree that the software adapts well to individual learning styles and meets specific educational needs, suggesting its potential for enhancing student engagement and outcomes.
- There are concerns about the integration of different LMS software within institutions, emphasizing the need for improved compatibility and interoperability.
- The importance of ongoing investment in research and development is recognized, particularly in emerging technologies like AI and VR/AR, to ensure the software stays relevant and effective against future educational demands.
- Respondents see a need for better alignment between the software's development roadmap and the long-term educational goals of institutions, alongside more active engagement with users to inform software development and improvements.

## **CONCLUSION**

In conclusion the research project reveals a strong market presence characterized by distinct competency among a sample of 274 individuals. LMS stands out through its targeted focus on competency-based education, which resonates with current educational demands for personalized and outcome-oriented learning experiences. Despite facing stiff

competition, the software's robust features, such as its adaptability to different educational standards and effective integration capabilities, position it favorably among educational institutions. The study also identifies areas for improvement, such as user interface enhancements and more responsive customer support, which are crucial for retaining and expanding the user base. Moving LMS advised to continue its investment in innovation, particularly in emerging technologies like AI and VR/AR, to stay ahead in the rapidly evolving educational technology landscape. By addressing the identified challenges and leveraging its core strengths, LMS software can enhance its competitiveness and continue to thrive in the global market.

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## QUESTIONNAIRE

### 1. Name

### 2. Email

### 3. University Name

### 4. Age

- Under 18
- 18-24
- 25-34
- 35-44
- 45 and above

### 5. Gender

- Male
- Female

### 6. Educational Level

- High school graduate
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate

### 7. What is your current position

- Student
- Professor
- Head of the department
- Principle

### Market positioning and unique value proposition

#### 1. The competency based learning software Offers unique features that set apart from traditional education method

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

#### 2. The software's unique value proposition is clear and effectively communicated.

- Strongly Disagree

- Disagree
- Neutral
- Agree
- Strongly Agree

**3. Your college or university was influenced by software differentiation in the market when making the purchase decision.**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**4. The software effectively meets the specific needs of competency based education**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**5. The LMS is uniquely positioned to meet specific needs of students.**

- YES
- NO

**Features and Functionalisation**

**1. The learning software adapts to individual student learning style and competencies effectively**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**2. The analytics and reporting tools provided by the software are valuable for tracking students' progress**

- Strongly disagree
- Disagree
- Neutral

- Agree
- Strongly agree

**3. The platform offers an engaging and interactive user experience for students**

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**4. Integration with other education tools and platforms is straightforward and effective**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**5. The Software provides comprehensive support for various curricula and educational standards**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Customer needs and preferences**

**1. The software meets college or university budget constraints and offers accost- effective solution for your college**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**2. The Software is scalable and can accommodate the growing and changing needs of institution or college**

- Strongly Disagre

- Disagree
- Neutral
- Agree
- Strongly Agree

**3. Customer service and support provide by the software company meet your expectations**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**4. The software has been effective in improving student engagement and learning outcomes**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**5. Do you currently face challenges in integrating different LMS software within your institution**

- YES
- NO

**Market challenges and preferences**

**1. The college finds the software effective in addressing common challenges in adopting new educational technologies**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**2. The company providing the software actively explores and capitalizes on emerging opportunities in the educational market**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**3. The software has proven adaptable to changes in educational trends and technologies**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**4. The college believes that the software will remain relevant and useful in the foreseeable future**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**5. The software has facilitated new teaching methodologies and approaches within institution**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Future trends and strategic recommendation**

**1. Do you believe the company is actively investing in research and development to incorporate emerging technologies (e.g. AI, VR/AR).**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**2. The software providers has clear vision for the future of educational technology and its role within it**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**3. Will the integration of social learning features, enabling more collaboration and interaction among students, be a significant trend in the future of LMS?**

- YES
- NO

**4. The company engages in meaningful dialogue with its user to inform future software developments and improvement**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**5. The software development roadmap aligns with our institution long-term educational goals and needs**

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree