Interactive Learning Web Application for Educational Institutions

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Abstract: **Mostly schools have a Parent Teacher Association (PTA), which is an organization of parents and teachers. PTSA brings forth closer links between home and educational institutions. Parents Teachers Student Association (PTSA) as formal meeting in this occupied world is difficult and impractical. Educational institutions have as a priority finding effective ways of providing new alternative for PTSA. Learners can upload assignments online and share study material. Parents and teachers could monitor students efficiently. From this paper we explain about building a web application that has the features as interactive learn environment with teacher support and parent monitoring.**

Keywords: **Admin Assistance; Assignment; Manage PTSA; Messaging; Parents monitoring; Pro-learn; Staff control; Student profile**

1. Introduction

A Parent Teacher Organization (PTO) is a formal organization that consists of parents, teachers and institution staff. The organization's goals could vary from organization to organization, however primarily the goals embrace involvement of oldsters, motivation of lecturers, students community interest and welfare of scholars and families. Nowadays parents are very busy with their routine and find issues in attending PTSA. Online learning applications are common where webinars and assessments are done without parent interaction. Almost at some point everyone must have been part of a conference call, a webinar, video conference and likewise. Finding someone who doesn't associate with these virtual meeting options is impossible. At the same time, many of the parents must have been summoned by the school of children for a parent-teacher meeting. PTSA for schools/colleges online will be very helpful in all aspects. Information Communication Technology (ICT) has negative impact on teaching experiences. Improving technology is now available to greatly alter and improve the parents and teachers to be dynamic. While the thought of a virtual parent-teacher meeting might have existed for long enough, technology is currently totally evolved to bring this to reality. At the same time, educational institutions are becoming increasingly savvier in employing technology to improve their services. Deploying phone systems is now a viable option being sought by various educational institutions.

Inhabiting a world where in the ward's progress reports are digitally delivered and everyday activities of ward to be uploaded to an online dashboard for the parent's viewing is necessary. Dial-in options using phone systems amongst others are several path breaking measures that will be able to be seen in times as connectivity improves further; parents become more tech-savvy; and our lives become even more connected. The government is doing its bit in improving the connectivity. The ball is now firmly in the court of the educational institutions to become more enterprising in the use of technology for their parent-teacher liaisons and overall educational benefits. Employing online system to let parents access the ward's involvement would help to a greater extent. Messaging platforms are all avenues that ought to be sufficiently explored to improve parent-teacher relationship. There are great many options and whichever be the one that educators and parents decide upon, the underlying principles however ought to remain the same. Improvements in digital connectivity have to result in an expanded reach of education and educational facilities. Secondly it must bring into the educational fold, a great many of those who are yet outside. Technology plays a vital role in shaping our present and by employing technology in education will improve the tomorrow for students. Digital virtual parent-teacher meetings and digitization of the child's schooling activity are examples of the improvements that technology can bring to the education experience. Several path breaking measures will be seen in our own times as connectivity; parents become more engaged in other activities; and our lives become even more occupied. To wither off these problems we build a web application that has the features as advancement to ICT, an interactive online learning portal for students with teachers and parents.

2. Online teaching and learning

In web surroundings the role of the teacher changes from "the sage on the stage" to "guide on the side" Such new roles for online instructors need coaching and support. Faculty coaching and support may be a key element of quality on-line education. Some case studies of school development programs indicate that such programs will have positive impact on instructors' transition from teaching in a very face-to-face to an internet setting. Some of the key points inferred from the references are

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-3, March-2019
www.ijresm.com | ISSN (Online): 2581-5792

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as follows:

- Participants' satisfaction towards the educational surroundings may be an essential consider on-line learning.
- Participants' satisfaction with on-line courses will attract them to register for the courses and make sure that they complete their studies.
- Most participants were satisfied with the web courses and learning environments that they had more established.
- However, Lauren, Jennifer and Marguerite (2004) in scrutiny participants' satisfaction with face-to-face courses and online courses according that typically participants according higher satisfaction with face-to-face courses.
- Gallo (2007) and Strachota (2003) according that characteristics like gender; age and pc skills may influence students' satisfaction with online courses.
- On the other hand, there are studies that reported otherwise (Hong, 2002; Hong, Lai, & Holton, 2003).
- Furthermore, Graham, Cagiltay, Lim Craner, and Duffy (2001), Hiltz, Coppola, Rotter, Turoff, and Benbunan-Fich (2000), Motiwalla and Tello (2000), Sher (2004) and Young and Norgard (2006) also reported that interpersonal interactions and positive feedbacks by instructors compact completely on participants' satisfaction with on-line courses.
- Andreatta (2003) believed that feedbacks with emotive parts supported students' motivation that successively resulted in higher satisfaction.
- However, investigations on the relationships between participants' learning designs and satisfactions with on-line courses didn't yield clear results (Hong, 2002; Klinger, 2003).

3. Advantages of online PTSA

- *Global Connectivity:* Fast and vast access to learning resources. There is no meaning of campus boundary of institutions in learning. It is easy to connect ourselves around the globe. Different learners and teachers can be added to groups and social networking websites can be accessed by students with parent support. Access to the materials of various countries situated in different countries is made available through hyperlinks. Chat or contact to our resource persons and fellow learners is possible at ease which can be viewed by parents/guardians. There exists opportunities for creation of various groups of world-wide learners and teachers with common interests. Learners of same interest can share their knowledge, queries, initiatives and innovations in group forums. Online learning breaks boundaries and provides an unlimited treasure of knowledge to the learners and teachers involving

parents to monitor.
- *Fast Access:* Fast access to the knowledge resources is an important feature. It is possible to get into the endless resources by just one mouse click. Access of various materials journals is just in few seconds. Comparison of this new facility with the painful and time taking old days' learn hunt is so evident.
- *Convergence of different mediums:* This web platform provides us a special opportunity to have many types of mediums at one place, like text, audio and video. It increases the quality of study material. If anything can be delivered properly to the learners through text, text is an option and wherever graphics, photographs audio or video are required they can be add be too. Convergence of different mediums provides an ideal opportunity to develop an excellent and easy to understand learning materials. It can break the monotony of learning process and create interesting and easy to understand materials and learning experience.
- *Flexibility:* Online learning gives choices to the learners of time of learning and place of learning. In conventional classroom based learning method, learning time and place are fixed. Students square measure sure to get a specific category area at a specific time. Online learning allows the learners to learn according to their convenience. Course material and assignments can be seen anytime and at anyplace. Recorded audio-video lectures can be used at anytime and at anyplace. Assignments submission and learning can be done in their convenient
- *Quick creation, up gradation and revision of course material:* In online learning can be updated study materials faster than any other mode of education. All technical supports are available to create vivid online learning study materials. Day today equipments can be used to develop study materials with the combination of text, audio, video, graphics and photographs. Cell phones can be used to take useful photographs, audio clips and upload them on online learning platforms. In other modes of education, revision is comparatively difficult. Generally syllabus are revised, textbooks (for face-to-face learning) and study materials (for distance education) after a long duration of time, minimum five years commonly. World of knowledge is changing very fast but these developments cannot be in our textbooks and printed study materials with the same pace. Textbooks or printed study materials are physically printed things and printed in huge numbers. If they want to be upgraded, long time wait is needed. On the other hand up gradation of online learning study materials can be done every day, every minute or every second. Recent data and other forms of knowledge update in online study materials are

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-3, March-2019
www.ijresm.com | ISSN (Online): 2581-5792

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simple. For example: A printed study material of a commerce related course will be stuck with old financial data but the same material on online learning platform can have the most recent fact and figures. So online learning is matching with the speed of fast changing knowledge world.

- *Quick access to supporting material through hyperlink:* Online learning has changed the learning process completely. Now learner is studying with many thousands of supporting books and materials. For example: A student reading a book on a particular topic faces problem to understand few terms, more detail about those terms are needed. Solution will be going to library, searching books on those terms and topics and understanding. This process may take few days. On consideration of the same case in online learning environment, detailed information about those terms is brought by just one click on the available hyperlink with those terms. If hyperlink is not available search engines are next option. This process will take not few days but only few minutes which are the strength of online learning.

- *Ability to serve large number of students at low cost:* Providing education to all is the biggest challenge for a developing country like India. India has huge population and limited resources. Research and studies are showing that we need thousands of universities and colleges but financial feasibility to open universities and colleges in such a large number is less. In this scenario online learning is the way of hope. Education to large number of students at comparatively low cost is possible. Also there is a need for parents to know about their ward's activities. Online PTSA is a combination of efficient, quality and low cost but we need basic internet infrastructure in all over country.

- *Distribution of quality material by virtual classes:* It has been observed that quality sources of knowledge are concentrated only at few institutions and cities. For example: Quality of syllabus in IIT Delhi and any other engineering colleges in any other state is not same. It was not possible to utilize the knowledge and experience of scholars for a large section of the student community but virtual classes have shown a path. Now we can use a lecture delivered in IIT Delhi for many state level engineering colleges. A prominent resource person sitting in Delhi can teach the students of small cities with the help of virtual classes. Many premier institutions are in process of offering various courses. It can be a forwarding step to fulfill the need of quality education in our country and meeting desire of every parent.

4. Review of literature

At present the majority of research activities in Education are focused on online learning. We can see the various education related research journals with full of research papers focusing on different aspects of online learning. They are talking about the online learning utilization of ICT in school education to higher education. They are discussing concerning the impact of learning materials with the mix of 3D graphics, text, audio and video. They are conjointly researching on virtual learning surroundings and use of social networking websites for academic activities. ICT policy plans for school to university education are also the favorite subject areas for the researchers. Paul A. Soukup (2011) said the newness and growing handiness of computers have given educators the prospect to a lot of careful style a way to teach. Fong and Hui (2005) have argued that educators shouldn't merely recreate the standard room however benefit of what new communication and knowledge technologies supply. Technological advancement has created out there a broad scope of ability in generating learning material. Wang & Woo (2011) claimed that the Facebook group had the potential to be used as Learning Management System (LMS). It has pedagogical, social and technological affordance. The utilization of accessible social networking websites for teaching-learning activities has been examined and mentioned in varied analysis works. Chen and Tsai (2007) highlighted the role of gender in web based learning environment. On an average of male students have more positive attitude towards web based learning than females (Edmunds and Richardson, 2009). Various factors like gender, age and subject background play important role in deciding the learners' attitude towards online learning environment. While going through the various research papers and projects on online learning, the huge gap between is observed developed countries and developing countries. Many research projects and activities are going on about the utilization of online learning tools and platforms, even in primary school education of developed countries. They are using online learning tools for primary education to higher education. On the other hand maximum online learning research activities are focused on higher education in context of developing countries including India. It indicates our backwardness in this field. ICT, which is an umbrella term that includes all technologies for the communication of information (IGI Global), has become part of teaching and learning process. Initiatives and projects of ICT for quality education have been introduced around the world with the main objective of providing children access to technology use to improve their learning. The exposure of ICT in education is very important to expose student with current technology. Teachers and students are carrying out numerous activities on mobile devices. It is also evident in study that the students own and use diverse mobile devices to engage in educational activities and other social networking purposes. It was additional stressed that a number of the educational activities area unit causation SMS messages, taking part in academic games, social learning, reading e-books/pdfs, and finishing assignments and quizzes.

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-3, March-2019
www.ijresm.com | ISSN (Online): 2581-5792

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5. Perceptions towards online education

There was expression that positive attitudes toward learning, self-discipline and high self motivations were the premise for his or her success in online courses. Participants of online courses tend to look at online learning atmosphere as enabling them to check at their own pace, to be actively involved in the learning activities, to enhance their intrinsic motivation to be told and to observe self-study compared to those attending ancient face-to-face categories. The flexibleness and the structures in online categories wherever learning will be distributed on an individual basis and severally is appreciated. Literature states that participants of online courses had positive perceptions on the cooperative nature of online learning experiences. Cooperative cluster activities were attention grabbing and stimulating. Employment of unsynchronized communication would yield an additional tributary learning atmosphere within the understanding and learning of course materials. Online learning tools have potential to change the whole educational scenario but few limitations are also there which are psychological and infrastructure related

6. Implementation

Integrated classifier consists of 3 complementary algorithms, particularly call Tree, K-Nearest Neighbor, and Aggregating One-Dependence Estimators (AODE). Students performance monitoring is the vital and essential part in the project. Thus implementing these algorithms in web page would process date from database and provide graph on student's engagement in learning. Assignment progress of themselves can be seen by students via graph in profile for improvement. Ratio of students in each year can be viewed by teachers. Student activities as fed in for monitoring. Parents are able to view only their ward's details by selective selection and retrieval of data from database. Staffs/teachers could create reports of parents and students, add parents and students and remove them as well. Admin could add and remove staff. Students can share references, multimedia etc. related to syllabus. Feedback and grade is awarded to students for their assignment submissions.

7. System architecture

Fig. 1. System architecture

- *Staff Control:* Staff allows staff/teachers to monitor student's activities while using the application. Homework and assignments can be assigned online in which teachers can monitor students work, analyze development and make judgment based on the information gathered.
- *Parent Monitoring:* Parent Login gives parents the ability to monitor their child's profile and homework set by teachers. Parents can also contact teachers directly from the application for enquiries, monthly student reports and parents meeting conferences.
- *Student Profile:* Student Login includes integrated social media features within a personal/social environment to enhance student learning. Students can share content with other students, add friends from request join in discussion groups, assist other students with shared homework assignments. Students can also view school resources.
- *Messaging:* Students have the ability to send messages, assignments and other content to friends. Students can also send messages to teachers if assistance is needed regarding assignments or problems with their account. Parents can also message teachers for enquires.
- *Assignment:* Tasks Students can print off assignment and homework tasks, complete tasks and upload the assignments and homework back to the teacher. Students can view content set by teachers e.g. research, homework, books.
- *Admin Assistance:* Admin login enables school/college admin/IT support technicians to control for ease of use and support. Admin/ IT support staff can add, edit or delete teachers, students, parents to the system as well as making a series of changes to suit the needs and requirements of users within the school/college

8. Methodology

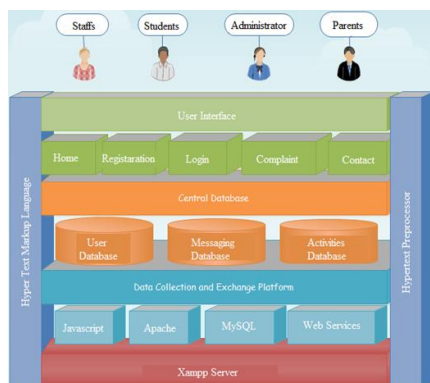- *Participants and procedure:* Pro-learn involve the teachers, students and parents of the students of the organization. Teachers have dashboard with resources for students and reports of both students and parents. Teachers create assignment with study materials and information. Students have work room, drop box and profile. Students could chat with friends, have forum, posts, upload assignment and learn through materials. Parents have access to child details, their assignment submissions and post details. Messaging between parents-teachers and teachers-students.
- *Tools:* Xampp which has MySQL database, Apache Server, etc. is used as local host server to check for implementation. Hypertext Markup Language (HTML), Cascading Style Sheet (CSS), Java Script (JS) and Hypertext Preprocessor (PHP) are used to

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-3, March-2019
www.ijresm.com | ISSN (Online): 2581-5792
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code for the website.

- *Data Analysis:* Student's performance is calculated and displayed as a bar in student profile. Comparison of assignment scores improvement of student in student profile, students' engagement rating in staff profile and pie chart based on number of students in each year involve data comparison.

9. Results

Learning online is finally done with the support of teachers in the organization and parents at home. Predicting the academic performance of the students in a discipline is also applicable for other domains of as a future work. Online learning tools have potential to change the whole education scenario but there are few limitations too. It can also be used for the development of online learning without psychological problems as encountered in ICT. With tie up with many organizations under a university it could be an effective interactive platform which does rating, ranking online. Many scholars could involve for effective teaching which helps in a lot more knowledge gain. Failure of assignment submission is made known to parents as well. It meets with a number of disadvantages faced by other online learning platforms and serves as a solution to it.

10. Discussion

The main objective of the project is to explore the students, teachers' activities and experiences. Mostly examined the readiness, attitude, learning style, impact of the mobile device, how they are linked to academic performances and included parents support. It is operationally referred to as a platform that facilitates online interactivity between the students and the lecturer in order to enhance online experience involving parents to monitor their wards. Online PTSA is an important and to be fast grown segment of educational technology. It largely overlaps with the field of online learning, but it must be noted that learning represents only one aspect of education, others like molding students discipline etc. which can only be done by parents in case of online learning. Online PTSA covers many other educational services, such as teaching, authoring, assessment, collaboration, and so on.

11. Conclusion and future work

Use of technology in education is a burning issue for researchers. There is a possibility to make education interesting, easy to understand and broader with the help of technology. As far as research trends in online learning is concerned it is obvious to say without fail that sufficient research works have been done and is still a popular area of research for the researchers of various disciplines.

- Few major research trends of online learning are following:
- Online learning is a popular subject for research

among the researchers from different subject areas like Mass Communication, Education, Information & Technology and Open & Distance Learning.

- Researchers are focusing on the present technological status and future possibilities of online learning. More user friendly tools and platforms, less complexity and better and fast connectivity can make the online learning more effective and useful.
- Apart from technological aspects researchers are also working on other factors like gender, age, and subject background which influence the acceptance of online learning components indifferent modes of education.
- Most of the researchers are taking 'Online learning' as a potential solution for many education related problems of developing countries like large population, geographical diversities, budgetary constraints for opening colleges and universities in big numbers and flexibility.

Online PTSA is examined with one organization and the future enhancement involves the following:

- A register to involve many organizations and separate administration and database for each.
- Contact FAQ in home page to give suggestions, complaint and get help from the administrator.
- Administrator to have full access to students, staffs and parents profile.
- Messaging facilities for administrator to parents, students and staff.
- Deactivate options for administrators to delete their account when needed.

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