

# NICler

Reimagining Education through Technology

Edited by **KAVITA BARKAKOTY**

**N**ICler is an assessment tool developed by NIC Chhattisgarh that enables teachers to conduct Multiple Choice Question (MCQ) quizzes in a traditional classroom setting without electronic devices. Traditionally, capturing individual student answers in a classroom of 40 students has required either paper-based assessments or providing each student with an electronic device, which can be expensive. However, NICler uses ArUco markers and OpenCV to capture students' answers without electronic devices. Students are given NICler IDs, which are printouts of ArUco markers that can be positioned to answer MCQs (e.g., placing the marker with option selected at the top to select that answer).



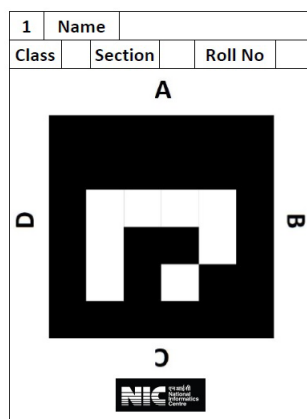
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NICler is an innovative assessment tool that has been designed to gamify learning and promote adaptive learning. This highly cost-effective tool is being widely adopted in over 30,000 schools across Chhattisgarh, and has proven to be a valuable addition to the education system. It has increased student engagement in the classroom and made learning more interactive.

The teacher only needs an Android smartphone with the NICler app to capture the answers from more than 20 feet away by identifying the marker's position. This system allows teachers to capture all students' answers in a matter of seconds, and the data is synced to the server.

## Objective

Primary goals that NICler aims to accomplish:

- Develop a cost-effective tool that can capture students' responses to MCQs
- Create a tool for teachers to use for formative assessment
- Enhance student engagement during assessments
- Reduce the amount of time teachers spend in grading papers and provide feedback to students

## What are NICler IDs?

NICler IDs consist of ArUco markers printed with the letters A, B, C, and D on all four sides. These IDs can be printed using a laser printer, pasted onto cardboard, and distributed to each student in a class once a year. Students can write their names on the cards and keep them in their bags.

During an MCQ test, students can respond by displaying their NICler ID in the appropriate orientation. Teachers can then identify the student's ID and their answer from a distance of up to 20 feet. This eliminates the need for manual correction and grading, making the assessment process more efficient.

A teacher can create three types of MCQ tests. In the first option, a quiz can be created from the central question bank by selecting class, subject

As Mission Director, Samagra Shiksha, I was actually searching for suitable tools for assessment. As soon as NIC has come out with NICler tool, we have adopted the tool in all our 30,000 schools for remediation. Our teachers are finding NICler very useful tool to increase the students' engagement in the class room. I am thankful to NIC, Chhattisgarh for their support.



**Dr. Narendra Kumar Dugga**  
Mission Director, Samgra Shiksha Abhiyan

and chapter. In the second option, teachers can create their own custom quizzes. A teacher can also conduct a quiz by simply displaying the questions through a projector. In case of no display device, a teacher can ask questions by either writing the questions on the blackboard or playing pre-recorded questions in audio format using a Bluetooth device. Finally in the third option, a standard assessment test can be given from the state board. After the test, a teacher can review individual student performance by taking previous performance into consideration. NICler can also be used for taking daily attendance of students by scanning their NICler IDs.

## Features

Following are the prominent features of NICler

- One-time mapping of students of a class with NICler IDs

▼ Fig 10.1: A teacher scanning Aruco Codes for student feedback



- Can generate customized quizzes for a selected class

- Helps teachers to review and assess individual student performance by taking previous performance into consideration

- Can be used for taking daily attendance

## Advantages

NICler provides following advantages over other assessment tools

- Economical as it costs just ₹ 40 for a forty student class for an year

- Increases the student engagement by gamifying the learning process

- Teacher's time is saved in correcting the answer sheets

- Captures lakhs of student-wise question-wise records on server without manually entering a single data item

- An individual learning profile is generated for each student to make adaptive teaching feasible

## Gamification

For centuries, we, as a society, have been rewarding those who achieve high rankings with prizes. While these prizes may motivate students who fall within the top ten percentile and have a shot at achieving a ranking, they do not have the same effect on below-average students who feel they have no chance of reaching that level. To address this issue, Chhattisgarh is conducting an experiment by offering gifts to even below-average students. After a student answers a question correctly, one lucky winner is randomly selected from the group of students who answered the question correctly to receive class applause. This initiative has proven successful in engaging all students in the classroom, as even below-average students now have an opportunity to receive a gift if they answer a question correctly.

NICler is best suited tool to our government schools as it is very economical to implement costing not more than Rs. 40 for a forty student class room. We are implementing it throughout the state and found teachers are very happy with the tool as it is saving their time in correction of the quiz. Students are found to be very engaged in the class room. I congratulate NIC team for innovating such a useful tool.



**Dr. S. Bharathi Dasan**  
Secretary, Department of School Education  
Chhattisgarh

## Limitations

- NICler works perfectly in a class of 40 students while the maximum limit of students is 75 in a class.

- Even though the network is not required while conducting the quiz, for downloading and uploading the results the internet is required.

- Currently, NICler is not available on the IOS platform.

## Awards

- Digital Technology Sabha 2022 Award for Innovative Assessment Tools

- CSI SIG e-Governance Award of Excellence 2022 for innovation in the field of education

- mBillionth Award 2022-23 for mobile innovation for sustainable social change

## Way Forward

NICler is designed as a product and can easily be implemented for any state. The state shall give school, student and teacher data through API and also should create question bank. NIC Chhattisgarh is ready to extend support for any state for implementing NICler.

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