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## Teaching Assessment Tool: Using AI and Secure Techniques

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Received: 24 March 2020; Accepted: 13 May 2020; Published: 08 June 2020

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### Abstract

Most of the schools uses a school diary for communication between parent and teacher. But using this method has many limitations. In this paper we have researched about the various factors as to why this type of communication is not effective and why we should switch to digital communication. We have also reviewed our android mobile application 'Guide N Grow', which is used for digital communication between parents, school and teachers. By using this system, any school can make the communication between parent and teacher more effective. Parents can take care of their child's academics and can also get the regular updates from the school. Due to the use of this system they can take their child's performance at a good level. By considering all these factors one can make a school to a smart school.

**Index Terms:** School Diary, Parent Teacher Collaboration System, Teaching Assessment Tool, Mobile Application

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## 1. Introduction

Most of the schools use written communication in form of communicator book or a school diary, renewed yearly when the student moves to a new class. School related information like circulars, event notification, attendance record, unit tests, results are written by teachers manually. The students should bring the book every day. Teachers and parents interact over the book by writing messages and facts. The book content may differ for each school, but the key information fields are the date of the message, the subject, the message body and the teacher's and parent's sign to verify that both parties have already read the message or information. Some parents do not check the school diary regularly so the effective communication does not perform between parent and teacher. The parents rarely came to know about the performance of their child until the parent teacher meeting, till then there are no chances of improvement.

For both parents and teachers, the biggest challenge is to communicate effectively. It may sound basic, but conversations are often disconnected because the instructor uses terminology that is unique to the special education area, and may not be familiar to the parent. Teachers are aimed at building relationships to promote student learning. In this relationship, good communication is necessary and a sense of community can be generated between home and school. Teachers must continue in these changing times to develop and broaden their skills to enhance positive communication.

The era of mobile technology opens a gateway for android applications. The Teaching Assessment tool named – “Guide N Grow” is an approach to improve the current system of parent teacher collaboration. It offers fully automated android application that registers students online and can be updated as per requirements. It provides an effective parent–teacher communication, as it provides an instant communication with teacher. It also maintains the details for each student. The primary purpose of this application is to provide a mobile friendly application which enables effective and smart system to the schools using which parents and teachers can communicate with each other. Basic functionalities of the application are: announcement of events and circulars, timetable, exam schedule, assignment sharing, parent – teacher chatting and performance sharing of the student. The program will help parents and teachers to connect to android devices instantly. If teachers use this digital communication device, parents can easily access information through their mobile devices or tablet, to have a good idea of what is going on in their children's classroom. Digital communication allows teachers to easily and efficiently reach parents for a child's learning. Parents are able to read the message and respond to it at a suitable time. Parents will receive daily notifications of the program and also receive daily reminders from each teacher. Parents will also get a copy of the teacher's assignments. Parents can follow up on the performance of their child by seeing their tests results. Teachers can provide special technical notes to improve the ranks and knowledge of a child. Parents should help find out which services are and are not working and help improve to be effective. Various notifications and activities including the weekly schedule can be viewed by parents. “Guide N Grow” application can be used by any school who wants to make the communication between parent and teacher effective. By considering all these factors one can make a school a smart school.

The paper is organized as section 1 introduction, section 2 literature survey, section 3 as application design, section 4 user interfaces, chapter 5 analysis, chapter 6 future work and chapter 7 conclusion.

## 2. Literature Survey

### 2.1 A survey on Parent Teacher Engagement by ClassTag:[1]

A survey published by ClassTag (2019) collected responses from over 1,000 primary school teachers from the 2018-2019 school year. According to the survey, the majority of teachers are communicating with parents

at least weekly, but one-third of the families i.e. approximately 34% families remain "hard to reach and communicate" throughout the school year.

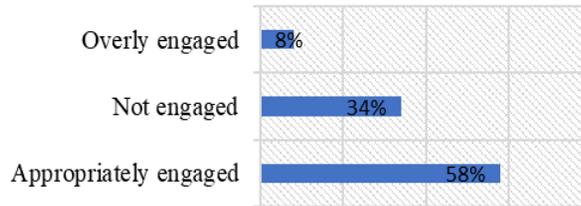


Fig. 1. Percentage of engagement of families

Parents who cannot understand the significance of their participation and parents believing it is the responsibility of the teacher to educate their children rather than working as a team, according to survey respondents, are the main barriers to communication between parents and teachers.

## 2.2. Effect of Communication between Teachers & Families on Student Participation:[3]

The goal of this study was to determine the efficacy of teacher communication with parents and students in increasing the participation of students. A field study was carried out in which sixth and ninth grades were assigned to receive a daily phone call home and a text/written message during a mandatory summer school program. The regular contact between teacher and family instantly improved the commitment of the students in terms of homework completion rates, on-task behaviour and involvement in classes. On average, a student who is doing his / her homework has increased by 40 percent because of teacher-family contact. Teachers redirecting students' attention to the task at hand was decreased by 25% and the student's participation in class was increased by 15%. Through the surveys and interviews with students and participating teachers, three key factors have been identified which are likely to influence communications: a better partnership between teachers and students; an improved parental commitment and increased encouragement for students.

## 2.3 Why Digital Communication between Parents & Teachers is essential:[2,4,6,7]

Parent – Teacher contact is necessary for all children to be learned effectively and efficiently. This communication is facilitated by the technology which enhances the relationship between parent and teacher. Teachers and parents are trying to find out how technology can best be used in order to build this connection, ultimately benefitting students. The technology available today allows parents and teachers to connect instantly through different digital applications.

- When teachers use these digital communication tools, parents can easily access information from their child's teacher using their phone, tablet, or computer.
- Digital communication allows quick online feedback.
- Ensuring that the parents know what's going on in the classroom of their child helps learning to be achieved at home.
- Digital communication enables teachers to contact parents about a child's learning quickly and conveniently
- Parents have the opportunity to read and respond to the message at a time that is convenient for them.

With the use of the different types of digital parent communication tools, educating parents and teachers to use them properly is crucial for success.

Epstein [5] from many studies and from many years of work by educators and families in elementary, middle, and high schools, evolved a framework of six major types of involvement: parenting, communicating, volunteering, learning at home, decision making and collaborating with the community. There are several different collaboration activities in each kind of involvement. Each category poses different challenges that must be met to involve all families and needed redefinitions of some basic principles of involvement.

### 3. Application Design

#### 2.1 Use - Case Diagram



Fig. 2. Use - Case Diagram

The fig. 2. is the Use – Case Diagram of our application. It is the simplest representation of any user's interaction with the system and shows the relationship between the user and the different use cases in which the user is involved. There are different types of users of the application i.e. school admin, teacher and parents.

#### 3.2 Module Diagram

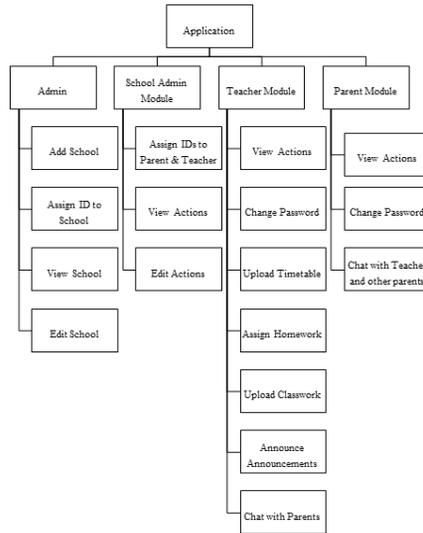


Fig. 3. Module Diagram

The module diagram represents the general physical architecture of the application.

#### 4. User Interfaces

##### 4.1 Modules and Functionalities

###### 1. Welcome / Splash Screen:



Fig. 4. Splash Screen

The welcome page of the application.

###### 2. Authentication:

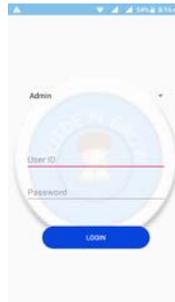


Fig. 5. Login Page

For security purpose we have used model and techniques given in [8,9,10,11]. In our system we have provided login credential for every user so that an unauthorized user cannot gain access to our system. Authentication in our application is done using Firebase.

### 3.Navigation:



Fig. 6. Navigation Page

After successful authentication, the above navigation page is opened, which is the main page of the application. From here the user can access various modules.

#### 1. Group Chat:

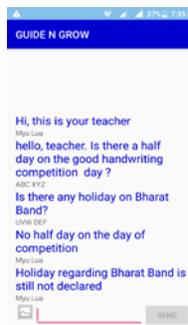


Fig. 7. Group Chat Module

All the parents and teacher of one class can communicate with each other, through the group chat module

## 2. Classwork & Homework:

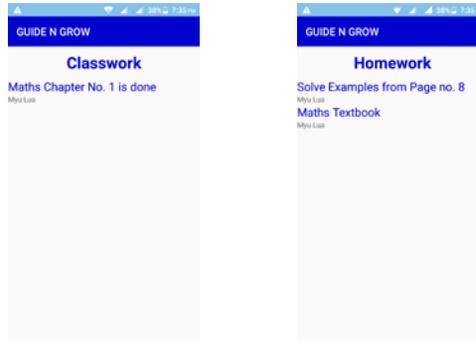


Fig. 8. (a) Classwork Module (b) Homework Module

Teachers can post any classwork or homework here which is accessible to the parents. Due to this parent will come to know whenever a homework is assigned to the student and what has been thought in the class. As they have access to the assignment questions, they can make their child do it.

## 3. Announcements:

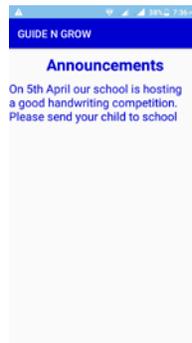


Fig. 9. Announcement Module

All school related announcements i.e. notices, upcoming events or competitions, etc. are announced here.

## 4. Timetable:



Fig. 10. Timetable Module

School Admin will upload class-wise timetable. Parents can see their child's schedule and can take revision accordingly. Teachers can post any homework here which is accessible to the parents.

## 5. Analysis

Teachers can communicate directly with the parent regarding their student. Teachers can post class notes and homework. Parents can communicate directly with the teacher without any meeting. Parents can get updates about the syllabus completed in class and can also get class notes from each teacher. Parents get a notification about homework assigned by the teacher, various announcements and upcoming events. They can view the weekly schedule/ timetable. Using this system parent can take care of his/her child's studies. Teacher can also send remarks of the student to the respective parent at that time, so it leads to the improvements of that student.

## 6. Future Work

The future scope of this project is to develop more features and modules like attendance record, upcoming events, school gallery, exam, fee and library management. Further the application can be developed for iOS and other operating system frameworks and to design the application to enable users to pick any desired language they want to work.

## 7. Conclusion

This design is of our application 'Guide N Grow', its functions mainly include user authorization login, parent – teacher chatting and performance sharing of the student, announcement of events and circulars, timetable, exam schedule, classwork and assignment sharing, etc. The design still has shortcomings, we hope to continue to improve through future efforts. In using mobile apps such as the 'Guide N Grow', the new way of interacting with schools can be changed to modern ways. Thus "Guide N Grow" provides efficient and cost-effective solution for parents regarding their child's performance.

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**How to cite this paper:** Umang Dhuri, Nilakshi Jain. "Teaching Assessment Tool: Using AI and Secure Techniques", International Journal of Education and Management Engineering(IJEME), Vol.10, No.3, pp.12-21, 2020.DOI: 10.5815/ijeme.2020.03.02