

A study on online networking and collaboration among school teachers

Design Research Seminar

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Approval Sheet

The project titled ' A study on online networking and collaboration between school teachers' by Labeeba K, is approved for partial fulfillment of the requirement for the degree of 'Master of Design' in Interaction Design.

Guide

Date

Declaration

I declare that this written document represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not misinterpreted or fabricated or falsified any idea/data/fact/source in my submission.

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IITB Central library. Internet and my laptop.

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Abstract

Social networking sites like facebook, mobile instant messaging(MIM) apps like whatsapp and online education websites like Mathblog are bringing new communication and collaboration behaviors among school teachers in even peri urban and rural India. Teachers in general spend a lot of time in the classrooms reducing opportunities for interacting with their colleagues and hence faster and easier communication through social media has attracted them.

From an ethnographic study of teachers in 4 secondary schools of Calicut, Kerala, I describe how smart applications are moulding teacher's opinions and communications with each other. I also analyze the whatsapp usage behavior in teacher groups using the prototype. Post experiment questionnaire was given out to measure the confidence users had when using the application through likert scale responses.

Introduction

Teacher life in any peri urban or urban school in Kerala is very busy, gruesome and difficult. Lack of time for personal life and home is a common complaint among teachers. And with each government trying to give quality education to the children of their state, loads teachers with more works like logs, cluster meetings, paper evaluations etc. And the teachers in need of each penny run behind these making their lives even busier. In this vicious circle, collaboration, teacher quality improvement and academic and friendly communication among colleagues suffers the most.

Within school, most of the time of a teacher is spend with students as it is supposed to be and they get minimal time to mingle with other fellows. Even when they do get some time, the talks usually go towards politics or family issues or festivals. But in recent times with the advent of social media and MIM applications, there are two kinds of changes that are seen. One is that the teachers who were alien to each other have grown far immersed in their mobile world. Or there has been a positive change towards faster communication and collaboration.

SCERT based schools of Kerala follows a common syllabus, tests, scholarship patterns, teacher train-

ings, programs for students like science mela etc. In the last few years, all these processes were digitized to a large extend through sampoorana and it @ school programs and IT teacher trainings were provided to accustom the teachers to the new digitized model. This eventhough was a dreaded initiative for the teachers, this digitalization somehow bought geographically distant teachers to communicate with each other and form groups for doubts. But, even now teachers find difficulty in understanding certain processes and obtaining certain teaching resources. Thanks to social media like facebook, whatsapp and blogs like Mathblog, they get extra help from colleagues from other schools and experts. This also helps them in collaborating and continuing education in their fields.

My research is aimed at studying the online collaboration of teachers in different SCERT syllabus based schools in Kerala using social networking sites and blogs like facebook, Mathblog, WhatsApp etc.

I went forward with the following questions of investigation

RQ1: What is the prevalence of social media for educational and job related collaboration among

teachers?

RQ2: If so, what are the practices followed by them? Advantages and disadvantages? If not, why?

RQ3: How do the teachers manage informal and educational related online social networking? Is it anyway disrupting their daily work schedule?

RQ4: What according to them are the major differences in online and offline networking and collaboration?

Through the research, I found that teachers based on their professional interest can be divided into 2 major categories. One who is moderately interested in giving basic education to students and provide them with all training available to the other students and also improve their own professional quality. The other section who wants to know what are the current happenings in the field, but do not want to take part in any digitization or modernization ventures, but want their unexpected doubts and queries to be easily answered.

My research is founded on the radical shift in Kerala education and education management department towards digitization. So, let me explain about few

developments and strategies followed by the education department.

IT@School is a project of Department of General Education, Government of Kerala, setup in 2001, to foster the IT education in schools and which on a longer term would facilitate ICT enabled education in the state. The various ICT initiatives under it@school include textbook management system, training management system, student health system, school employee details, victers channel. The target group of IT@School Project is the dynamic group of students, teacher and parents, but primarily the Students. Today after 10 years of operations in the state, IT@School has proven that ICT enabled education could be implemented in the state in a phased manner which would benefits millions of student populace. (<https://www.itschool.gov.in/glance.php>).

The Project has bought in a new culture of learning wherein the teachers would transform themselves into IT enablers, wherein they are capable of handling their subjects more efficiently using ICT. This new culture would also pave way to a situation wherein in the near future, students would themselves become the IT enabler, with the support of these teachers.

IT@school have their own blogs at the state and district level. As they pioneer in various digitization ventures, they have a team of teachers for each district to upgrade the existing and new teachers to the new standards.

Mathblog was a blog started by 2 government maths teachers from edavanakad school in 2009 for queries in mathematics teaching at school. Later due to its popularity it was adopted by it@school. Now the blog communicates instruction by it@school and new additions to spark and sampoorana programs of education department. Teachers can send posts to tam through emails. Doubts can be asked in the blog, to which the team replies asap.

Related literature

Studies related to the project were conducted in two areas, one related to communication and collaboration of teachers in general and the other related to whatsapp as a communication medium.

Researchers argue that the most important prerequisite to success of knowledge passing to students is where professional discourse is not only possible, but required [Firestone & Clark 1992]. Teachers need opportunities to revise their understanding of what it means to know, to learn, and to teach. As teachers face the challenge of aligning practice with current learning theory, they need professional development experiences that parallel the educational approaches being advocated for students.

In 1997, McMahon, Teresa A, conducted a research which concluded that computer-based network professional development is far from reaching its potential. Six variables framed the professional interaction items: (1) teacher work group cooperation; (2) opportunities to exchange new ideas and instruction; (3) opportunities for reflection about practice; (4) capacity to give and receive feedback; (5) structures and norms that encourage a problem-solving approach to teaching;. Generally, the results

showed that computer-based network professional development is far from reaching its potential. Teachers inflexibility and lack of familiarity with new technology were also obstacles to an online professional development program. This study was conducted by making teachers join a particular mathematics teacher development program and monitoring their conversation. But , starting communication with the advent of social media is still in need of research.[McMahon, Teresa A, 1997]

Teaching is not an occupation known for professional dialogue. In fact, quite the opposite is true. Most teachers have limited opportunities to participate in reflective discussion about their work. Organizational, spatial, and temporal factors contribute to the day-to-day physical isolation of teachers. These factors, in turn, foster social aspects that further serve to deter professional interaction between teachers [Maeroff 1981].

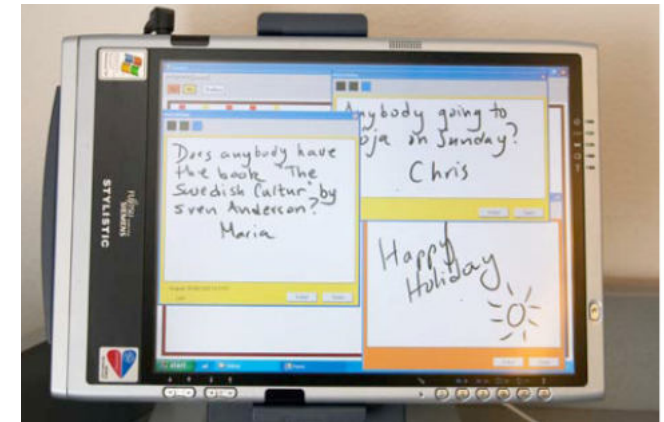
One study says that mixing informal communication with work related discussion can induce consistent communication, i.e, Kristina Groth and et. al, creates a digital space for increased community feeling among geographically distributed teachers. They found that the teachers wanted to commu-

nicate with colleagues concerning issues such as “getting inspiration” or “discussing a class”. The prototype they are developing focuses on informality and playfulness, that would increase the social communication and thereby the community feeling. In turn, this would ultimately increase learning among the setting members. [Kristina Groth, 2005].

Another study done about collaboration and communication between science teachers within school and outside showed that the most common learning relation occurs around teaching science in the classroom. This includes interactions and discussions centered around methods or strategies used in the classroom: what topics to cover, how to present materials, what works or doesn't work, what activities to do, what things to avoid. The sharing of lab ideas and procedures, demos, and tricks figures prominently in the respondents' interactions with others. In addition, learning about school/district culture, providing emotional support, and writing grants are also mentioned as making up a learning relation, although less frequently. These relations co-occur with the other, more common types of learning relations.

Now coming to current messaging applications a research was done comparing whatsapp and sms messaging. They found that Whatsapp messages are exchanged more often, are more conversational in nature, are used to communicate within closer social circles and are used more often for group-based communication. The general feeling among participants across studies is that WhatsApp is more immediate compared to SMS. It was found that WhatsApp is perceived to support more social, natural interactions thus leading to higher frequencies of chatting, planning/coordination and group communications when compared to SMS. They also identified three problems with WhatsApp, namely: privacy, delivery and expectations.

Another study done in a mixed college in the outskirts of Bangalore found how Whatsapp was helping in reducing the gender gap in classroom friendships. They studied and compared the gender interactions in real college settings and through whatsapp forums.



Phase 1
Qualitative research

Methodology



I conducted a week-long qualitative study that included observations and interviews at GHSS Koduvally, a government school in Calicut, Kerala to understand how teachers communicated and collaborated real-time and online. The description of the field and the details of approach are as follows

Field site

GHSS Koduvally is a public school run by Kerala government in the outskirts of Calicut district, almost 22 kms from Calicut city. It has classes from 5th standard to 12th with 3-6 divisions in each class comprising of around 50 students. The school is divided into LP, UP, HS and HSS divisions for administration and staff. It has teachers in a ratio of 1:50. Founded in the 1930s, most of the lower class and middle class population of Koduvally and surrounding areas have and is studying in this school.

The teachers are appointed through PSC and there are many old teachers in the school who are continuing for more than 30 years. Teachers are mostly from the same district or have been settled in the district due to the job and are also highly qualified who opted for the menial job due to the importance

given to government jobs and the permanent flow of salary. Koduvally, known in the old times as gold city is mostly a rich town due to its numerous gold jewelry businesses, black money and the NRI families. Hence, parents of most children do not consider education to yield money and want their children to pass 10th std so that they can be shipped to gulf, or join their dad business, or sand mafias. Hence, both parents and students are the stronger party in the PTA and students do not give very high regard for the teachers. Hence, generally the teachers do their job as a routine task. The school is at a 15min walking distance from the main transport hub. This is highly inconvenient for both teachers and students. One major issue for teachers is the reduction of inflow of students and hence they get unexpected transfers to other schools.



Data collection

I was introduced to the teachers by the principal as a student of IIT (this tag had a lot of interest here) and as part of my project I wanted to conduct a survey. Only few of them wanted to know what the project was about. This introduction did not help and I started telling them it's about the way they use digital products and collaborate with each other. The teachers tend to take it lightly as a questionnaire survey as many BA and MA students used to come for similar questionnaire surveys. I already knew a few teachers in this school and they helped me convince the others to take the survey seriously. For the teachers to further understand, I had to tell them that it is to ask about their whatsapp usage and groups. They seem to be amused as all of them were aware of whatsapp and some of them were active users of it.

The teachers started being comfortable by asking me about how IIT life is and what exactly does design mean. Some teachers were reluctant to talk about their phone usage within school, doubting I have come to inspect them about their work interest. Whereas, few teachers were happy to share their

bitter experiences with the management which was not related to my project at all.

It was difficult for me to find time to interview teachers as they had a tough and scheduled routine. I additional to regular classes which run from 10-4 , many had extra sslc special classes from 9-10 and 4-5. They reached at sharp 10 o'clock and leaves at 5 to get their regular bus. During the intervals most of them were busy winding up their classes, correcting notebooks and papers. But all teachers had at least one class of 30min free in a day which they spend in staff room peacefully finishing their it related works, finishing logs, preparing for next class or chatting about their salary, household issues and own children's studies.

My data collection mainly included following sources 1. Participant observation in the staff room for 2 to 3 days to understand how they communicate and collaborate 2. Interview session with six teachers from the school and 2 phone interviews. 3. Questionnaire survey of 40 teachers from the school. 4. Fly on the wall observations in 2 whatsapp groups of the school. The whatsapp group study was conducted in the later stage once I realized the importance given by teachers to whatsapp communication.

In order to study group behavior I got access to two teacher groups, one was the high school teacher group within the schools teachers. This was an informal group mostly for sharing notices, personal discussions, holidays etc. The other was Physical science group which was created by the cluster committee of physical science teachers across thamarassery subdivision. It had teachers from many state syllabus based schools mostly public schools and few private schools. This was a more formal group and serious communication and collaboration happens in the group. It was moderated by a strong group of admins. It was very easy for me to get access to the groups through a teacher and it is surprising to note that both group admins do not care about the identity of the newly added person. None of the users questioned who the new member was and what the purpose of joining the group was. I didn't want to disclose my identity as this will surely affect the future conversations.

All teacher names used to report data have been suitably anonymized. The reported findings are a result of a 15-day observation. Conversations in the group took place in both English and Malayalam equally. The other subject related group mostly used English as the communication language.

Analysis

Constant comparative method have been used for analysis. The transcripts of interviews of second set of teachers were compared with the first set. Finding from qualitative analysis were compared with that of the questionnaire survey



Interviews

The research began with a broad investigation into whether teachers collaborated and communicated intra school or inter school, reasons for it and if so, how did platforms like mathblog and whatsapp influence it or not. In this phase, I wanted to know the motives and perceptions of usage, the value or non-value found in whatsapp groups and what are the circumstances in which they are not used or overused.

Participants

I interviewed 4 whatsapp active users (3 men and 1 woman), 3 less active users (1 men and 2 women) all from the high school but different subjects. It is surprising to not that apart from 2, all others used only whatsapp for communication. They do not have any other social networking apps installed in their phones. See Table for participant's details.

Interviews

Interviews were semi-structured, open-ended; three topics: (a) a review of the subjects they taught, the need for communication for job/subject related queries and use of mobile messaging in general and preference (b) the perceived value of WhatsApp and mathblog, the reasons for adoption and history of usage, and (c) Issues related to whatsapp usage for collaboration and communication

The interviews lasted up to 30 minutes. The interviews were not recorded. And if the participants were willing they were asked to show their phone and whatsapp profile. Photos were captured of their whatsapp group activity wherever possible.

Interview transcript examples

Participant1 : Mahesh

Mahesh(45) is currently handling it@school at Ghss Koduvally. That is he handles all the digitization's of sampoorana programs and makes it happen in time, it trainings, helping the teachers master the online interfaces of sampoorana and mathblog. He lives in near to Calicut city.

He was always interested in technology and once an opportunity came up to join it@school he was recommended. And even he was super eager to be part of something big and more than handling maths classes. He started using whatsapp for personal messaging, now its mostly used for other purposes.

The low cost and maintenance is what got him rely too much on whatsapp as he gets wifi in school. But now as his official responsibility of managing the group has increased, he is even ready to spend on a 4g internet pack.

He uses facebook , gmail to communicate with colleagues.

He also handles the wifi system of the school. He has access to the wifi password and the computers

of the school and right now the access is not provided to other teachers fearing that they will waste time on whatsapp and other activities not related to academics.

He was a teacher of maths for 8-10 before joining it@school.

It@school is a group of it trained and enthusiastic teachers who are responsible for most of the online collaborations and communication. They also update the mathblog website from time to time. He is member of the district it@school whatsapp group and mailing thread. Whatever important updates he get on these groups he forward it to the school group. He sends information of any new events conducted by it@school, and deadlines for online submission of marks, data, scholarship in the school whatsapp group. There is a special thread for it@school in gmail.

Teachers in the school ask him personally about their doubts related to it works. In case he is not equipped with answering the question, he posts it in his it@school whatsapp group. But he remarks that now teachers are not like old times .Even if they have doubts, they know where to look for solutions.

Some of the teachers look in mathblog. There are those people who don't care how they enter the data according to rules; they have to be monitored individually.

The main problem of accessing spark and mathblog is the lack of net access easily in school and home . Teachers do not want to waste their valuable data pack for solving these issues. The wifi password could be given to the teachers, but there is no method to monitor the usage among teachers and students.

He is a consistent user of smart phone and all possible apps. He spends approx. 2 hrs on internet in school and at home. He also uses whatsapp for job related queries.

His groups are the school groups, it@school district group and sitc(state it group), college group of 1985 batch. He keeps in touch with his college mates through the whatsapp group. He considers it very convenient as his former class mates are head of many government institutions and private organizations, and it is good to know what they are doing and approach them in times of need.

He says whatsapp is very convenient in information

communication. But whatsapp alone doesn't work. If he has to convey something urgent, 'for example. The deadline for mark submission to the website has been extended till tomorrow', he would put a common message in whatsapp. He checks who has seen it after sometimes. And informs rest of them individually through call or sms. He says this is a good thing about whatsapp, otherwise he had to message everyone which will take a lot of charge. But even in very formal groups like sitc, informative forward messages are shared. These are not validated and there are times when

The usage of mail thread/mathblog instead of whatsapp for academic activity is because of its reliability that it will reach everyone. Official communications should be recorded in some form. But for follow up conversations and discussions about some mail whatsapp can be used. Just like how spark has a blog and a 24X7 whatsapp group. Most of his colleagues in it@school are always online. Hence, instant reply is possible, which is very helpful. It is like actually talking. If some post has to put in mathblog the contents of it is discussed in the group and formatted.

Issues in the school group are that sometimes posts can be felt as insulting ones religion , political party

or gender. There is a lot of gossip about people and politics going on. But, he is okay with it and that is what makes such groups interesting and make him read the posts in the group. The other groups are only for work. There should be two groups, one for personal and one purely for academic discussions with the same members according to him.

He doesn't decide to reply to queries posted in groups based on the person posting it, but based on the genuineness and importance of the doubt.

To my question whether people neglect from asking doubts because they are not well versed with English language, he says most of the teachers posts in Malayalam and whatever slang they like and Google handwriting input has helped everyone do it.

He says there are few male and female teachers who are very enthusiastic about new ventures and digitization , but most teachers male and female equally consider it a nuisance. Female teachers tend to ask help from male counterparts thinking they know better.

Participant 2 Fareeda beevi

Fareeda(43) is a very hard working and IT enthusiastic physical science teacher who stays very close to the school. This year she is in charge of the scholarship programme for students. i.e, she has to find various scholarships that government is offering for the children, make them aware to apply for the same, force them to take bank account, enrol them for the scholarship before the deadline and inform the students once they get the scholarships. This is not a very easy task with students and parents who don't care about anything and class teachers who don't make a bridge between coordinator and students.

But she says that this task is much better than the sslc(responsibility of 10th board exams- school percentage and number of a+ students) charge she was assigned last year.

She bought a smartphone only last year after she got the responsibility of sslc charge. There was the motive of using the school whatsapp group behind opting for a smart phone over a regular phone. She learned the smartphone usage and whatsapp very fast in few weeks but, she is confused about net

usage even now. The only application she uses extra in the phone is whatsapp and voice recorder.

Before whatsapp she used to call from the land-line phone for communication with parents and teachers. Now, she uses whatsapp messaging and if teacher's do not respond, she calls them up.

She was always a very active participant of cluster groups and as she had worked 3 other schools before coming to this school, she knew teachers from around the district with whom she kept contact through phone calls. Every year she collaborates with lissy teacher, a brilliant peer from her earlier school for helping her with making science models for her current students for the mela. But recently she says, work pressure and events in family have distanced her from old teachers. She even lost numbers of few of them. This was one reason she decided to And once she got whatsapp she immediately joined those groups.

Lack of same subject teachers, subject based doubts. Place to know how teachers are teaching in other schools.

Whatsapp group study

GHSS Koduvally had many whatsapp groups based on the real divisions within school and seriousness of the matter being discussed.

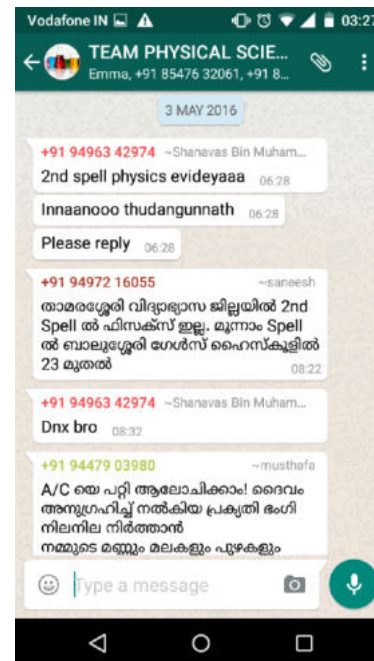
'Ghs Koduvally teachers' was the first and one and only official group that was made of highschool teachers. All communication regarding the staff meetings etc used to be in that group. But as time passed, some teachers got transferred to other schools and there was lack of privacy for information. Even though teachers in the group were very close even after the transfer, there was known rivalry between these government schools in the same locality and special ownership for ones school. They compared their sslc percentage, their performance in kalolsavam and science melas. And teachers were also scared about internal politics reaching the press which can result in reduction in student inflow in 8th standard which is detrimental for the teachers position. They might get random transfer to other districts. Reduction in number of students in class division is quite dreaded by teachers and pta as this may lead to losing division and hence transfer.

As the transferred teachers were also admins and they didn't want to loose touch with their old colleagues ,they did not remove themselves from the

group. Instead the staff secretary made formal groups like 'staff ghs Koduvally' and 'Official GHS Koduvally'. Staff ghs Koduvally had only teachers currently working there

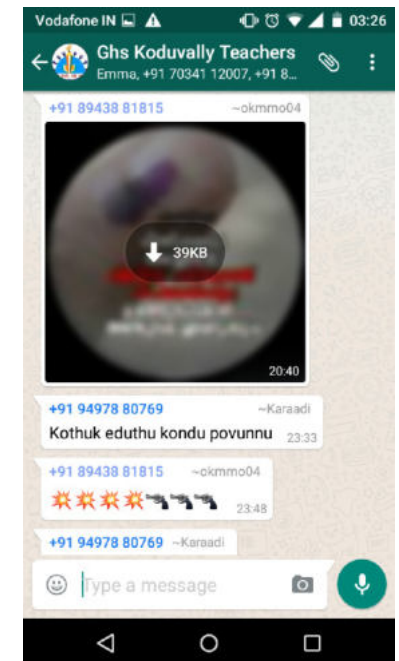
One group is the highschool teachers group 'Ghs Koduvally teachers'- teachers who take classes for the 8,9th and 10th std. It has a total of 52 members out of the total 67 teachers in school with total of 9 admins. This group holds importance to the teachers

as it is like a secondary noticeboard for the staffroom and reference for notices while away from school. It is also a contact book for teachers in need of anyone's number. The other groups are Team physical science and Chemresource.

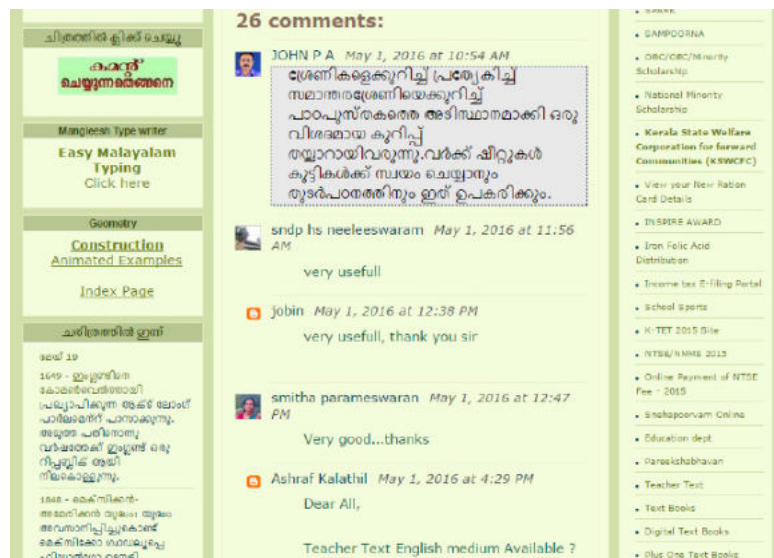


The informal discussions in the school group (right)

The much formal physical science teachers group (left)



Mathblog study



The mathblog portal(top)

The comment section in mathblog (bottom)

Math blog as explained earlier is the major portal that teachers all over Kerala use to communicate and collaborate. Some of the findings are:

1. The majority of doubts and confusion clearing is about how to use the digital portals for entering marks, how to calculate salary details , pension and spark details.
2. Discussions about textbook and teaching content are usually initiated by the moderator with a post, for which the interested teachers give their support and suggestions.
3. Major issues in the command section is the lag in reply and replies getting mixed up leading to confusion.
4. The user interface is not made for malayalam language and is very cluttered with lot of major function. A first time visitor will need a helper to navigate through the website.
5. The major benefits of mathblog over whatsapp is that the replies are moderated and validated. There are separate posts on various issues where you can comment.

Findings

Intra school communication

The staff room was a much cluttered small space and in the intervals it is overflowing with teachers and students. The front wall, black board are used as notice boards to write time tables of each teachers, sslc duty, new rules, evening chai treat schedules, birthday dates etc. Contrary to teachers showing path of discipline to children, lunch time is one time teachers enjoy talking to each other and the noise levels are very high. Gossips, salary, solving student fights, politics seemed to be major agenda than academics, topic doubts or education reforms.

Within the school, up, hs, hss divisions staff functioned as separate entities and communications are minimal between them.

Inter school communication

Cluster meetings and it trainings organised by it@school are the only time when teachers from different schools interact. These events are organised once or twice in a year and are subject based. All teachers from state syllabus schools in an educational sub district, both public and private will have to attend 3 day course on teaching methods in their subject.

The government school teachers get paid for it while private school teachers don't.

Observations in a cluster meetings yield good insights into teacher interactions. There are hierarchy levels of importance in the teacher community. Government and aided school teachers are at higher level and private school teachers are considered of a lower status due to their temporary job and salary. The government teachers make groups of their own and do not mingle much with the private teachers. Even if a government teacher was previ-

ously a private teacher before getting selection, the temperament changes with the position. There are exceptions for this behavior, obviously. So, direct interactions between private school and govt. school teachers are rare at real meetings. But in formal academic groups, there will be number of teachers in the group whose identity is not known. Conversations do happen about next meetings and topics.

All interviews were then studied to come up with themes. The themes are namely



The staff room black board: Space for most of the interactive communication

1. Relevance of virtual communication among teachers

This section explain my findings on why and why not teachers engage in virtual communication or computer mediated communication. Reasons for joining/installing, why start, rely, continue in what-sApp. Social influence was one major reason why teachers firstly opted for getting a smart phone. There was one sir who bought a smart phone only for whatsapp. As other teachers tend to discuss issues in relation with a previous discussion in the group, the non-Whatsapp users felt left out from conversation.

Reasons for being a member of mathblog and other subject related group mainly attributed to the teachers interest in moving ahead of teaching(teaching not the sole purpose of teacher). In the interviews, I could sense a reduced interest in teaching and a urge to be known and socialize among teachers. They feel they donot get enough appreciation for their hardworks.

Focussed groups for all subjects help in serious discussions on subject itself and ways of teaching. There are groups of all forms, for example the the

teacher who teaches IED children have a separate IED group for postimg her queries on difficulties faced while interacting with difficult children. But, according to the other teachers, she donot prefer being part of the school group and keeps to herself. The fact that she is not part of the school group makes her feel like a temporary teacher to the rest. There is a gender specific group for lady teachers. This was formed as they felt lack of privacy and humiliation to discuss various trends and gossips in the main group. Men didnot feel the need for a separate group as they are the main communicators in the main group.

One teacher told even though she is old and donot like gadgets, she remains a silent member of the group to read forward posts related to service matters like salary, retirement, pension, how to enter in spark. She also likes reading forwarded jokes , but not interested in conversation.

The major topics on which teachers discuss issues are subject related(mainly tests, study material), entering details in computer, scholarship, counselling children.

Whatsapp as a discussion forum, memory tool or storage?

With the advent of whatsapp, starting points for various discussions among teachers were as references to posts shared in the group. For example, if there was a forwarded message about change in syllabus and if certain discussions had happened related to it in the virtual group, in the realworld scenario, they started discussing from the point left. This made non whatsapp users very left out in the conversation.

While whatsapp acted mainly as a discussion forum, the disadvantage is that topics die out due to the time lag between conversation and sharing opinions as compared to realtime discussion. Teachers were of the opinion that there were fixed timings when they checked their whatsapp group and followed the activity; usually during the free periods, bus journey and at home. So, even if they had an opinion about previously discussed topic, they restrained from posting as the moment have passed, if the subject is of major importance to the user.

WhatsApp is used as a storage tool to store contacts, informative posts, SSLC results, instructions, notices,

meeting dates, photos etc.

Reliability of communication: whatsapp vs mathblog ;

Most of the teachers felt whatsapp as an unreliable mode of communication for important notices as one can't be sure if an important message has been delivered or seen by everybody. Where as mathblog is considered reliable. A teacher, Abdul Nasser says that when he ask a question others don't respond, they are busy, even if they are online. This makes him very embarassed and hence he prefer mathblog as it is certain that he will recieve one reply from the admin. Some teachers also miss out on the answers to their questions due to new posts that have arrived. So, whatsapp groups arenot an effective platform for reliable communication and discussion.

Mathblog for doubts, whatsapp for discussion?

Teachers sight various reasons why they prefer mathblog for doubt clearance. Major reason was the answers provided in the whatsapp groups were not right many times. There is no mechanism to regulate the quality of whatsapp messages while compared to mathblog. Not many teachers feel this way. they

consider all forwarded messages in the groups to be true without background check.

Coping mechanism during work

Teachers find it very difficult to cope with the increased time spend on whatsapp. This is one reason given by many whatsapp non users for not subscribing to it.

Cost of communication

Group very effective in cost management says many teachers including the it@school in charge, Mahesh sir. As he is in charge of delivering notices and instructions to entire school, he has to make sure it reaches each and every teacher. Earlier he used sms as the communication channel. Now he prefers whatsapp as he has to message only those teachers who haven't seen the message yet. This have reduced the cost of delivering notices to teachers.

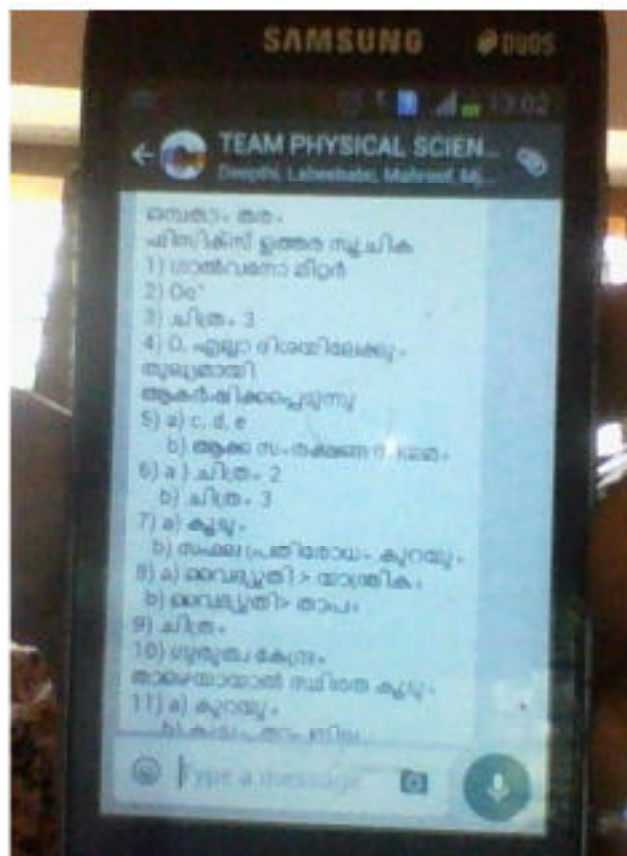
Group content

A fraction of teachers were of the opinion that informal discussions are only preferred in groups and formal discussions should be done in school, to avoid loosing the seriousness of the topic.

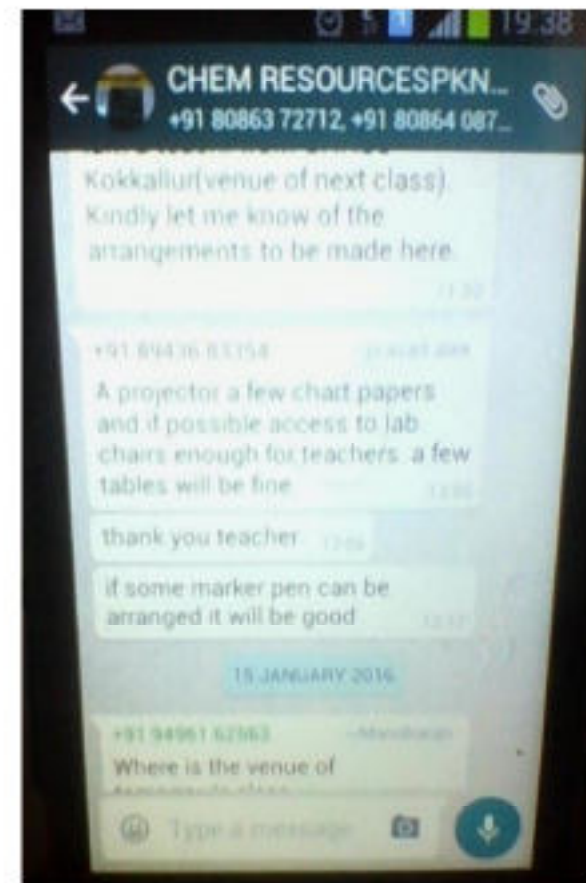
If informed through whatsapp teachers say they didn't see the message, if its some sort of appoint-



The mixed English and Malayalam language in chat is noticeable, leading to confusion and further texts.



Solution paper for correcting 9th standard papers is circulated through groups- User saves it for use. He need not go and check in mathblog for downloading. Accessible from everywhere as it is saved in his phone not laptop.



Venue of next class circulated in the group. The teacher from that school asks about the arrangements to be made. But repetition of the same question without looking at earlier clarification.

ment to keep which they dislike. This mainly happened in scheduling the special classes for 10th standard students in the early morning sessions.

WhatsApp has become like a networking bridge as teachers find their college mates in the new groups and hence it has made world of teaching smaller. Other important topics of consideration are privacy and personal matters, Less inhibitions on communication and friendships, Immediacy and expectations and Emotions and new feelings such as fears. A male teacher, Sharaf, narrated an event of suicide of his colleague as he accidentally posted some obscene videos in a group and he was complained to the police by the admin. Once posted the comment is there for ever. Due to this reason one cannot effectively change an opinion or answer given to a question.

Conflicts – 6/7 teachers told that whatsapp group communications lead to conflicts withingroup. 2 female members told that it make conflicts at the house due to less amount of time spend with the family.

There is a reduction in experienced based hierarchy that used to prevail in the schools and in teacher groupsin the cluster meetings after the advent of whatsapp.

Phase 2

Questionnaire survey

I further designed an offline questionnaire to explore the extent to which online communication and collaboration happens between teachers, but this time at a larger scale.

Context

There are a total of 83 entries from teachers of 5 schools from calicut district , 4 of them from peri urban region namely ,

Govt. higher secondary school, Koduvally (43), Govt vocational secondary school, koyilandi (5), Govt. secondary school, karuvanpoyil (13), KMO school, Koduvally(10) and one school from the city Silver hills higher secondary school (10).

Even though initially, I thought of going for a purposive sampling, as there were only a few non smart phone users among the teachers in these particular schools, I decided to randomly distribute the questionnaires. The questionnaires were personally handed over and I had to assist many of them for clearing the doubts and forcing them to reply to the open ended questions.

Questionnaire

Topic : Networking and collaboration among teachers through online networking platforms like facebook and whatsapp

1. Name of the teacher : <not mandatory > -----
2. Age : -----
3. Experience as teacher (no. of years) : -----
4. Subjects taught : -----
5. Classes taught : -----
6. Which are the areas in the job, in which you face difficulties and request for help ?(tick those applicable)

Subject or topic related – Tests, study material

Entering details on computer, scholarship

Developing your own knowledge base

Counseling children, student behavior

Any others or details, please mention -----
7. In such cases or if you have any doubts in the syllabus to be taught, how do you clear the doubt?

Ask another colleague

Refer to a book or manual

Refer internet
8. If you are asking another colleague, then what are the ways you do it ? (rate)

Ask directly when you meet	0	1	2	3	4
Call and ask	0	1	2	3	4
Message or e mail	0	1	2	3	4
Use social media – Whatsapp / facebook	0	1	2	3	4
9. Do you communicate with students using whatsapp or facebook ?

Yes	No	Whatsapp/facebook	No. of times (approx.)
-----	----	-------------------	------------------------

The questionnaire had a total of 29 questions. It starts out with introductory icebreaking questions. Next it proceeds to know the communication behaviour of teachers and the issues that they discuss and have doubts in.

10. Do you communicate with parents using whatsapp or facebook ?

Yes No Whatsapp/facebook No. of times (approx.)

11. What are the ways in which you communicate with teachers from schools other than yours?

Online presence

12. Do you use a smart phone ?

Yes No

13. What are the activities that you do using your smartphone other than calling and messaging ?(tick those applicable)

Whatsaap facebook chat email internet photo sharing drive games

Others -----

14. Which is the common way in which you access internet ?

Computer (school) Computer (home) Phone

15. Approximately how many hours do you spend in whatsapp and facebook daily?

Teaching and smart phone usage

16. Do you use whatsapp and facebook or any other online media for teaching or job related works /contacts/help/groups ?

Yes No

If yes answer the remaining questions-----

17. What are the online medias that you use for teaching or job related queries/contact/help ?

Whatsapp individual chat Whatsapp groups

Facebook chat Facebook groups

Mathblog comments

Google groups or hangouts

Skype calls

If you are a whatsapp user, answer the following-----

18. Please list down the names of(job/subject/school related) whatsapp groups you are member of ?

1.GHSS Koduvally for example

2.

3.

4.

Once it is known that the person is a smart phone user, his/her online presence is measured while in school and home. As it is already identified that Whatsapp is the major application among teachers, further questions are for whatsapp users, their activity and group behaviour.

19. Mention if you are a admin or manages any of this group?

20. How active are you in these groups ? (tick appropriate)

Very active (starts a discussion,puts posts/questions/shares)

Moderately active (reply to questions)

Neutral (Reads all the posts, reply only if prompted, happy newyear/onam etc)

Not active (opens the chat only very few times, when bored)

Not in groups

Others -----

21. If you fall in 'very active or moderately active' category, what prompts you to be so

22. If you are not active in the groups, what are the reasons for it ? For example, no time, no data pack etc

23. If you have a doubt to ask , what do you prefer ?

Individual chat group chat

24. How effective is whatsapp group for solving your genuine queries ?(tick appropriate)

Very effective

Good

Ok

Not good

Lots of issues

25. What according to you are the issues, with using whatsapp group for networking,collaboration or asking doubts ?

--

26. Do you prefer informal personal discussions in such groups ?

Yes No

If so, why ?

Results

Analysis

A descriptive analysis was done of the data received from various schools to come up with the following results.

Participants

Total number of teachers who answered the questionnaire were 82 out of which 22 are males and the rest female. This is in proportion to the gender ratio among teachers in Kerala primary schools. Kerala is known for the high percentage of female teachers in its workforce. Age : Ages of the teachers ranged from as small as 22 to 55 (retirement age). Out of the 82, 13 were in the age range of 20-30, 39 in 30-40, 25 in 40-50 and 5 above 50 years of age.

Subject taught : Out of 82, 24 taught languages especially English and a limited number in Malayalam, Hindi and Arabic.

Difficult areas in job

Out of the 69 teachers who answered, a vast majority of teachers (41) found difficulty in understanding and managing student behaviours to be the difficult problem along with others. But we can see that the

discussions and notices in WhatsApp groups are not related to these genres and mostly individual chats help in these.

24 teachers also found difficulty in subject related aspects and clear them with discussions with other teachers. Only 5 teachers gave importance to their own professional and educational improvement.

Apart from that, few teachers suggested lack of time to be the major difficulty in the area of job. This only suggests of their usage of time elsewhere other than jobs

Mode of doubt clearance

As a mode of doubt clearance, out of the 80 teachers answered, 75% prefer asking it to their colleague at work or in other schools. They also refer to books and teaching materials. Only a very less number of teachers refer to internet alone.

Apart from that, some teachers Google whatever doubts they have and spread these solutions in the groups.

Smartphone usage

Out of the 82 randomly selected individuals, 13 were non smart phone users, hence did not access the internet on phone or used WhatsApp. Whereas all the smart phone owners use WhatsApp. These 13 non users were exempted after an initial phase of analysis. All the non WhatsApp users except one were females.

Preference to informal discussions in groups

Out of the 62 who answered, a 70% do not prefer informal personal discussions in job or work related groups. But still there is 20 teachers who are fine with it and for them the interest and motivation factor to be in the group are these informal discussions.

Wastage of time

Out of the 63 teachers who answered the question, approximately 70% considered that WhatsApp is not wasting their valuable time.

Conclusion

Reduction of communication barriers

For the given Situation : If a person whom you don't like in real life, posts a question on a group, will you respond?

Out of the 65 users who answered, only 28 were ready to communicate with people they won't generally like to do, but through whatsapp, and 37 people would still not reply.

For the situation : Will you be okay to chat with teachers whom you haven't met before if you have a doubt to ask ?

Out of the 62 users who answered, 38 showed reluctance in chatting with strangers but a large number 24, will still do in times of necessity. Eventhough the percentage is higher this shows a reduction in communication barriers while using whatsapp.

The behaviour of teachers communicating for work were studied through qualitative analysis. Usage of whatsapp as a professional medium, more for communication than collaboration is very evident through the study. Whatsapp groups function as both formal and informal mediums of transaction between teachers, but the issues in usage can give various insights for adding specific design elements in instant messaging apps. The data obtained from the quantitative analysis can be further analysed as future work. Another study might be to compare the difference of user behaviours in groups between genders and between participants of urban and rural schools.

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	Name	Gender	Age	Experience	Subject	Classes taught	Difficulty areas in job	Mode of doubt clearance	Rate ways in which teachers clear doubts - Ask directly	Call and ask	Message and email	Whatsapp /Facebook
				yr. of exp.	Major subject	Subject class taught	Subject related /unrelated/other non/subject related help	ask teacher whenever /ask book /personal /ask friend	From, Landy, Zaveri, Pooja, Shree			
1	Aditya A	M	22	1	Maths	10	ask	ask				
2	Aditya B	M	22	1	Maths	10	ask	ask				
3	Aditya C	M	22	1	Maths	10	ask	ask				
4	Aditya D	M	22	1	Maths	10	ask	ask				
5	Aditya E	M	22	1	Maths	10	ask	ask				
6	Aditya F	M	22	1	Maths	10	ask	ask				
7	Aditya G	M	22	1	Maths	10	ask	ask				
8	Aditya H	M	22	1	Maths	10	ask	ask				
9	Aditya I	M	22	1	Maths	10	ask	ask				
10	Aditya J	M	22	1	Maths	10	ask	ask				
11	Aditya K	M	22	1	Maths	10	ask	ask				
12	Aditya L	M	22	1	Maths	10	ask	ask				
13	Aditya M	M	22	1	Maths	10	ask	ask				
14	Aditya N	M	22	1	Maths	10	ask	ask				
15	Aditya O	M	22	1	Maths	10	ask	ask				
16	Aditya P	M	22	1	Maths	10	ask	ask				
17	Aditya Q	M	22	1	Maths	10	ask	ask				
18	Aditya R	M	22	1	Maths	10	ask	ask				
19	Aditya S	M	22	1	Maths	10	ask	ask				
20	Aditya T	M	22	1	Maths	10	ask	ask				
21	Aditya U	M	22	1	Maths	10	ask	ask				
22	Aditya V	M	22	1	Maths	10	ask	ask				
23	Aditya W	M	22	1	Maths	10	ask	ask				
24	Aditya X	M	22	1	Maths	10	ask	ask				
25	Aditya Y	M	22	1	Maths	10	ask	ask				
26	Aditya Z	M	22	1	Maths	10	ask	ask				
27	Aditya AA	M	22	1	Maths	10	ask	ask				
28	Aditya AB	M	22	1	Maths	10	ask	ask				
29	Aditya AC	M	22	1	Maths	10	ask	ask				
30	Aditya AD	M	22	1	Maths	10	ask	ask				
31	Aditya AE	M	22	1	Maths	10	ask	ask				
32	Aditya AF	M	22	1	Maths	10	ask	ask				
33	Aditya AG	M	22	1	Maths	10	ask	ask				
34	Aditya AH	M	22	1	Maths	10	ask	ask				
35	Aditya AI	M	22	1	Maths	10	ask	ask				
36	Aditya AJ	M	22	1	Maths	10	ask	ask				
37	Aditya AK	M	22	1	Maths	10	ask	ask				
38	Aditya AL	M	22	1	Maths	10	ask	ask				
39	Aditya AM	M	22	1	Maths	10	ask	ask				
40	Aditya AN	M	22	1	Maths	10	ask	ask				
41	Aditya AO	M	22	1	Maths	10	ask	ask				
42	Aditya AP	M	22	1	Maths	10	ask	ask				
43	Aditya AQ	M	22	1	Maths	10	ask	ask				
44	Aditya AR	M	22	1	Maths	10	ask	ask				
45	Aditya AS	M	22	1	Maths	10	ask	ask				
46	Aditya AT	M	22	1	Maths	10	ask	ask				
47	Aditya AU	M	22	1	Maths	10	ask	ask				
48	Aditya AV	M	22	1	Maths	10	ask	ask				
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50	Aditya AX	M	22	1	Maths	10	ask	ask				
51	Aditya AY	M	22	1	Maths	10	ask	ask				
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69	Aditya BQ	M	22	1	Maths	10	ask	ask				
70	Aditya BR	M	22	1	Maths	10	ask	ask				
71	Aditya BS	M	22	1	Maths	10	ask	ask				
72	Aditya BT	M	22	1	Maths	10	ask	ask				
73	Aditya BU	M	22	1	Maths	10	ask	ask				
74	Aditya BV	M	22	1	Maths	10	ask	ask				
75	Aditya BW	M	22	1	Maths	10	ask	ask				
76	Aditya BX	M	22	1	Maths	10	ask	ask				
77	Aditya BY	M	22	1	Maths	10	ask	ask				
78	Aditya BZ	M	22	1	Maths	10	ask	ask				
79	Aditya CA	M	22	1	Maths	10	ask	ask				
80	Aditya CB	M	22	1	Maths	10	ask	ask				
81	Aditya CC	M	22	1	Maths	10	ask	ask				
82	Aditya CD	M	22	1	Maths	10	ask	ask				
83	Aditya CE	M	22	1	Maths	10	ask	ask				
84	Aditya CF	M	22	1	Maths	10	ask	ask				
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88	Aditya CJ	M	22	1	Maths	10	ask	ask				
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99	Aditya CU	M	22	1	Maths	10	ask	ask				
100	Aditya CV	M	22	1	Maths	10	ask	ask				

Communication with students through whatsapp	Communication with parents through whatsapp	Communication with teachers of other schools	smart phone usage	Mode of accessing internet			Daily whatsapp usage (home)	Daily whatsapp usage (school)	Usage of whatsapp for job	No. of whatsapp groups/jobs	Apps used - mathblog	Whatsapp chat(individual)
q1	q1	q1	q1	q14	q14	q14	q1	q1	q1	q1	q1	q1
yes/no	yes/no	yes/no of communication	yes/no	yes/no computer	yes/no smartphone	others	yes is less	yes is less	yes/no		yes/no	yes/no
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yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes				yes	yes	yes			
yes	yes	yes	yes				yes	yes	yes	1	yes	
yes	yes	yes	yes									

51	Shuja	F	45	22	Maths	10	b	a,b,c	0	4	0	0
52	Shidha	F	38	7	IED class	10	a,c	a,b,c	3	4	1	0
53	Sajna	F	37	3	Science	10	b	a,b	4	2	0	0
54	Saleema	F	36	4	Social Science	10	a,b,c,d	a,b,c	4	3	2	2
55	Manoj	M	32	7	Maths	10	d	c	4	1	1	4
56	shiji	F	38	3	Social Science	10	b	a,b,c	4	3	0	0
57	sindhu	F	44	10	malayalam	10		a,b,c	4	0	1	2
58	anvindulshan	M	50	25		7	b	a,b				
59	sindu	F	28	0.5	Malayalam	10		a,b,c	3	2	2	2
60	aishwarya vijayan	F	26	1	Science	11	d	a,b,c	4	4	0	0
61	fahima p	F	31	3	il	11	d	c	0	3	0	0
62	ranjith p k	M	37	8	science	12	d	a,b,c	4	0	0	4
63	Valsalan	M	45	16	economics	12	d	a,c	0	4	0	3
64	Mini	F	35	4	economics	12	d	a,c	4	0	0	0
65	Sudhakshina cha	F	39	5	Commerce	12		b,c				
66	Vijayan	M	50	25	Maths	12	d	c	2	0	0	0
67	Haritha	M	48	21	science	10	a	a,b,c	0	4	0	0
68	Firdous bhanu	F	44									
69	Anonymous	M	38	7	Civil	10						
70	Anil Kumar	M	35	5	ss	9	d	a,b,c				
71	Naveena	F	34	5	maths	10		a,b,c	4	4	0	0
72	Baby B	F	47	20	science	10	a,b,c,d	a,b,c		4	3	1
73	Ramal	F	48	27	maths	8	b	a,b,c	1	1	0	0
74	Beena T	F	42	11	science	10	d	a,b,c	4	4	0	0
75	ramesh	M	35	11	maths	10	b	c,d	4	1	1	1
76	sumeshbabu	M	38	5	english	10	b	b	0	4	1	0
77	Remya g nair	F	32	1	science	10	d	a,b,c	4	3	3	1
78	jayesree	F	52	12	hindi	10	b	a,b,c	4	3	0	0
79	fousiya t k	F	26	1	maths	9		b,c				
80	Abdul Nasser	M	40	17	English	10	d	a	4	1	0	2
81	Naseema K T	F	49	19	arabic	10	b	a	4	3	0	2
82	Shameena	F	38	10	il	10		c		4	0	0

no	no	phone call	yes		yes	0.5		no	3	yes	
no	no	call or message	yes	yes	yes			no	2	yes	
no	no	Call/whatsapp	yes		yes	0.5		yes	2		yes
no	no	Mobile phone call	yes	yes	yes	1		yes	2	yes	
no	no	whatsapp	yes	yes	yes	2		yes	8		yes
no	no	Call/whatsapp	yes		yes	0.5		yes	2		yes
no	no	meetings	yes		yes	1		yes	2		
no	no	school diary,pta,call	yes		yes	0.5		yes	3		
no	no	cluster meeting	yes		yes	2		no	2		
no	no	call	no	yes	yes						
no	no	call	yes		yes	1		yes	2		
yes	no		yes	yes	yes		1	no	2	yes	
no	no	call	yes		yes	1		yes	2		
no	no		no	yes							
no	no		no								
no	no	cluster meeting	yes	yes	yes	0.5		yes	4		
no	no	call/whatsapp	yes	yes	yes		0.5	yes	2	yes	yes
no	no		no								
no	no	meeting, phone call	yes	no	no	no		no		yes	
no	no	phone call	yes	yes	yes	0.5		yes	3	yes	
no	no	telephone	yes		yes	0.5		yes	4	yes	
no	no	phone, meeting	yes	no	no	no		no			
yes	yes	cluster meeting, party	yes	yes	yes	0.5		yes	4	yes	yes
no	no	message, email	yes	yes		2	1	yes	2		yes
no	no	call	yes		yes	0.5		yes	3		
no	no	phone	no								
no	no		no								
no	no	call	yes		yes	1		yes	4		
yes	no	telephone, direct talk	yes		yes	2		yes	4		yes
no	no		yes	yes	yes	1		no	3	yes	

