



1 Introduction

In 2020, NDRI, in collaboration with Nepal Telecommunication Authority (NTA) initiated an Automatic Call Tree (ACT) model to resume teaching and learning in public schools of every seven provinces of Nepal.

This project has provided a situational analysis of the state of education during the COVID-19 closures of schools and educational boards in Nepal.

The program incorporated an efficient utilization of ICT as a method of gaining knowledge, securing new information, and building capacities in public schools of Nepal.

OBJECTIVES

The main objective is to propose suitable ACT-based modalities on initiating the piloting of schools; student centric teaching and learning in context of COVID-19.

2.3 Missed Call Method

The students now have the teacher's phone number and the message/study contents.

If a student has any query, they make a missed call to the concerned teacher, and then the teacher makes a call to the student's number received in the missed call log separately and also uses conference call system for group call for establishing communication.

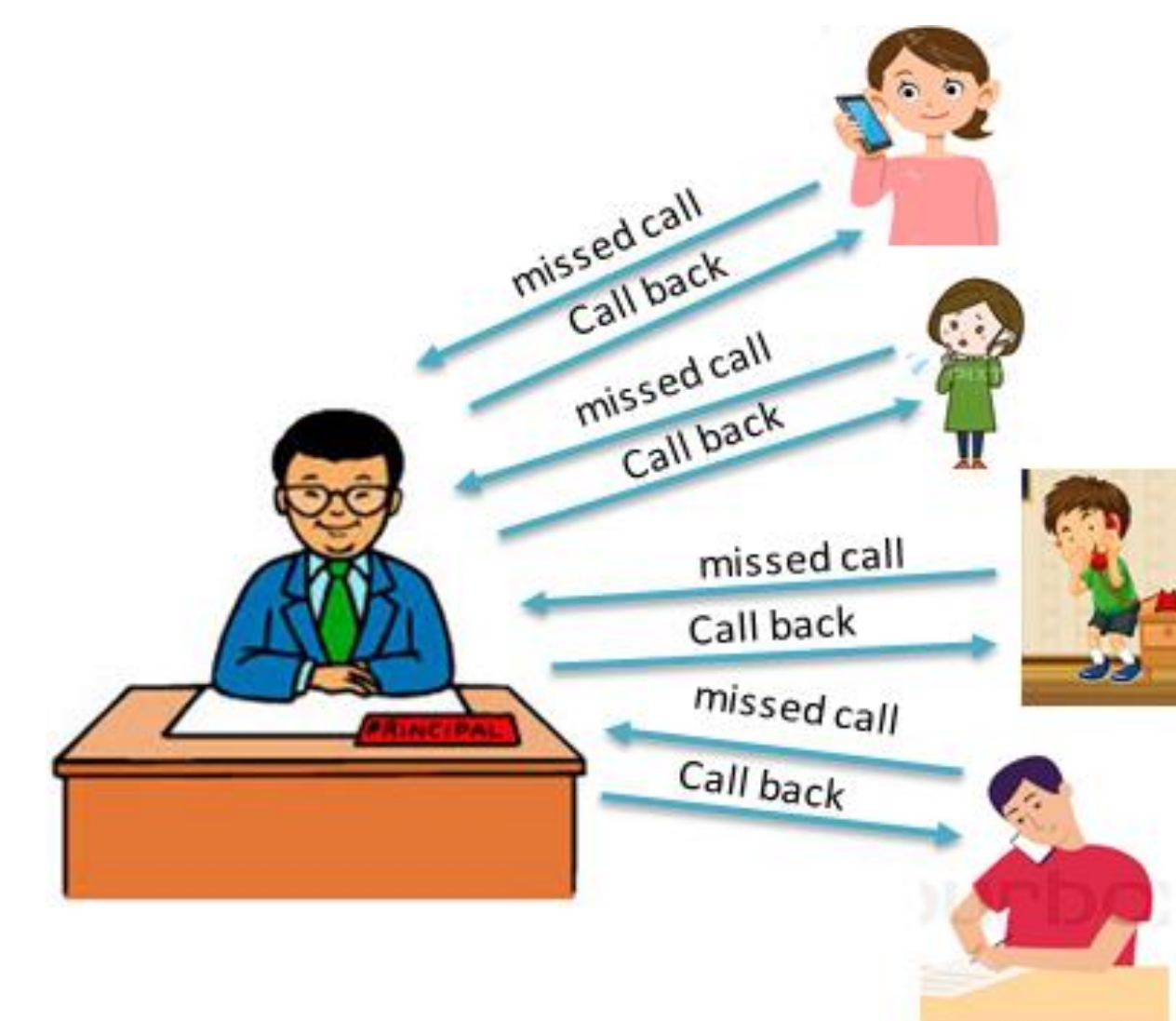


Figure 4: Missed Call Method

2.4 Database Management

Teacher checks, manages, and updates the database in a regular manner in order to keep track of activities that are being carried out.

The database includes the detailed information of the student, his/her phone number along with the alternate number, location, available timing, message transferred by the teacher, query raised by the students, assignments, short notices, news, etc.



Fig 5: Database Management

2.5 Monitoring

Anyone can monitor overall activities and check the progress of students including the social development ministry, school administration, or the local government.

Primarily the assigned NDRI team keeps track of activities that are being carried out on a daily basis and keeps regular updates communicating with head teachers and the lead teachers.

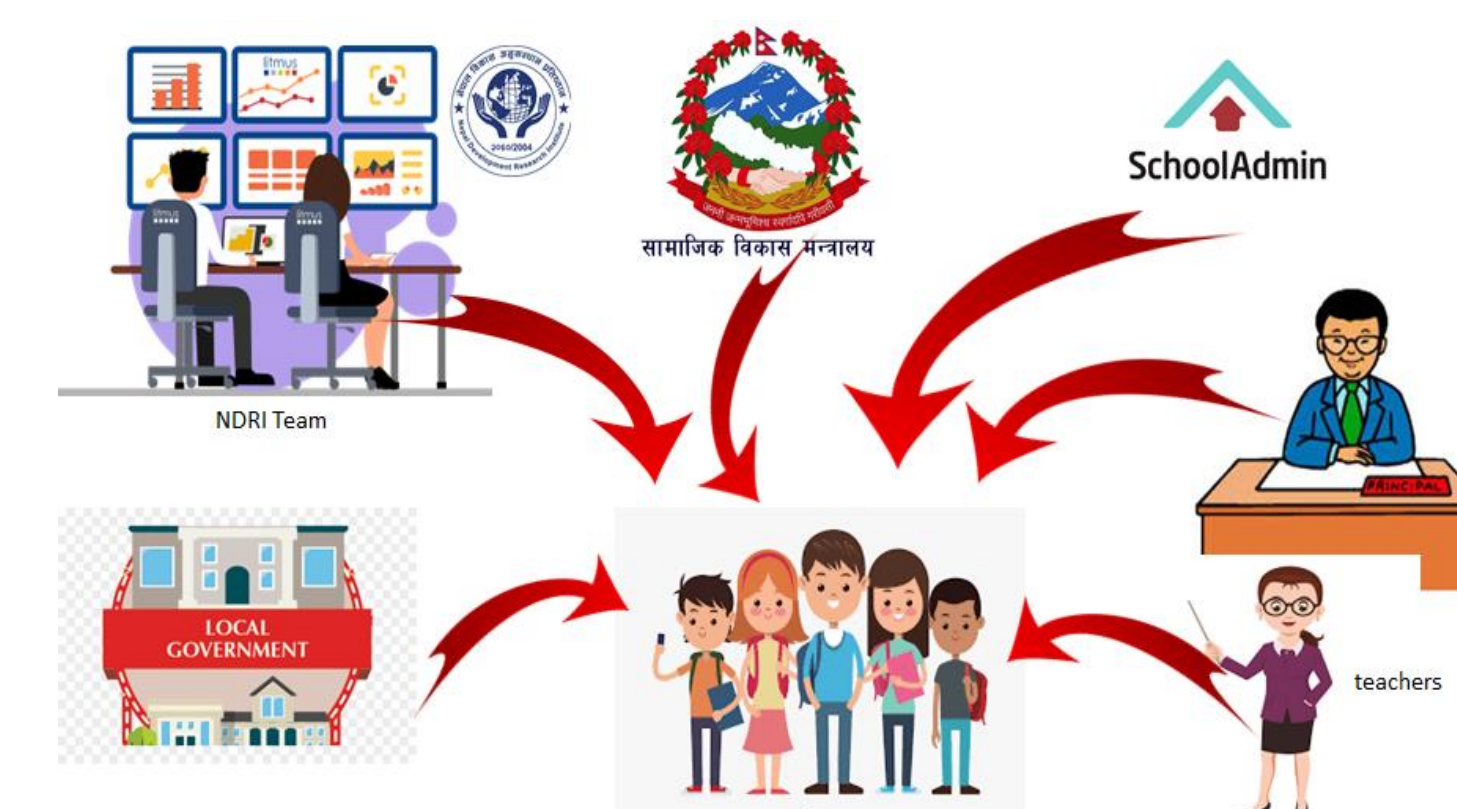


Fig 6: Monitoring

2 Materials and Methods

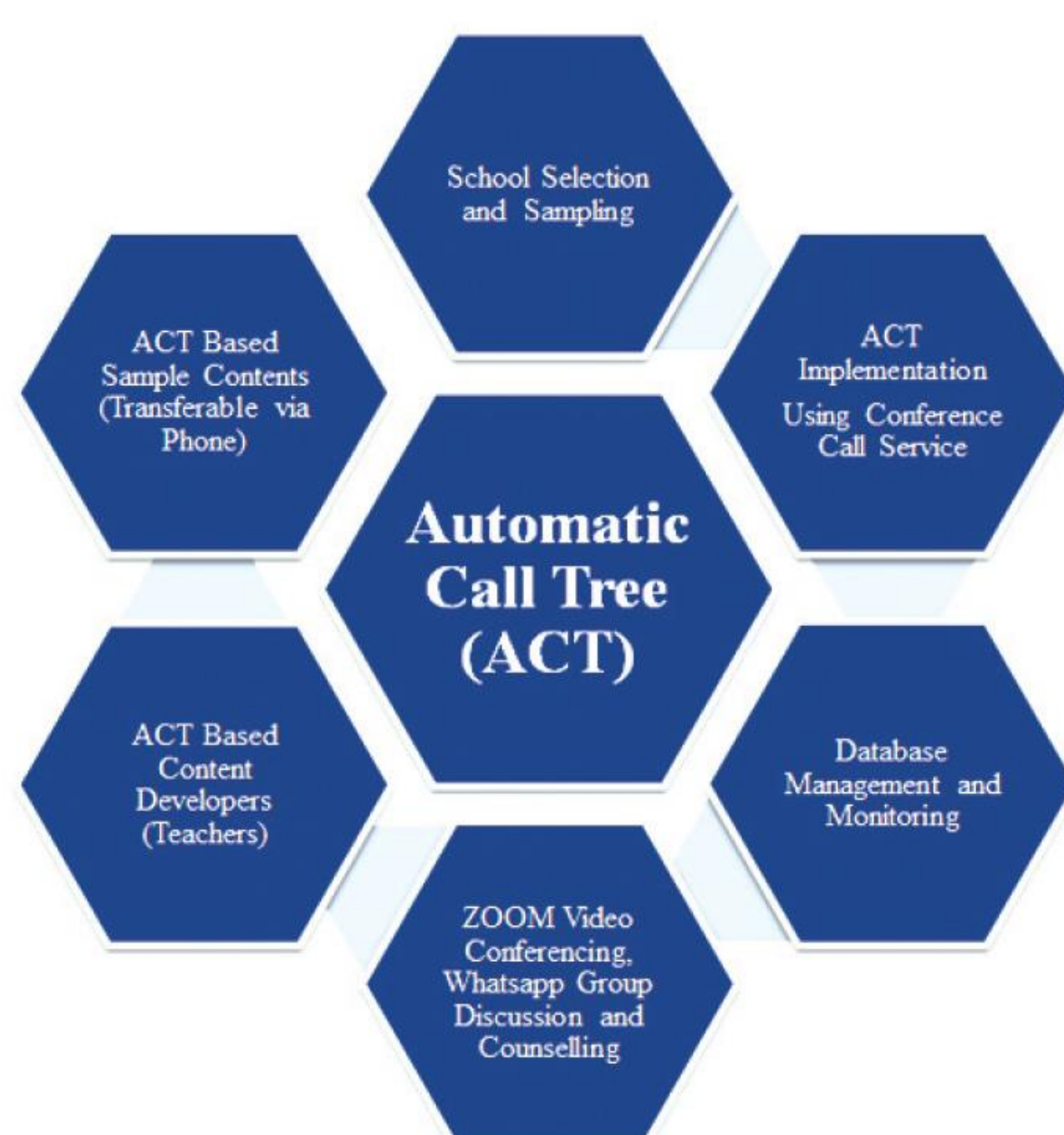


Figure 1: Proposed System

Table 1: Ecological-wise Sample Size Selection

Province	Ecological Zone	Rural	Urban	No. of Schools
Province 1	Mountain			
	Hill	3	2	5
	Terai			
Province 2	Terai	3	2	5
	Mountain			
	Hill	3	2	5
Gandaki	Terai			
	Mountain	3	2	5
	Hill			
Province 5	Terai	3	2	5
	Mountain			
	Hill	3	2	5
Karnali	Mountain	3	2	5
	Hill			
	Terai			
Sudurpashchim	Mountain	3	2	5
	Hill			
	Terai			
				35

Note: The urban is the sum of all three kinds of municipalities (Metropolitan city, Sub-Metropolitan city, and Municipality) whereas the rural strata are the total numbers of Rural municipalities.

This model has been implemented in the closed school due to the ongoing pandemic with the vision of establishing the lost connectivity among teachers and their concerned students to transfer reliable information and continue virtual/phone-based teaching and learning.

2.1 Automatic Call Tree (ACT)

Automatic Call Tree (ACT) is basically a tree-like structure adjoining the branches/children by the parent and further those branches/children acts as parent adjoining remaining branches/children in a group until all the members join that tree in a logical manner.

An automatic call tree model forms a tree of students in a class for establishing the connectivity among students and also between teachers and concerned students for communication purposes as shown in figure 2. This model is much more efficient and important at the time of disasters/pandemic like ongoing COVID-19 pandemic.

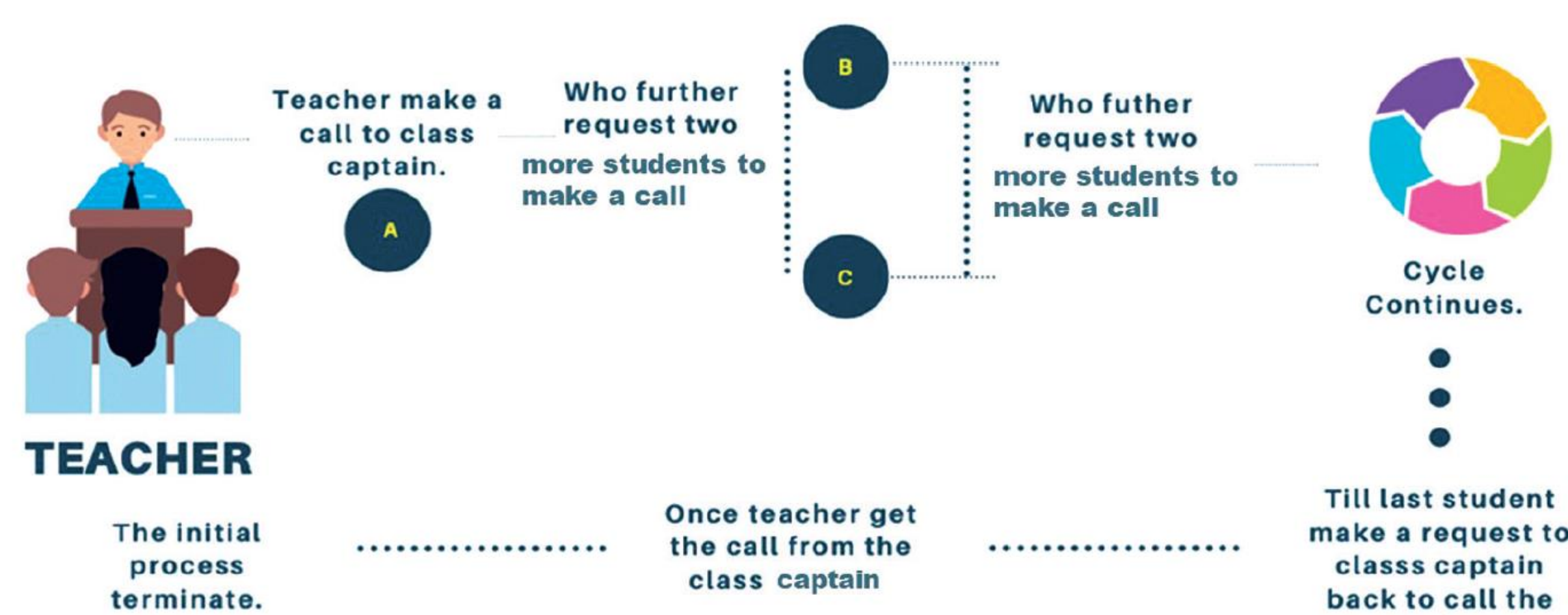


Figure 2: An illustrative figure of Automatic Call Tree (ACT)

2.2 Automatic Call Tree Formation

The teacher formulates a tree selecting 2-4 students both girl and boy from particular class and instruct them to transfer the teacher's phone number along with his/her message/study contents to transfer his/her remaining 2-4 selected classmates and further they instruct them to follow the same to remaining students in that class until all the students from that class receives the teacher's number and message/study contents and the cycle continues.

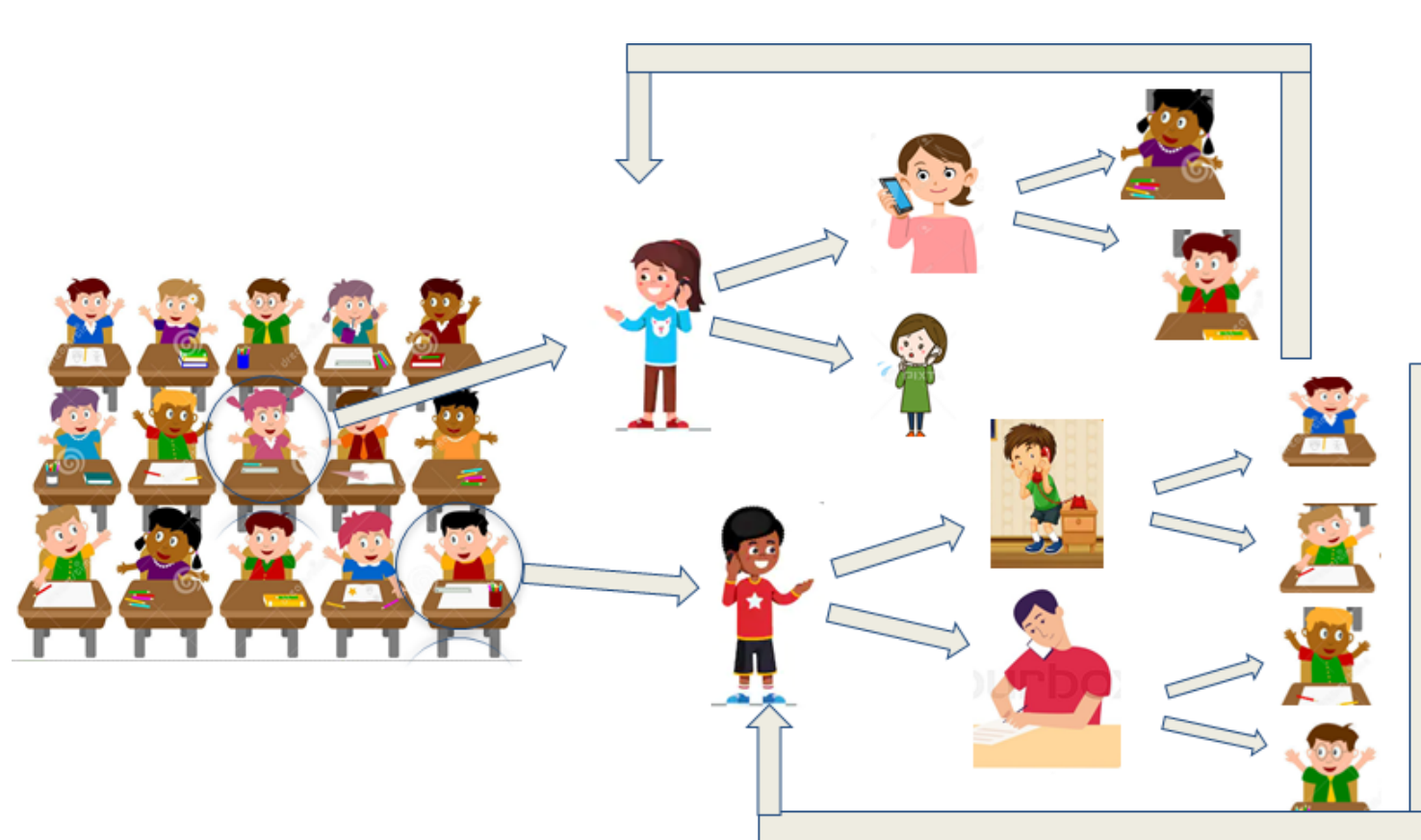


Figure 3: Automatic Call Tree Formation

3 Results and Discussion

- The virtual education, in particular the school education during COVID-19 school closures, is found inadequate, fragmented, and uncoordinated. The ACT-based modalities as a genuine strategy is introduced to combat the situation.
- Therefore, student-centric teaching and learning was started immediately in five public schools of every seven provinces via mobile phone access.
- This ACT approach made the communication and exchange of teaching and learning materials effective.

4 Conclusions and Recommendations

- Almost 85% of students from each school continued their education via mobile phones, and remaining 15% of students faced some challenges such as network issues, limited balance, family problems, etc.
- ACT based Education modality is found more effective in rural area in the context of crisis like COVID-19 pandemic.
- Adaptation of the conference call method by the participants (teachers as well as students) of 35 selected schools made the ACT approach more time-efficient.

Acknowledgement:

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References:

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