Implementation of Quiz Academy in Govt. ICT Schools

(Guide Book)

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Freedom by Knowledge

Table of Content

1. Quality in Education- Need of Hour

Quality in education has received a great deal of attention in recent years. There is agreement that quality needs to be improved. Yet, there appears to be very little consensus on what improved quality really means in India and what factors contribute to its development. According to research, a child's participation in school and the amount that he or she learns is dependent on several factors such as familial influences, education, occupation and income.

1.1 Factors for positive impact:

Some tangible school-related factors which have a positive impact on quality are:

• Class size • Child-centered teaching-learning practices • Use of classroom relevant teaching-learning materials • Innovation & Creativity • Learning Environment	• Continuous assessment of students understanding • Teaching Methodology • Regular evaluation of teaching-learning practices • Continuous professional development for the teacher

Teaching methodology, Innovation, and Learning Environment is most important factors for quality education. Addressing these school-level factors can make a significant difference and they can positively impact attendance, retention and learning achievements. Going to school will be a motivating experience if strategies are implemented to stimulate inherent curiosity through active, participatory learning; motivation for self learning; and create a child-friendly, hygienic and aesthetically pleasing environment.

1.2 Traditional Pedagogy V/s Emerging Pedagogy

Aspect	Traditional Pedagogy	Emerging Pedagogy
Active	• Activities prescribed by teacher • Whole class instruction • Little variation in activities • Pace determined by the program	• Activities determined by learners • Small groups • Many different activities • Pace determined by learners
Collaborative	• Individual • Homogenous groups • Everyone for him/herself	• Working in teams • Heterogeneous groups • Supporting each other
Creative	• Reproductive learning • Apply known solutions to problems	• Productive learning • Find new solutions to problems
Integrative	• No link between theory and practice • Separate subjects • Discipline-based • Individual teachers	• Integrating theory and practice • Relations between subjects • Thematic • Teams of teachers
Evaluative	• Teacher-directed • Summative	•Student-directed • Diagnostic

2. Importance of Information & Communication Technology (ICT) in Quality Education

Information and communication technology (ICT) has the potential to create highly versatile education environments that can provide equal access to learners regardless of gender, geographic location, socio-economic or ethnic background, illness or disability, or any other circumstance that would normally hinder the provision of high-quality education.

Technology can make education systems more efficient by helping teachers and administrators streamline routine tasks and improve assessment and data collection. In the classroom, technology can be a powerful catalyst for pedagogical change, as students use technology to take a more active role in personalizing their own education, and teachers take on new roles as facilitators of knowledge rather than knowledge transmitters.

Technology also has the potential to transform education by extending the learning space beyond the four walls of a classroom. Although brick-and-mortar schools will continue to play a leading role in education over the coming decades, technology offers a variety of learning opportunities beyond the physical limits of school. With the current accelerated growth in mobile devices, we are already witnessing the emergence of flexible, open learning environments that enable contextual, real-time, interactive and personalized learning.

2.1   Benefits of Using ICT in Education

Individualization of learning: This means that people learn as individuals and not as a homogenous group. ICTs allow each individual to relate to the medium and its content.

Interactivity: Interactivity is the way in which a person can relate to the content, go forward and backward in the content, start at any point depending upon prior knowledge instead of always in a sequential way.

Low per unit cost: Per person, ICTs reduce the cost of education from very high to very low.

Distance and climate insensitive: It does not matter where you are, or how the weather is, you can still access and learn from ICTs.

Serve multiple teaching functions and diverse audiences: ICTs, especially the computer and Internet based can be useful in drill and practice; to help diagnose and solve problems, for accessing information and knowledge about various related themes.

High speed delivery, wide reach at low cost: There is instant delivery of information.

Uniform quality: If content is well produced and is of good quality, the same quality can be delivered to the rich and the poor, the urban and the rural equally and at the same low cost.

2.2   Approaches for use of ICT in Education

2.2.1   Learning About Computer & Internet

Learning about computers and the Internet focuses on developing technological literacy. It typically includes:

- Fundamentals: basic terms, concepts and operations

- Use of the keyboard and mouse

- Use of productivity tools such as word processing, spreadsheets, database etc.

- Use of research and collaboration tools such as search engines and email

- Developing an awareness of the social impact of technological change.

2.2.2   Learning with Computer & Internet

Learning with the technology means focusing on how the technology can be the means to learning ends across the curriculum. It includes:

- Presentation, demonstration, and the manipulation of data using productivity tools

- Use of curriculum-specific applications types such as educational games, drill and practice, simulations, tutorials, virtual laboratories, visualizations and graphical representations of abstract concepts etc.

- Use of information and resources on CD-ROM or online such as encyclopedia, interactive maps and atlases, electronic journals and other references.

2.2.3   Learning through Computer & Internet

Learning through computers and the Internet combines learning about them with learning with them. It involves learning the technological skills "just-in-time" or when the learner needs to learn them as he or she engages in a curriculum-related activity. For example, secondary school students who must present a report on the impact on their community of an increase in the price of oil for an Economics class may start doing research online, using spreadsheet and database programs to help organize and analyze the data they have collected, as well using a word processing application to prepare their written report.

After so many years of implementation of ICT in schools, still we are stagnate with first approach of developing technological literacy, now the time has come to proactively leverage ICT for learning as per second and third approach.

Due to lack of any engaging learning ecosystem and perceived limited use the majority of the labs are not functional on ground.

We propose QuizAcademy as an engaging learning ecosystem which helps us achieve objectives of all three approaches listed above.

3. Objectives - QuizAcadmey as Smart Class

Moinee Foundation's initiative to implement "QuizAcadmey as Smart Class" in Government Schools with ICT infrastructure is "*a mission to bring qualitative and accountable change to mass school education through technology & Quiz Based Learning System*".

3.1 Key Objectives:

KEY OBJECTIVES	Description
Self-Learning	Create & provide self-learning study material and interactive tools to students.
Smart-Class	Allowing teachers to use these interactive tools for effective teaching and online assignments.
Performance Benchmarking	Capturing quantitative data to create qualitative performance bench marking of Students, Teachers as well as school.
Remote Monitoring	Every activity by Student & Teachers will be captured online and can be remotely monitored on web.
Infrastructure Improvement	As a side effect, schools computer labs will get in good shape. Usage of Quiz Academy will confirm the functioning of lab.
Increased Scientific Temperament	Usage and practice on computer/tablets will drastically enhance the scientific temperament of Students, Teachers and Administrators.

3.2 Methodology & Execution Approach
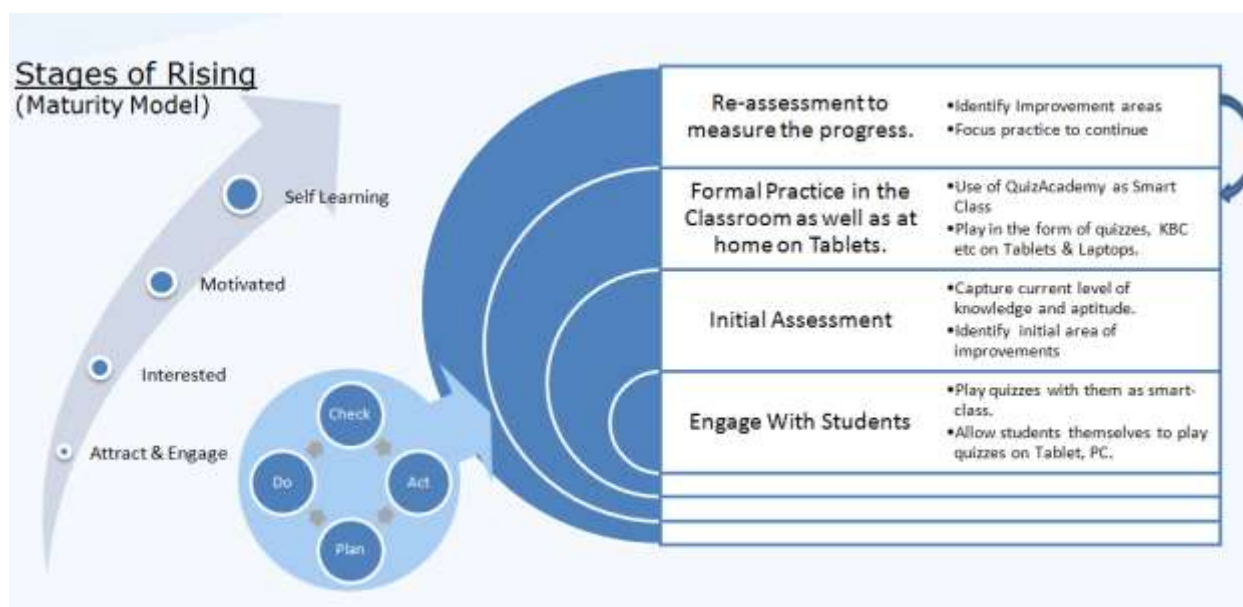
4. Benefits to Various Stakeholders

4.1   Benefits to Students

Students always look for interactive and simplified learning tool which create interest in study as well as help in permanent learning. Quiz Academy is anecdote based learning where every topic is learned through simple to complex quizzes depending on learning pace and adaptability of learner. Quiz Academy provides students:

- Online Quizzes for Learning and Assessment
- Performance feedback in real-time.
- Comparative analysis with Global Benchmark.
- Knowledge beyond course-curriculum
- Customized solutions for preparation of various competitive exams/ entrance tests/ campus recruitment assessments.
- Mobility and flexibility to learn anywhere anytime

4.2   Benefits to Teachers

In present era of information bombardment, it is a demanding task for teachers to create and maintain student's interest & concentration in a particular subject. Intrusive students with incomplete and disparaging knowledge need different pedagogical approach. Quiz Academy is an innovative tool which helps teachers through

- Create interest among students by simplified learning.
- Ease of administration with large number of students.
- Soft handling of Assessment and Assignment Process with potentially high reliability, validity, flexibility, mobility and manageability.
- Quick and indicative feedback on student's performance and teaching methodology.
- Saving valuable time, exhausted in paper setting, answer-sheet checking, result preparation etc.
- Timely progress updates to parents with complete record.
- Readily available quality content (in form of quizzes) contributed by Subject Matter Experts from various part of the world.
- Online forum for intellectual contribution through quizzes to global learning community.
- Scientific and rational inputs for career counseling and subject selection.

4.3   Benefits to Parents

Parents always expect their ward to devote valuable time in study rather than wasting it in unproductive activities. They search for a tool or technique which motivates their ward for self-learning. Their search completes with Quiz Academy which facilitates them with

- Child engagement and activity tracking
- Assigning quizzes (Home Work) through email, facebook, twitter etc.
- Performance vigilance and progress alerts.
- Learning trends and indications for subject selection.
- Focused approach for career-management.
- Discourage the parent's mindset of running with crowd (For career-selection)

4.4 Benefits to Educational Institutes:

Educational institutes (School/College/University/Coaching Classes) strive for global excellence in education through conventional and modern techniques. Imparting quality education is need of the hour but most of the institutes unable to deliver it. Quiz Academy can be a supportive tool for institutes in form of:

- Innovative Learning approach with ease and uniqueness.
- Smooth Management of Assignments, Summative and Formative Assessment.
- Creating Virtual School can radically increase the reach of education beyond Physical, Financial, Medical and Social boundaries.
- Intellectual and creative utilization of manpower (Specially Teachers) occupied in paper-setting, assessment, answer-sheet checking, result-preparation etc.
- Comprehensive data on performance of students with global benchmarking.
- Brand-Management tool to attract talented students for admission.
- Smooth handling of parents query with complete track-record.
- Saving of time, money and efforts incurred in Assignments and Assessments.
- Indicative feedback on individual performance of teachers.

4.5 Benefits to Administrators (DM/ CEO/ DEO/ EM/ ES):

Education has been the priority sector for most of the Governments and almost 4% of GDP is spent in education in India. Since the Education Budget is very high, there should be a mechanism for administrator (District Education Office/District Magistrate/Education Minister/Education Secretary etc.) to see the overall impact and outcome of all the efforts done by Government. Quiz Academy can be a very useful tool for:

- Optimum utilization of existing ICT infrastructure available in thousands of school in a state.
- Digital Empowerment of thousands of Students & Teachers.
- Circulating Specific Awareness Program and Govt. Schemes related to health, sanitary, women and child welfare, family-planning latest Laws & Rights with single update at Quiz Academy.
- Remote Monitoring of School/Block/District level activities through customized dashboard for different level of administration.
- Performance of Students/Teachers/ Principal through analysis of formal assessment results.
- Identifying problem area (Staff/Infrastructure etc) and setting right strategy.

5. Implementation Guidelines:

5.1 Prerequisites

To run Quiz Academy Smart Class in a govt. school, ICT lab should be in working state with its key infrastructure component as below:

- A dedicated room for computer lab with clear seating capacity of minimum 50 students.
- Working Computers (5-10)
- Working Projector or LED TV
- Working Internet (broadband/WiFi dongle)
- Working Power Backup (Generator or Solar Panels) for computer, projector and modem.

5.2 Setup

5.2.1 QuizAcademy Standard Setup

- Quiz Academy portal (quizacademy.org) and related offline apps are free and can be accessed directly from the web. (visit http://www.quizacademy.org/setup to get detailed instructions)
- To practice online, latest browser needs to be downloaded and installed on the computers specially to run quizacademy.org (Google Chrome is preferred browser)
- Every school should have a 'Master Email Id' used for teaching by all teachers. It will allow the school to capture details of their usage.
- Every student should get a valid email id created first and then enrolled on quizacademy.org. It will allow school to review every student's progress.

5.2.2 QuizAcademy Smart-Class Setup

- To setup QuizAcademy Smart-Class, all students and 'master email id' should be enrolled on quizacademy.org.
- Smart-Class hands-on training and setup is done by technical experts of QuizAcademy, which is a onetime job. Post training & setup, school teachers will able run it independently. (write to vijay.vyas@moinee.com for Smart Class training and setup support)
- To know more about advanced features of QuizAcademy.org visit the full demo video on youtube (www.youtube.com/watch?v=6qOUD4QX4Ts)

5.3 Trainings

5.3.1 Standard Orientation for Students and Teachers

- Students should be engaged by playing quizzes on quizacademy.org on the projector or LED as a group activity.
- A quick orientation and recap on basics like Computer parts, internet, browser, website, email, login etc.
- Once interest level is increased, ask students to play quizzes by themselves on various computer systems in the labs.
- Once students are comfortable navigating the courses and playing quizzes, make them explore other features on QuizAcademy e.g. StudyLinks, Search, My Report etc.
- Make the teacher also part of this hands-on practice to go through the same orientation.

- Guide teachers to enroll on QuizAcademy.org with schools email id which will be used as Master Email Id and will allow the tracking of teaching activities.
- Guide teachers to create email ids of every student and enroll on quizacademy.org. Once this is done, share login-password to every student (make them note it down) and ask them to login using the shared id for then and for future.

5.3.2 QuizAcademy Smart-Class Training

- Each school should designate minimum two teachers to be trained on usage of smart class.
- A centralized training to be conducted for selected school teachers which will include complete hands-on by each teacher.
- Before coming for training, each school should get specific instructions and templates to capture school details and student's details.
- Training will introduce teachers to Quiz Academy and its various usage & workflow for learning as student, managing virtual class, practice assignments, tests, reports etc. It will be a hands-on training.
- Technical experts from QuizAcademy team will setup virtual schools for each participating school with teachers assigned to it. These teachers will be able to operate smart class independently as per the training imparted.
- Post teacher's training, physical school verification should be conducted.

5.4 Execution & Monitoring

5.4.1 Class Setup

- Post teacher's training, physical school verification should be conducted.
- Once teacher's training, lab setup verification and student orientation is completed; the smart class setup should be completed for each class of the school. This can be done by trained school teachers without any external support.
- Teachers will ensure creating every students email id and enroll them on QuizAcademy.org
- After enrolling on QuizAcademy, teacher should add the student in respective virtual class.
- Once class setup is complete, teacher can start giving assignments and test to students on regular basis.
- Learning and assessment activities to be created and completed.

5.4.2 Regular Usage of lab by teachers & students

- This is very important aspect and should be institutionalized for each school by the district head.
- Minimum once in a week, one lecture/period of every subject in the course should be taught in the lab with the use of ICT infrastructure.
- Usage of the lab should be monitored remotely based on the usage data of teaching and learning.
- Usage of offline app should be synced on a weekly basis (every Saturday), which will help school reporting its usage for centralized reports.
- Based on usage level schools, teachers, students should be incentivized. Appropriate reward and recognition could be institutionalized at the district administration level.

5.4.3 Assignments to students

- Minimum one assignment per subject per month should be given to students
- The assignment can be of type practice or test as per the choice of subject teacher.

- For long vacation breaks, one subject level practice assignment should be given for each subject separately. This should be completed during the vacation from home or should be completed during the first week of school post vacation. This will enhance the revision of topics taught so far.
- Completion of assignment should be tracked by teacher to ensure 100% completion. The online assignment tracking feature is available to teachers, based on that they can identify the defaulter student to remind.

5.4.4 Assessments
- Quarterly online assessment should be conducted for each class.
- It will be a test assignment, which comprises questions of all subjects from syllabus taught till that date. Test will be created by experts and commonly used for all schools for districts.

5.4.5 District Olympiad
- A centralized Olympiad event will be planned every quarterly, where selected high performers from each school will come and take the Olympiad test in supervised environment.
- Appropriate planning, budgeting and institutionalization of reward and recognition to be done at district level.

5.5 Reports & Monitoring
- Reports and Monitoring plays most critical role in establishing any program on ground with high effectiveness. It also helps in understanding the trends & behavior of various stakeholders and helps us take corrective measures to improvise. Hence it is very important for QuizAcademy Smart-Class as well.
- Basic reports like student history, detailed test report, assignment tracking etc are inbuilt in the QuizAcademy.org and can be used directly from the web.
- Custom reports for district needs to be build & customized on need basis and technical experts from QuizAcademy can be engaged for this.
- Regular reporting should be done through a centralized team which can monitor, analyze and report the usage level based on the custom report views.
- Escalation modal and frequency of finding of usage report should be established for district for effective implementation of program.

5.6 Costs
- Use of quizacademy.org and related offline apps are freely available in the public and can be accessed directly via internet to consume as-is at no license cost. Refer the usage terms and conditions.
- Support for training and setup of Smart-Class will require onetime technical expert support from QuizAcademy which will be done on cost basis per the need.
- Any custom reports and dashboard will be created as needed or demanded by district administration. It will require onetime technical expert support from QuizAcademy which will be done on the cost basis.

5.7   Best Practices

Following are best practices, whose usage will vary based on the context and stage of learning/teaching. They should be adapted by individuals as per the suitability of his/her situation:

5.7.1   For Teaching

- Playing few random quizzes before teaching the chapter is usually impactful. This helps in creating a good context about the chapter and during teaching the chapter this awareness of context helps student understand things much better.
- While playing quizzes, students should be encouraged to find the answer from reference material like books, notes, atlas etc.
- Use StudyLinks section to refer books while explaining questions and other relevant study materials like images, simulations, video etc as available.
- Use quizzes to recap the chapter in the class and ensure that answers given by students are not just memorized but the reasoning behind the answers are understood.
- Many questions are designed to learn and are having pictures, additional information or suggestion for discussion. Teachers should encourage and catalyze enough discussion around it.
- For numerical questions in Math and Science, teacher should encourage students to solve it (preferably on blackboard) to ensure right answer is derived.

5.7.2   For Self Study

- Students should keep reference material with him or her while playing quizzes. Eg. Book, notes, Atlas etc.
- Students should be encouraged to find the answer from books, notes, atlas etc.
- Avoid just memorizing the answer but understand the reason as well as try to relate with what is known.
- For revision of a chapter, keep playing quizzes until 100% score is achieved continuously for 3 to 4 times.
- For practice, quizzes should be played with a friend instead of alone.

5.7.3   For Administration/Principal

- Use of computer lab for teaching should be included in Time-Table. Few of the ideas are:
    - Minimum one lecture for each subject per week can be in computer lab
    - Minimum 30 min per week self-learning session by students in computer lab
- Ensure every user uses the offline app with their email id registered with QuizAcademy and by the end of week it is synced with the server.
- Implement reward and recognition for best teachers

5.8   Terms & Conditions

- QuizAcademy is an open platform, available to everyone to use at no cost and should not be used for commercial purpose. For detailed terms & conditions please refer quizacademy.org

6. Case-Studies

Project Utkarsh is one of the widely acknowledged case-study of QuizAcademy's implementation in government secondary schools with ICT infrastructure. Visit following links to know more about Project Utkarsh.

- https://www.facebook.com/projectutkarsh
- http://www.projectutkarsh.org

7   Annexure 1: QuizAcademy (Learning Ecosystem) – Concept Note

QuizAcademy is an ecosystem for micro as well as self learning from anywhere and anytime. Key objective of this ecosystem is to ensure technology is no barrier and it can reach in the hands of students even in the remotest area of our country. It's core is learning through quizzes which makes the learning playful, engaging and useful to create interest in the subject matter.

Keeping in mind, Hindi is still a primary medium of learning in Rajasthan (as well in many part of India), Lot of content, in the form of quizzes is build in Hindi and ported on webportal, Mobile offline app as well as desktop offline app. Currently 9th and 10th Class are addressed thru the content which is continuously added, enhanced and collaborated with appropriate review process.

QuizAcademy also implements, a virtual class scenario which can be run, managed and participated from anywhere with a simple web access. It takes the learning experience and coordination to next level and allows us to monitor usage and derive various metrics remotely. With the help of virtual school, classes, custom quiz making, assignments & tests and remote monitoring, it allows a teacher to creatively explore the usage of QuizAcademy ecosystem to increate teaching and learning effectiveness in the class.

QuizAcademy can be used as Smart Class in the schools, libraries and community centers where a larger group/class can be engaged together. It can be achieved thru either very basic infrastructure like a computer, projector, tablets etc or thru sophisticated ICT infrastructure which is provided to many govt. schools by education departments.
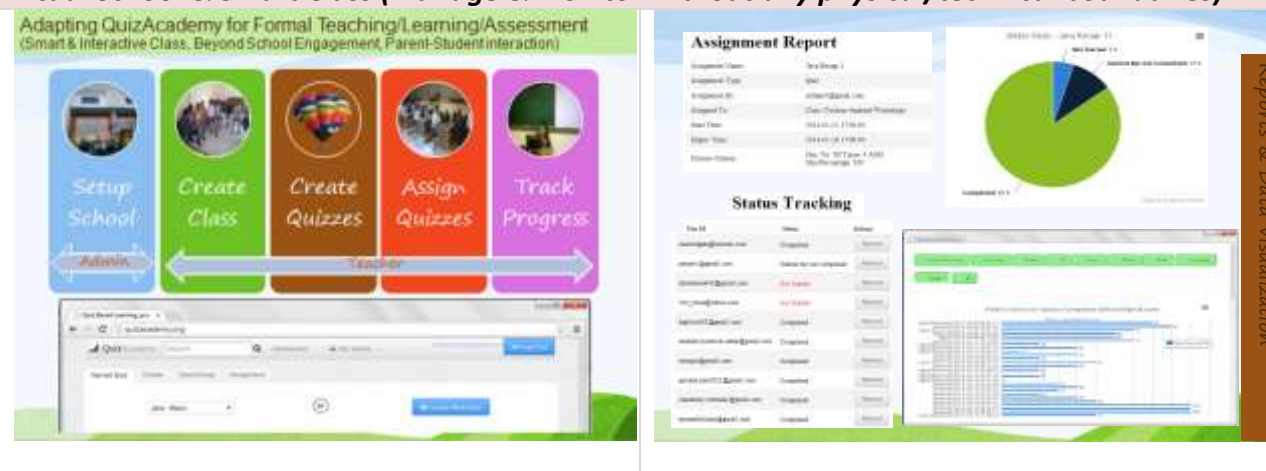
Various screen shots below will help in visualizing:

Online Global Platform for Knowledge Sharing (access from anywhere and from any device):
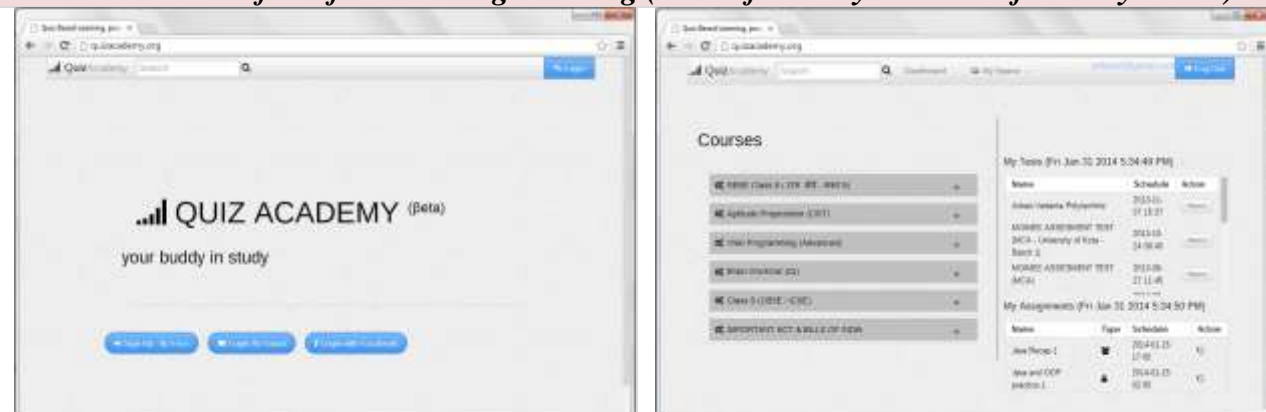
Question Sample (support any language, media and complex formulas):
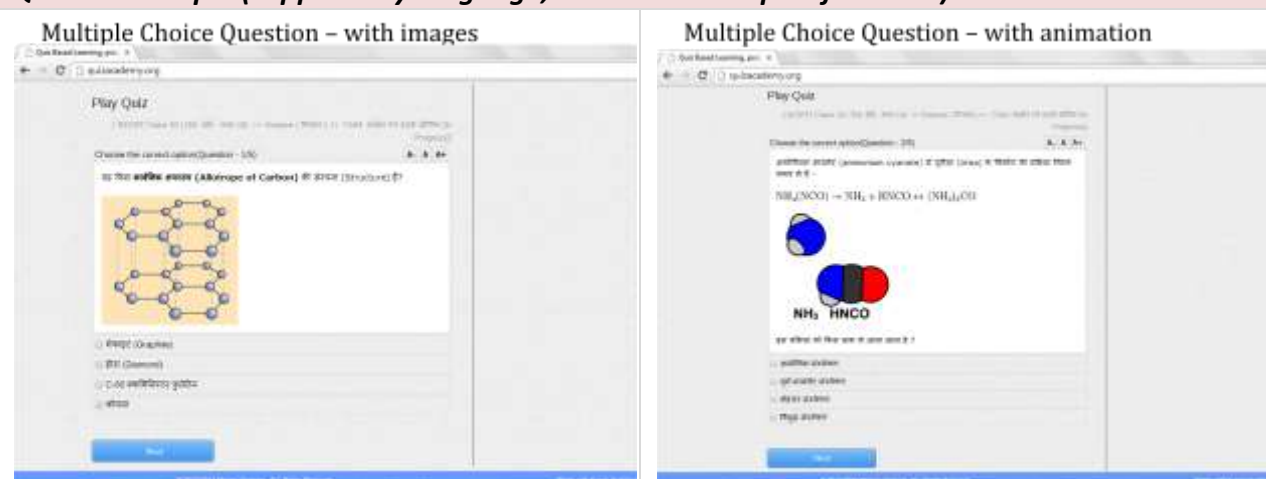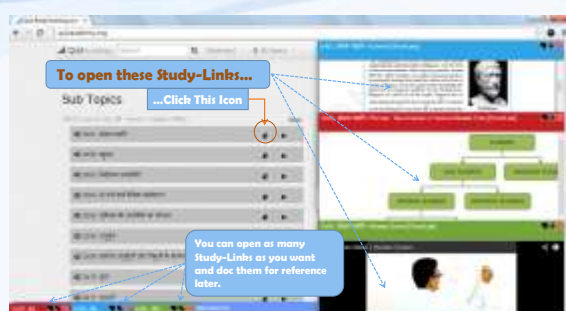

Vitual School & Smart Class (manage & monitor without any physical/technical boundaries):

Just not Quizzes but StudyLinks allows to learn thru e-books, video, images, Wikipedia, simulations etc):

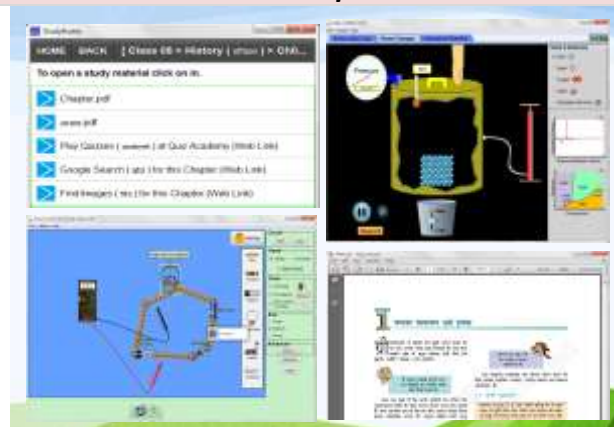Study-Links – learning more than just Quizzes

Reports & Data Visualization

StudyBuddy - App to host Offline books and experiments to use on desktop:

Offline Study Material – Study Buddy

Internet should not be show-stopper -Offline Mobile Apps for Android Tablet/Mobile and Windows desktop:

Offline Mobile & Tablet App
(to cross the internet barrier)

Offline Desktop App
(to cross the internet barrier)

8   Annexure 2: Measuring for program effectiveness and continue evaluation

For program goals, appropriate criteria from below list should be included for effective implementation:

Category	Measurements/Indicators
Usage of ICT Infrastructure	• No. of ICT labs fully functional • Usage of Smart Class • Formal Inclusion of ICT based learning in curriculum • No. of Quizzes played • No. of Online Assignments Given • No. of Students registered on Quiz-Academy • Students participation in learning and assessment activities • Performance Benchmarking Outcomes

Measurement of Learning outcomes	• Periodical Assessment comparison (by Third Party Assessment) of:
	  - ICT enabled school with Quiz-Academy SmartClass
	  - ICT enabled school without Quiz-Academy SmartClass
	  - School without ICT infrastructure
	• Predictive analysis of students' performance based on QuizAcademy usage data.
	• Analyse student performance change by comparative study of:
	  - Historical performance data of student
	  - Future performance data of student
	• Analyse school performance change by comparative study of:
	  - Historical performance data of school
	  - Future performance data of school
	• Reconciliation of Assessment-Performance with School Result
	• Third Party Assessment
	• Planned assessments and competitions (e.g. Math Olympiad, GK Olympiad etc)

Remote Monitoring	• Customized Dashboard for Administrator (Principal/DEO/DM) • Usage Tracking for Teaching as well as learning both separately • Usage Tracking of offline learning apps with sync feature. • Monitoring accessible from anywhere on web. • Visibility of student's reports to Student, teacher as well as parents. • Custom reporting as needed.
Teachers Empowerment	• No. of Teachers registered for smart-class management • No. of Custom Quizzes Created • No. of Assignments Given • Improved Scientific Temperament (based on usage) • Feedback Survey of Teachers
Capacity Building	• No. of Teachers Trained • No of teachers on leveraging ICT (now vs future) • No. of Teachers using quiz academy for smart-class management • No. of Online Assignment given by Teachers • Student's performance data in specific subject in exams • Contribution of Teachers in e-Content Development
Other Long-Term Effects (Micro Level & Macro Level)	• Change in enrolment of students in Govt. School • Attendance of Students in School • Variation in Drop-out percentage • Perception Study of Parents about Govt. School

Implementation by

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