

# Online Discussion Forum

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**Abstract:- Online collaboration has become increasingly important in today's digital world, enabling individuals and organizations to connect and work together. One of the key tools used for online collaboration is discussion forums, which provide a platform for users to share ideas, ask questions, and engage in meaningful discussions. The MERN (MongoDB, Express, React, Node.js) project stack is a popular technology stack used for building web applications, and we have made a discussion forum with it that enables users to collaborate and communicate with each other. This paper reviews existing research on the impact of online discussion forums on student engagement and learning outcomes and analyzes the key factors that contribute to their success.**

**Keywords:- Online Collaboration, Discussion Forums, MERN Project Stack, Web Applications, Online Communication.**

## I. INTRODUCTION

Online discussion forums are becoming increasingly popular as a means of enhancing student engagement, collaboration, and critical thinking in academic settings. These forums provide learners with a platform to exchange ideas, pose questions, and brainstorm outside of the traditional classroom setting, which can foster a sense of community and belonging among students. In addition, online forums offer opportunities for learners to develop communication and collaboration skills, engage in peer feedback and support, and explore different perspectives and opinions. However, the effectiveness of such forums is not always guaranteed, as some students may struggle to maintain focus or lose interest in the subject matter. Furthermore, managing and monitoring online forums can be a time-consuming task that requires significant technical and academic support from teachers. Thus, it is crucial to review existing research on the impact of online discussion forums on student engagement and learning

outcomes to better understand their potential benefits and challenges, as well as to identify the factors that contribute to their success.

## II. CONCEPT

The concept behind this research paper is to explore the use of online discussion forums as a tool to enhance student engagement and collaboration in educational settings. Online forums provide a platform for learners to exchange ideas, ask questions, and engage in discussions outside of the traditional classroom environment. By doing so, they can develop communication and collaboration skills, engage in peer feedback and support, and explore different perspectives and opinions.

We have given different levels of access to the forum. Different roles are like student and teacher. Every student and teacher have a username as email id and password with which he or she can use the forum to ask questions and reply to them.

## III. LITERATURE SURVEY

The field of visualization has started to emerge as an opportunity to provide insights and inform instructional decisions by analysing large amounts of heterogeneous data from the online course discussion forum.[1]

The discussion forum server as the better learning tool in an online course or the traditional classroom to carry out collaborative learning among the student and it can be considered as one of the summative assessment tools.[2]

This paper presents a novel approach for identifying students' strengths and weaknesses using their interactions in asynchronous online discussions. The proposed method involves using topic modelling and text classification, as well

as external resources and keyword identification to improve the quality and quantity of topics extracted from small datasets. Additionally, a classifier was introduced to categorize forum messages as questions, answers, or neutral comments.[3]

Social learning analytics is the pattern of identifying the dynamic learners connected in the social learning network. In this context, we have calculated the three most important centrality measures: degree centrality, closeness centrality, and betweenness centrality to classify students' levels: safe students and at-risk students. Based on the results generated by the pajek visualization tool, we found that the role of the instructors is too important in the social learning network. They help the learners to easily participate in online discussion forums.[4]

The study examines the transferability of linguistic features across Massive Open Online Courses (MOOCs) by analysing the similarities and differences in course discussions. The authors employ topic modelling and semantic similarity to identify linguistic patterns and features in the course discussions of five MOOCs in the subjects of Computer Science, Mathematics, and Humanities. The findings suggest that linguistic features play a role in the transferability of models between courses of different subject matter, with courses using more generic terminology demonstrating higher similarity scores. The study provides early evidence regarding the possible impact that linguistic features could have on transferability studies and highlights the need for a better understanding of the linguistic patterns and features that affect the performance of transferability models.[5]

In a skill MOOC, discussion forum engagement plays a crucial role in getting learners to grasp, share, and thereby enhance the skills taught in the MOOC. The results and analysis in this paper show that adopting LxI pedagogy not only increases learner participation in the discussion forum but also increases the course completion rate of active learners. Since the submissions (posted in the discussion forum) were accessible to all, it promoted peer learning about new features (not discussed in the MOOC).[6]

The discussion forum is a very useful pedagogical tool and plays a very important role in providing interaction among the participant in online courses. The study shows the use of discussion forums in the online course helps the participant in a better learning experience and improved critical thinking through collaborative learning, the course performance, and cognitive presence is also increased. A similarity measure is calculated for assigning the grade to the student's answer and the result is compared with the teacher's grade to show significant results.[7]

Discussions, either in a live classroom or through online forums, when used as a teaching method can help stimulate critical thinking. It allows the teacher to explore in-depth the key concepts covered in the course, motivates students to articulate their ideas clearly, and challenge the students to think more deeply. Analyzing the discussions helps instructors gain better insights into the personal and collaborative learning behavior of students.[8]

#### IV. PROBLEM STATEMENT

As online learning continues to gain popularity, online discussion forums have emerged as a tool to enhance student engagement, critical thinking, and collaboration. However, in many online discussion forums, users face the challenge of not receiving timely and accurate responses to their queries. There is no assurance that the answers provided by other users are correct or validated by experts, which may lead to confusion and misinformation. As a result, users may lose confidence in the effectiveness and reliability of online discussion forums as a source of information and support. Therefore, there is a need to explore ways to improve the quality and timeliness of responses in online discussion forums to ensure that users can receive accurate and trustworthy information on time.

#### V. PROPOSED SYSTEM

Our platform offers a user-friendly interface similar to popular social media sites. You have the option to either login or register and choose between two account types: student or teacher. Once you have logged in, you can post your questions and provide helpful solutions to other users' queries. Users can like or dislike answers, indicating the accuracy of a particular response. Additionally, you can enhance your profile by adding your education, add work experience, and linking your social media accounts.

#### VI. WORKING PRINCIPLE

Our platform provides a user-friendly interface with two different account types - one for students and one for teachers. Teachers are required to verify to ensure the credibility of their accounts. Once logged in, both student and teacher accounts can post queries, provide answers to other users' queries, and like or dislike responses to indicate their accuracy. Teacher accounts have access to additional features and tools, while student accounts are designed to provide a valuable and engaging experience without any extra features. We believe that every user, regardless of account type, has valuable insights and knowledge to share, creating a community where users can exchange information and learn from each other.

##### A. Teachers

If you choose to register as a teacher, you will be required to verify your teaching credentials. This helps ensure the credibility and expertise of our teacher accounts, creating a more trustworthy and valuable platform for all users. Once your credentials have been verified, you will have access to additional features and tools to assist you in providing accurate and insightful answers to student queries.

##### B. Students

For students, the registration process is straightforward. Once registered, you can access the platform's features, including the ability to post queries, provide answers to other users' queries, and like or dislike answers to indicate their accuracy. Unlike teacher accounts, student accounts do not have any additional features or tools.

## VII. TECHNOLOGY

Our discussion forum was developed using the MERN project stack, which includes MongoDB as the database, Node.js for the backend server, and React.js for the front end. We believe that this modern and efficient technology stack provides a robust and reliable platform for users, and combines powerful and flexible tools to support a dynamic user experience. Our choice of technology has resulted in a high-quality and user-friendly forum that we are confident will meet the needs of our users.

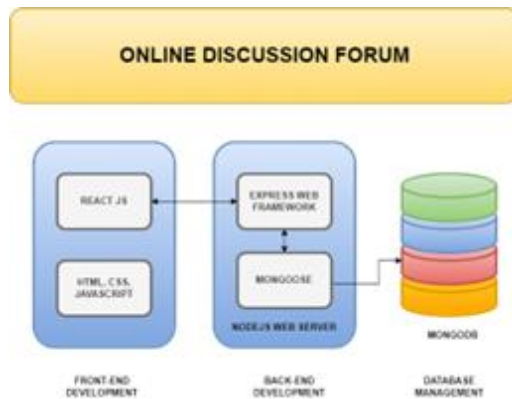


Fig 1 Online Discussion Forum

## VIII. FUTURE SCOPE

Our plans include adding support for markdown formatting and the ability to add images in posts and replies. These enhancements will improve the functionality and user experience of our forum, allowing for more visually appealing and organized posts and better illustrations of user points. Overall, these updates will make our forum a more valuable resource for all users.

To evaluate the impact of the added markdown and image support features on user engagement and satisfaction, future research could be conducted through a series of user surveys and data analysis. The surveys could be designed to gather information on user behavior and preferences, including the frequency of image usage and the perceived impact of markdown formatting on the readability and organization of posts and replies.

## IX. CONCLUSION

In conclusion, the discussion forum we have developed using the MERN project stack provides a reliable and robust platform for users to exchange information and learn from each other. Our plans to add support for markdown formatting and the ability to add images in posts and replies will further enhance the user experience, making the forum a more valuable resource for all users.

Research on the impact of these features on user engagement and satisfaction could provide valuable insights into user behavior and preferences, informing the development of future enhancements and features. Ultimately, we believe

that our forum will continue to be a valuable resource for users, providing a community-driven platform for knowledge-sharing and collaboration.

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