

The CLIX Open Story Tool: Reflections on Design

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Abstract

This paper argues for the use of technological interventions to supplement traditional language learning modes that democratize the process of education and make learners appropriate learning tools to become producers of content in the process of acquiring language skills. It draws its argument from the CLIX Open Story Tool, developed by the Connected Learning Initiative (a collaboration between TISS, Mumbai; MIT, USA; and Tata Trusts, India), which enables students to focus on Task-Based Language Learning (TBLL) within the framework of Computer Assisted Language Learning (CALL) design for Second Language Acquisition (SLA).

Based on Constructionist paradigms of learning, the Open Story Tool allows students to create individualized narrative stories in the form of a slideshow-movie by incorporating images, generating captions and recording audio for each image that showcases their accomplishment of the assigned task. It also enables them to edit, reorder or delete slides, based on specific task prompts, thereby facilitating a variety of language use skills such as organization and summarization of ideas. Further, the tool permits use in either single user activities facilitating reflection or a pair or small group activities encouraging dialogic collaboration.

This paper, therefore, articulates the value of the Open Story Tool designed to support, simultaneously, open ended production by learners and invigorate close ended tasks as a pedagogical aid to language acquisition and reflection-based learning.

Keywords: Story, CALL, Open Story, Constructionism, TBLL, Tool Design, SLA.

The Conventional Classroom Mindset

The typical learning model followed around the world involves a unidirectional lecture from the teacher, the passive reading of the textbook and the mechanical-rote filling up of notebooks by students. This system denies students autonomy and variations in the learning processes and offers limited scope for reflective engagement with the language, which is a key aspect of language use. The drill method, introduced in the 1950s, continues to be used in Indian classrooms to teach language, as one memorizes grammar concepts such as conjugation of a verb or the formation structure of an adjective from a noun. The focus on practice is one reason why courses and books espousing the audio-lingual method of drill-based learning are popular even today.

However, a plethora of studies beginning with Noam Chomsky's 'Review of B.F. Skinner's *Verbal Behaviour*' [3] have proved that language acquisition is a dynamic, engaging process that involves para-language skills in addition to various sub-skills of Reading, Writing, Listening and Speaking (RWLS) that cannot be encapsulated in a narrow focus method of Receive, Recall and Reproduce.

Locating Task Based Language Learning (TBLL) in Second Language Acquisition (SLA)

In countries where students have to acquire second or third languages in a formal set-up, this receive and reproduce model is even more disconcerting since the first language (L1) structures often vary from the second language (L2) ones and there is no allowance for errors, even the 'developmental' ones [4], in the conventional classroom. Studies have established the need for better learning methodologies such as the task-based approach [9] that believes in engaging the students' faculties to complete a given task and in creating an environment of incidental learning, in the process.

Prabhu, in his Bangalore Project, proved that language learning can be facilitated by making students focus on achieving an end goal, a task that has been designed to draw out the students' inherent linguistic abilities. Ellis [6] defines a task as one which has pragmatic value that necessarily possesses a 'gap' that the students need to fill in using linguistic resources and that has an end result independent of linguistic outcomes.

This approach aligns with the Constructionist theory of learning [7] in which students acquire subject concepts as results of completing an authentic task that engages their cognitive problem solving faculties, enables them to reflect, and allows them to review their solutions or ideas in different contexts. Papert and Prabhu argue for the need to support the students in their endeavors to make them confident in attempting the task.

Computer Assisted Language Learning (CALL) in the Blended Approach

Papert went on to work on the famous *One Laptop per Child* initiative begun in 2005 propagating the use of technology to inculcate the practice of project-based learning in the classroom. A few proponents of SLA have embraced the method of digital technology

facilitating language learning. This theory has gained ground as the digital revolution has paved the way to 'level the playing field' and allow the privileged and the underprivileged access to the same kind of resources required for learning.

However, proponents also understand the need for human interaction since language use is primarily a social act of establishing and maintaining relationships, and values such as tolerance for others' viewpoints, helpfulness in aiding others, sharing ideas, and negotiating for mutually beneficial outcomes are some of the foci of communication. These aspects are better learned in the course of face-to-face (F2F) interactions. A combination of CALL and F2F learning environments lead to an enriching experience for students accessing the best of both modes of learning in the blended approach model of education. This approach is currently gaining ground around the world.

The CLIX Open Story Tool

The CLIX Open Story Tool is a digital aid to facilitate a computer-aided peer-learning environment using a task-based approach. It is a tool developed for the Connected Learning Initiative (CLIX), a collaborative effort by Tata Trusts (India), Massachusetts Institute of Technology (MA, USA), and Tata Institute of Social Sciences (India) to bring opportunities to students in the underserved regions of India using digital interventions and promoting Teacher Professional Development. The CLIX English team has identified production oriented activities as enablers of language production and assimilation that also act as scaffolds allowing students to produce content, based on their interests, at their individual levels of proficiency.

This tool is a creative/generative one with several variants in its design. This application lets students create and modify slideshows with images, captions, and audio. It is simpler and more focused than other presentation and movie-making software, despite its open-ended and flexible structure. The format of discrete slides each with its own sound byte and caption allows students to break their language production into bite-sized chunks that feel more accessible. At the same time, students who become very involved in their projects can tell longer-form stories and present in-depth ideas if they wish. Telling these stories requires students to use all four language modalities - reading, writing, listening, and speaking - and gives them the chance to produce language and express themselves in a creative way.

The Tool Design

The tool is a browser-based, locally hosted application. This is a necessity in the Indian government schooling system wherein internet connectivity is intermittent at best and non-existent in general.

The tool excites student imagination by allowing a variety of media production or selection sub-tasks. There are a variety of ways to add media. The students can upload a picture from a gallery or take one using a webcam. They can also upload an audio file or record their thoughts. Students can further explain their thoughts using text as each slide allows for captioning. The main interfaces used to create and edit slides are shown in figures 1 and 2.

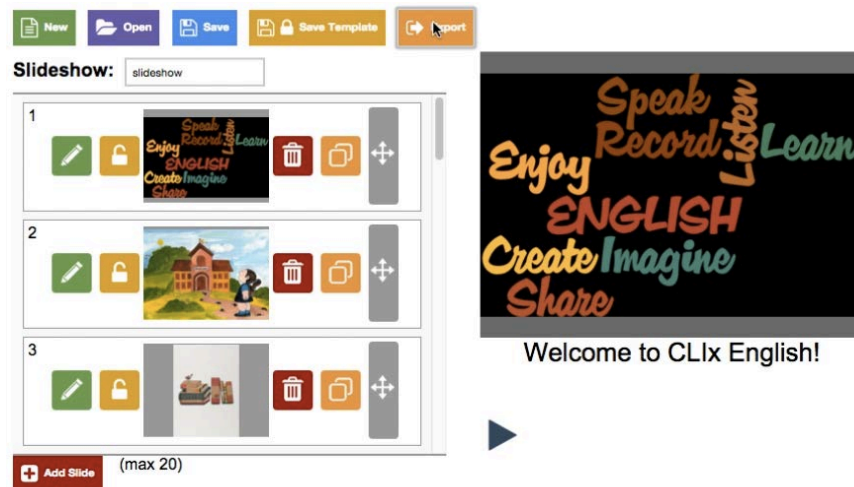


Figure 1. The Open Story slide management interface.

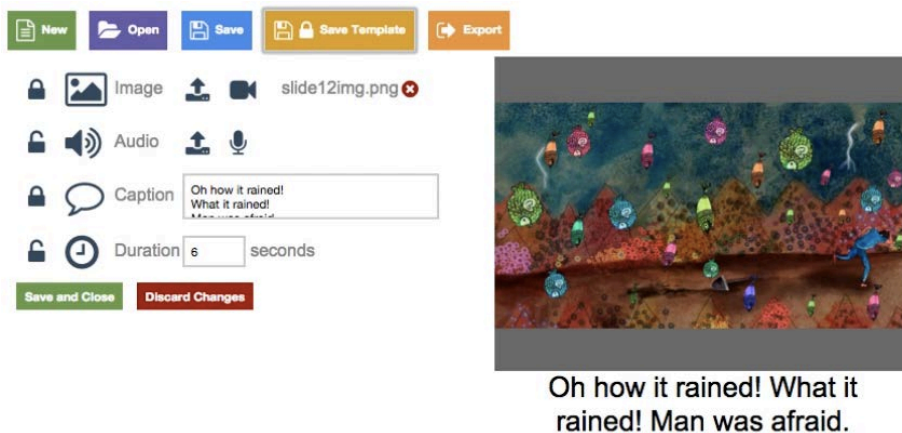


Figure 2. The Open Story slide editing interface.

The projects completed by the students are stored for later analysis by self, peers and/or experts to evaluate the students on various criteria such as novelty of an idea, the presentation style, the organization of thoughts, and the use of language.

Curriculum designers can also scaffold the experience by creating a slideshow template where certain fields are locked while others are meant to be filled in by students. This is one way to focus the activity on a specific skill while still letting each student group have a unique final product. Variants in this tool comprise slides with captions that act as hints towards a preconceived story, slides without captions that allow flexibility (and thereby openness) to generate any form of a tale, delete options from a set of slides that can be used to sharpen an existing story, and open ended tales that permit the option of creating multiple endings. Students,

in the process, are encouraged to turn creators, make their own stories and allow imaginative creativity to guide their engagement with language learning.

Open Story focuses on open-ended production. With a marked absence of ‘correct’ answers, this tool offers space to celebrate the innate talents and potential for self-expression in every child. Listening to other students’ stories within a collaborative learning environment is intended to foster tolerance and peer-learning without the learner being under the pressure to perform or reach an expected, pre-determined goal within a binding timeframe. Audio recording of stories provides additional opportunities for students to build self-confidence and take pride in their acts of production. This tool also holds potential to hone editing and narrative skills through tasks that require students to delete or choose from a given number of slides to generate a coherent presentation of ideas. Language learning goals include writing and speaking practice as well as critical thinking.

The Pedagogy

The CLIX English course is designed to cater to students with varying levels of language proficiency. The Open Story tool can be used to generate a variety of tasks that would allow for different experiences to be articulated and thus lends a voice to the ‘marginalized’. Furthermore, the tasks can be designed with more or less detailed scaffolding tailored to suit the students so that they may be able to complete the tasks in a given lesson. Tasks such as reading the given captions aloud and recording themselves would enable them to practice speaking skills with a focus on pronunciation, intonation, and the rate of speech. Since the tool incorporates editing features, the students would be able to hear themselves and re-record, if they wish to. This would inculcate the practice of self-reflection and self-correction in a non-threatening environment. These are values that CLIX ascribes to as well as ideal life skills to possess and develop.

Similarly, tasks that ask students to type the captions for a series of given slides would focus on vocabulary choice and sentence construction skills. A higher order task would engage the students by asking them to either ‘gap fill’ the given slides, provide an alternate ending or improvise the beginning of a given narrative. This task type would focus on the use of cohesive devices such as sequencing of ideas and using transitions to establish connections while also challenging the students’ imaginative capacities to build on an existing database. Tasks focusing on open-ended production, including creating images and uploading them on the slides, entering captions and recording audio clips for the slides, maximize student autonomy and self-expression. The CLIX English curriculum is designed to generate many such opportunities for the students to engage in articulating their ideas.

This tool is designed to primarily enable the 8th to 11th grade students of both English medium and the vernacular medium government schools to discover ways to express themselves using multimedia. To test the efficacy of the tool, trials were conducted in the CLIX selected states of Mizoram, Telangana and Chhattisgarh and Rajasthan with 9th graders. However, this paper refers to the gleanings the team derived from the extensive trials conducted in government run schools in Navi Mumbai, Maharashtra with students of the 7th grade in Marathi medium

schools. This was done to test if the tool could cater to a younger and perhaps less proficient group than the primary target users of the CLIX English course.

The Tool's Features

Image

The Open Story tool allows users to select images from a gallery given within the application or housed in the computer's local drive. The former allows the curriculum designer to restrict the images available for selection and elicit student creativity triggered by a resource crunch. This supports activities such as theme-based essay or story-creation, sequencing activities, selection from the data bank to identify if the said images can be used or should be discarded, awareness of multiple possibilities with limited options, and so on. These tasks encourage the assimilation of skills need to summarize, sequence or categorize ideas.

In one of the local field trials, students were given a story that had been created by the team and asked to delete slides that were redundant. The discussions between the pair of students at each terminal was precisely the aim of the activity as the students argued and negotiated with each other over the slides to be eliminated and the reasons for the same. Since the story had captions in English, the students used English terms even if a few of them resorted to their L1 in the excitement to articulate their points. The inherent focus on the use of words in the captions, the recognition of redundant repetitions, the need for transitions and the attempt to persuade the other to one's point of view combine bottom-up and top-down language sub-skills [2]. These requisite language skills were further enhanced when the students engaged in comparing one pair's rendition to the other pair's, since the ensuing discussion focused on the principles of composition and allowed them to discover, autonomously what traditional classrooms would have dictated as golden rules to be followed in a categorical manner.

The *Upload Image* functionality of the tool allows students to even create their own art projects and weave a narrative around these projects. This tool can even be used in a Science or a Mathematics class as an activity wherein students upload images of their experiments or their mathematical workings and present an argument or a procedure description and share these with their contemporaries. This makes the tool a wonderful application that focuses on articulation of thought in any domain rather than limit to one field. The CLIX project hopes to bring about an awareness of the common pathway of learning that all domains ultimately lead to in their own manner and pace.

Field testing has led to insights about language learning mechanisms not anticipated in the design of the tool. For instance, the picture bank stored in the gallery from which students were expected to upload images had names encoded in English and this facilitated a vocabulary expansion as students who had not prior known what a 'hyena' was, picked it up by noticing that the image of the hyena was self-titled thus. The tool, in this manner, facilitated vocabulary comprehension much as a pictorial glossary would do. This feature also acted as scaffolding for children with poor spelling skills and those who did not know what they could compose referred to the set of images of a category and created a narrative that was more a presentation of classification. The discussions generated therein such as whether a particular image belonged to

the category selected was also a language generative activity, and more importantly, it involved a higher-order reflection capacity building process.

Audio

The audio component of this tool has been found to be a favorite among students in every field trial conducted. The students, irrespective of their proficiency levels, find that they love listening to themselves articulating their thoughts and the facility that this tool provides to listen and re-record oneself allows them the safe space to ‘fail’ since they are able to correct themselves before others listen to their production. This is particularly important in the age group (13-16 year olds) that the CLIX project aims to cater to whose adolescent stage makes them particularly sensitive to feedback. Whether they are recording a provided caption or composing their own narration, the motivation to perfect their recording also results in a greater amount of speaking aloud than students would otherwise be engaged in.

The Open Story tool also allows students to upload existing audio clips from the music gallery or a similar file stored in the computer. This would allow students to explore oral narratives or sounds outside their classroom and bring these into their production, if they so desire. A task such as matching sounds of local fauna to the images they might draw or capture using a camera would enable them to share local knowledge at a global level in the event that these student creations can be shared online at a later stage.

The field trials also led to a design tweak as the time limit of 20 seconds per slide was found to be restrictive since each pair of students shared a mike they had to lean into and the shy ones also paused a lot before they spoke. It was decided through a series of experimentations and discussions that 40 seconds would give the pair ample time to record themselves and yet challenge them to complete articulating their thought or to divide their idea across two or more slides.

This feature further embraces the pedagogy of multilingualism, a desirable component of SLA as argued by Agnihotri [1] and enshrined in the Indian National Curriculum Framework (NCF) [8]. The students can encode their ideas in their own language(s) or use a combination of the target language (TL) along with their mother tongue (MT). This would encourage students not yet comfortable speaking entirely in English (or any TL) to nevertheless engage with and produce some content in the language they wish to acquire.

Text

The caption feature is also similar to the audio feature in that it restricts students to 140 characters per slide. Currently, most students with lower proficiency levels do not engage much in typing out their thoughts or restrict themselves to short phrases that explain the image. They are intimidated by having to spell at times. This has led to an idea for a future design feature of spell check to be built into the tool.

Furthermore, providing students a fairly acceptable length of captions per slide will enable students to draft their ideas in sentences enhancing their semantic abilities.

The character limitation further challenges proficient students to be succinct in articulating their ideas and leads to innovations in expressing themselves or in segregating their ideas into sub-points that could be presented in multiple slides.

Just as the audio recording feature accommodates multilingualism, so does this feature accept captions in any language codified in the Roman script. Indeed, in the field trials, students, without any prompting, used L1 vocabulary, in this case Hindi, in sentences constructed using the English grammar. One such example is “A *charmender* [*sic* the Hindi word for dinosaur] eat the mega stone and the *charmender* was very power(ful)”. This feature could be expanded to allow for indic typing in future iterations of the tool’s design.

Opportunities for Collaboration

In addition to the goals of fostering creativity and language production, the Open Story tool also presents a useful venue for student collaboration in a couple of key ways. Due to the ground realities of using technology in schools, students typically work in pairs (at minimum) on one computer. One of the reasons for designing Open Story and integrating it into the CLIX English curriculum is that it utilizes this student-computer ratio as an affordance. Students working together on a slideshow must discuss what story to tell, what images to use, and what the text should be. While some of this happens in their L1, they necessarily bring in vocabulary and concepts from the target language as well. Then, when they are ready to record their audio narration, the speaker has a built-in feedback mechanism in the form of a partner who is equally invested in making the slideshow and getting the language right. In this way, working in pairs enables students to reflect on their work in new ways while also providing an authentic task for communicative language practice.

In addition to the synchronous collaboration described above, Open Story also enables asynchronous collaboration in the form of remixing other users’ stories. The tool lets users export their slideshows in a format that can later be imported and continue to be worked on. These saved files can be shared via flash drives or simply by students swapping computers, if there is no school server or connectivity. Students can then add onto others’ stories, change the endings, fix any language mistakes they may find, and then re-share with other classmates. This type of remixing is now common in many creative internet communities and has been seen to foster deep learning, so it was important to enable that collaborative experience for CLIX students as well.

Assessment Tools

The tool design promotes self-reflection and self-review as the students can read what they have written, listen to their recordings or chosen clips and review the images uploaded when they play the slide they are working on or play the entire slideshow to preview their creation. If they notice areas they could improve upon, they can re-type or re-record as needed to create a piece that they can proudly share with their peers. The need to incubate the ‘growth mindset’ [5] and promote resilience by enabling students to use an ‘incremental’ approach in problem solving [10] guides the CLIX philosophy.

Peer dialogue is a core value in this initiative and students can share what they produce using this tool with their peers who would provide feedback that could guide the students in their next project. Since this exercise would be a reciprocative task the students would be naturally motivated to give constructive feedback.

The CLix English course would also periodically provide students with rubrics designed for specific tasks to help them recognize and provide insights on the core features necessary for the successful completion of a task. The students would, in the process of completing the assessment task, be able to discern by themselves the linguistic and structural elements that comprise a good media presentation of thought.

The Open Appeal: Future Directions

The Open Story tool is still in the early stages of development and user testing, and the team looks forward to improving the features and implementation in future iterations. Based on the underlying pedagogy as well as feedback that will continue to be gathered from students and teachers, these are some of the key directions the project is hoped to take:

- **Language scaffolding:** When children worked in pairs, they often came up with the idea they wanted to convey in Hindi and then set about translating it into English. Then they often asked the facilitators (CLix staff for the early user tests) for help with this challenge. In a school setting, even a teacher or facilitator may struggle with how to convey certain ideas in English, and the goal of the course is to empower students to produce language, even if it is not grammatically correct. For these reasons, additional scaffolds that help students feel confident expressing their ideas in English could be useful. These could take the form of tools within Open Story, or resources provided outside of the software, and may target vocabulary and grammar, or even simply provide encouragement.
- **Teacher training:** One of the unique challenges of the CLix curriculum is to create a classroom culture where collaboration and creativity are expected and encouraged. This will go a long way toward supporting students' use of Open Story in interesting and personalized ways, in turn leading to deeper learning of the language. Teacher professional development (TPD) is a venue in which these aspects of the tool can be emphasized and the teachers can be prepared with strategies to support students in both language acquisition and confidence. One key aspect of this tool that teachers will need to embrace is allowing students to pace themselves and to encourage the students to allow their imagination full reign. Another aspect that the TPD will have to focus on is the enhancement of the teachers' own creativity using images and sound and the use of technology. An introduction to visual arts appreciation, the relationship of image to text, the use of sound to create atmosphere and so on would need to be included in TPD to enable the teachers to both instruct their students to use the tool better and evaluate the student projects. Furthermore, this would enable teachers to appropriate the tool and design activities to facilitate understanding and use of content knowledge. Therefore, the

TPD experience is an important piece to be designed as a companion to the Open Story tool itself.

- **Assessment:** Since Open Story projects are open-ended, creative endeavors, these learning experiences cannot rely on traditional methods of assessment. As discussed above, self and peer-review are key components that can be incorporated into these activities to prompt reflection and even monitor growth. As students adopt these methods and the processes involved, including mentality shifts required in the classroom, will need to be studied to be better able to formalize these assessment methods and understand better the students' strengths and weaknesses.
- **Features and usability:** Some of the ways to build in scaffolds and assessments may involve building new features into the software itself. In addition, as more students use the tool, additional feature ideas will emerge that can support language production and learning in new ways. Usability is another area of the tool that has not been polished and needs some refining. For these reasons, feature work will continue to be important in the development of Open Story.

While these are the main areas of work for the Open Story tool and its implementation, the most important feature for the success of the tool is really the interplay of all these aspects. For any educational technology tool to have a significant impact, the pedagogy, implementation, assessment, and the tool itself must all support each other. Looking at all of these aspects as part of Open Story itself and considering them together will help the tool gain traction and adoption in the CLIX community.

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