

CAPACITY BUILDING, PERFORMANCE ASSESSMENT AND MOTIVATION DRIVEN TOOL FOR FACULTY UPGRADATION.

SIH PROBLEM STATEMENT:

If teachers were given more freedom, as would likely happen if a blended learning model were introduced as mentioned above, innovation would rocket, and an education system overhaul is not exactly necessary to accomplish that. After all, there are (and will always be) plenty of options open to teachers to introduce more creativity and innovation to their lessons. Some of the options include Learning Management System (LMS), which allows teachers to create their own personalized, interactive courses from content provided by a range of publishers. Students can then access these courses on any device, while the app keeps a record of how they are progressing. If students are struggling, the course can quickly be altered. If students struggle with boredom, game-based learning can be introduced with LMS. Although granting teachers access to tablets and smart boards may help boost their comfort with education technology, many teachers simply have not thought about how they can best utilize technology in their curriculum. Indeed, the way a history teacher utilizes laptops in the classroom may be very different from the way a math teacher utilizes a smartboard. Both likely require plenty of time for trial, error, and experimentation to bring their lesson plans up to date. A major challenge in the adoption of new tools is not providing teachers with the guidance they need to make education technology work for them in their specific classroom. To overcome the challenge, it is necessary to have ERP solutions for the teachers with adequate credit mechanisms which can be used for appraisals and performance-based incentives to the teachers.

PROBLEM CODE: SIH1504

ORGANIZATION: Government of Jharkhand.

PROBLEM INTRODUCTION

Nowadays many Students are not getting proper attention towards Studies. This is because of the increase in the number of students in the class, teaching all students at once will not reach every student effectively since every student has different attention levels toward class. For this, one-on-one teaching is the best way, this happens only when using modern approaches like Blended Learning Model. But the problem is the teacher is not having proper knowledge towards how to implement these education technologies in the classroom. They have access to smart boards and tablets, but they are unable to use these tools in their classrooms properly, since they have no proper knowledge on how to implement this.

The main Reasons for this:

1. Excess workload of Teachers & Administrators
2. No proper guidance to teacher about how to implement this in their classrooms.
3. No proper Motivation for them to learn the new Teaching Methodology

Teachers in most schools are overloaded with classwork, homework, examination duties, counselling, some other administration work etc. and they find no time to focus on improving their skills and learning new teaching Methodologies. They have no proper Guide or source to learn how to implement these educational techniques into their curriculum. If some individuals attempt to learn these on their own, they often find themselves halting midway due to the excessive workload and a lack of motivation to learn and implement them. Many students experience ineffective learning because of this. For this we need every teacher to know how to use these educational technologies for effectively teaching their respective subjects. So, I understand that we need to guide the teachers' that they need to make education technology work for them in their specific classroom.

SOLUTION PROPOSED

We propose an innovative software-based approach that guides and motivates teachers to learn and implement new teaching Methodology. Imagine if our education system provided every teacher with the opportunity to monitor and teach every student effectively. For this we have developed a **credit-based mechanism** in which every teacher will be **awarded points** for his/her activities and initiatives

- 1) We propose a **Teacher Community Based ERP System** in which all the teachers at different schools connect on this platform.

In this system teacher can:

- Share their innovative courses and content with their co-teachers.
 - View other teacher's LMS where they can like and provide feedback to their LMS.
 - Share their innovative ideas and teaching approaches in this LMS.
 - Share their lesson plans and get guidelines from expert faculty.
 - Teacher can use his co-teacher content in his LMS.
 - Teachers can share their achievements and experience in this ERP system.
- 2) We integrate an **AI chatbot** to guide and direct the teacher toward effective teaching and implementing of educational technology in their curriculum.
 - 3) Based on these credits we will provide performance-based incentives and appraisals to the teacher.

We need to focus on three main aspects in our solution: **Capacity Building, Performance assessment** and **Motivation** for the teacher to integrate new teaching methodologies in their curriculum.

Performance Assessment:

- 1) We will add score to teacher based on his/her activities/initiatives like:
 - How they were upgrading themselves by accessing and completing upgradation courses.
 - How they were implementing Education Technology in his curriculum.
 - How they were creating courses, conducting quizzes, updating lesson plans etc.
- 2) How students were engaging for their courses and Quizzes.
- 3) Student Feedback based Assessment.
- 4) How many teachers use content provided by one teacher in their LMS.
- 5) One teacher can like and give feedback to another teacher's LMS. How many likes and feedback got to their LMS.
- 6) How was he helping and supporting his co-faculty.

For all these our system will add scores based on the schema defined by the Super Admin.

Capacity Building:

- 1) In our ERP system expert guides will provide Personalized tutorials on enhancing teachers to integrate education technology into their Curriculum.
- 2) Provide one-on-one workshops on new Teaching Methodologies.
- 3) AI chatbot which will help, direct, and suggest teachers to create better courses.
- 4) Providing expert mentorship to help choose a better approach to teaching methodologies.
- 5) online live quizzes with leaderboards will help teachers in assessing student understanding levels.
- 6) For course content, teachers can get the material shared by a co-teacher which was liked by many students and teachers. This will reduce teacher work to find the best content for this course.

Teacher Motivation:

- 1) Financial incentives and appraisals based on the credits of the teacher.
- 2) Recognition and rewarding the best performing teacher.
- 3) Taglines like “Best Mathematics course creator “, “Best content creator” will be awarded to teachers based on their performance.
- 4) Teachers will receive badges upon reaching specific credit milestones.

Finally, our ERP system will teach, guide, and provide expert mentorship to the teachers to increase their abilities to implement education technology and new teaching methodologies into their lesson plan. We will assess teacher performance based on how they were implementing these educational technologies, teaching methods based on the above points and schema defined by super admin. We will recognize, reward performance-based incentives and financial appraisals to motivate teachers towards these new teaching methodologies.

SOFTWARE MODULES

The software has been designed to scale and include all the schools in the country. This software can be easily accessed from anywhere using a mobile phone or laptop. The software can be divided into two parts - Learning Management System (LMS), Enterprise Resource Planning (ERP).

Our LMS provides interactive live Quizzes, AI based Assessments to students. A teacher can create his own interactive courses by uploading his own personalized content. Students can access these courses, our LMS tracks student performance and maintains a record of each student. After every session, an AI Based Assessment will be generated to the students which helps in revising. A teacher can conduct Live quizzes any time to assess student performance and his understanding levels. This live quiz developed based on speed and accuracy of answers which helps in building competitive spirit among students. Our LMS will suggest the teacher to alter his course if students were struggling with this course. If a student struggles with boredom, game-based learning can be introduced with our LMS.

Our ERP system is a Teacher Community Based ERP System with a credit-based mechanism in which all the teachers from different schools connect and share their innovative teaching approaches, experience, and all. In our ERP system experts provide Tutorials, workshops on implementing new teaching methods, education technology into their lesson plan. Our ERP system has an AI based chatbot to guide, suggest and assist teachers in implementing these new teaching strategies and education technologies into their lesson plan. Our ERP system has Expert mentorship support for choosing a better teaching approach and clarifying doubts of teachers in these approaches. Teacher can view another teacher LMS to like and give feedback to that LMS. Course content liked by many students and Teachers will be available to support other teachers, which helps in getting useful content to their LMS. Our LMS will add credits to the teacher for his activities towards implementing new teaching methodologies. Performance based incentives and appraisals will be provided to the teacher to motivate them toward implementing these new teaching methodologies and education technologies into their curriculum.

The software works in real time and every activity/initiative made by the teacher will award points to the teacher will be reflected immediately into the teacher profile and comparatively the teacher rank will change. Teachers will be recognized and rewarded with performance-based incentives and appraisals. Best performing teachers will be awarded with taglines like “Best Mathematics Course Creator,” “Best Content Creator,” “Best Quiz Creator”. After reaching certain credits our ERP system will automatically award badges which will motivate the teacher.

Hence, this solution that we are putting forward will address all the problems that are mentioned in the problem statement, it reduces teacher manual work and increases effective teaching for the students.

TECHNOLOGY STACK

The frontend of the software is designed using HTML5, CSS and JavaScript. The User Interface is user-friendly and easy to use. We used PHP8 as the server-side programming language as it provides secured data connection with the database. For graphical visualizations we have used an open-source JavaScript library – Chart.js. We use Machine Learning and Artificial Intelligence for personalization of content to the teachers. The server can be hosted in a Linux / Windows system.

DEPENDENCIES

We have two major dependencies for this project – Internet and Smart Device. To access the website or the app, we need a standard internet connection and a smart device with a web browser or an Android OS/ iOS.