

Designing for Children 2019

- Play and Learn

The CLlx Open Story Tool: A World of Interaction

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Abstract: Children learn best by doing some task, preferably in pairs or groups and the use of technology greatly aids the process (Dewey; Piaget; Papert). If these tasks are open-ended then the students are able to find something new in each attempt, understand the process as much as achieve the outcome and are able to learn along with others despite mixed abilities and interests (Shimada; Schoenfeld; Sawada). The paper highlights the multiple uses of the *Open Story Tool* (OST) developed keeping just these principles in mind by the Connected Learning Initiative (CLlx) – a collaboration seeded by Tata Trusts, India and led by TISS, Mumbai and MIT, USA. Developed with the initial intention of language teaching, the tool has developed into domain agnostic interactive that can be used in a variety of ways. The paper argues for the design and use of such applications.

Key words: *Constructivism, interaction, peer learning, reflection, learning tool, agnostic*

1. Introduction

Learning is a complex process, however, it is greatly aided when made an active learning environment is made available to children and they are allowed to construct their own knowledge (Bruner, 1960; Piaget 1970, Papert 1993). Ackerman (2001) too speaks of the need to focus on core issues “1. How to rethink education, 2-imagine new environments, and 3- put new tools, media, and technologies at the service of the growing child” (p.2). It is in this context that the Connected Learning Initiative (CLlx) was conceived in 2015 to enhance learning in the underserved spaces of Government high schools in India in four states: Chhattisgarh, Mizoram, Rajasthan and Telangana.

This award winning initiative is seeded by Tata Trusts and led by Tata Institute of Social Sciences (TISS), India and Massachusetts Institute of Technology (MIT), Cambridge, USA and developed and implemented with the help of a host of partner organisations across India. CLlx is an action research project that seeks to use technology as a leverage for learning

and focuses on a three-pronged approach of improving student learning, developing teachers' professional skills and advocating for policies that aid both teachers and students and change the education ecosystem for the better. The initiative offers 15 modules across the domains of Digital Literacy, English, Mathematics and Science.

This paper focuses on a specific learning tool developed under this project that is based on the pillars of peer learning, learning from mistakes and authentic or relevant learning.

2. The CLlx *Open Story Tool*

2.1 The Background Story

The CLlx *Open Story Tool* (OST) has been developed by the CLlx English team to enable students to be producers of content and not mere consumers and to provide them opportunities to practice autonomy, collaboration and communication. The CLlx English modules are designed to enhance students listening and speaking skills since textbook curricula in India focus largely on reading and writing skills. In fact, the National Curriculum Framework (NCF) (2005) and the Draft New Education Policy (NEP) (2019) both emphasise on the need to improve children's language skills in a holistic manner and prioritise listening and speaking skills. The CLlx English modules are designed to be textbook agonistic and instead mapped to proficiency levels in order to be able to deploy these modules across the country. The focus is on language learning and as Papert (1993) recommended on "learning to learn" rather than on rote-learning methods such as drill and practice. Since the target beneficiaries of the CLlx Modules are 8th and 9th standard students, learner autonomy is another focus area of the initiative. It is with these issues in mind that the CLlx *Open Story Tool* was conceptualised.

2.2 The Design Pedagogy

The CLlx *Open Story Tool* draws on Computer Assisted Language Learning (CALL) theories of learning and NS Prabhu's (1987) Task-based Language Learning (TBLL) approach to enable students to complete tasks based on their interests, their language and digital proficiency levels. The design leverages the lack of resources in most government schools that are given a mere 10 computers per school irrespective of student strength in a single class that at times exceeds 90. The students sit in pairs or groups around one computer and may use splitters for each of their headsets to be attached to the device. The activities encourage the students to discuss among themselves in order to submit answers or choose options or complete a task using the CLlx *Open Story Tool*. The CLlx English Modules are based on Carol Dweck's (2007) premise that the students need to be awarded

for effort and not merely for accuracy in order to cultivate a growth mindset. The modules, therefore, afford plenty of opportunities to review one's work and redo the task till the students feel satisfied. The other core aspect of the modules' design is to use multimedia as a tool for motivation and learning. The *CLix Open Story Tool* combines all these tenets of instructional design formulated by the CLix English team.

2.3. The CLix *Open Story Tool* Design

The *CLix Open Story Tool* is a standalone application that enables children to select images, record or select audio, write captions (in any language) and create a semblance of a slideshow-movie. The learners are allowed to edit their slides multiple times. Developed with the initial intention of language teaching, the tool has developed into domain agnostic interactive that can be used in a variety of ways to motivate children to produce their own understanding of a concept.

The interactivity for the users occurs at various levels in the tool. There is a possibility of locking some aspects of a slide such as its order, or an image pre-selected or a caption pre-written or an audio pre-recorded which can be used to challenge the learners by setting conditions for each slide that they have to adhere to while completing their task. Since image, audio and text are not limited to any domain, these open fields can be used to encourage students to move beyond the language-based activity of constructing or reproducing a story. The language learning domain could use this tool to teach such skills as storytelling and summarising, while the mathematics and science domains could use the tool to enable students to add their rationale to arrive at an answer or add or delete steps from a process to effectively arrive at solutions or elaborate on a process.

Furthermore, the tool allows the learners to add images and recordings they might have made using other applications such as Inkscape or Audacity or sourced from the internet allowing for interactivity between applications as well. Since this application can be used individually or in groups it also allows for group based interactions to take place and the learners can justify their choices to their peers and take into account their group mates' arguments amplifying the possibilities of interaction among the students and with the applications for the completion of a task.

The tool is available to download and use as an open resource at <https://clixoer.tiss.edu>. One can also use this interactive online on the same site. The simplicity of the design and the features of the tool are evident in the figures and their explanations that follow.

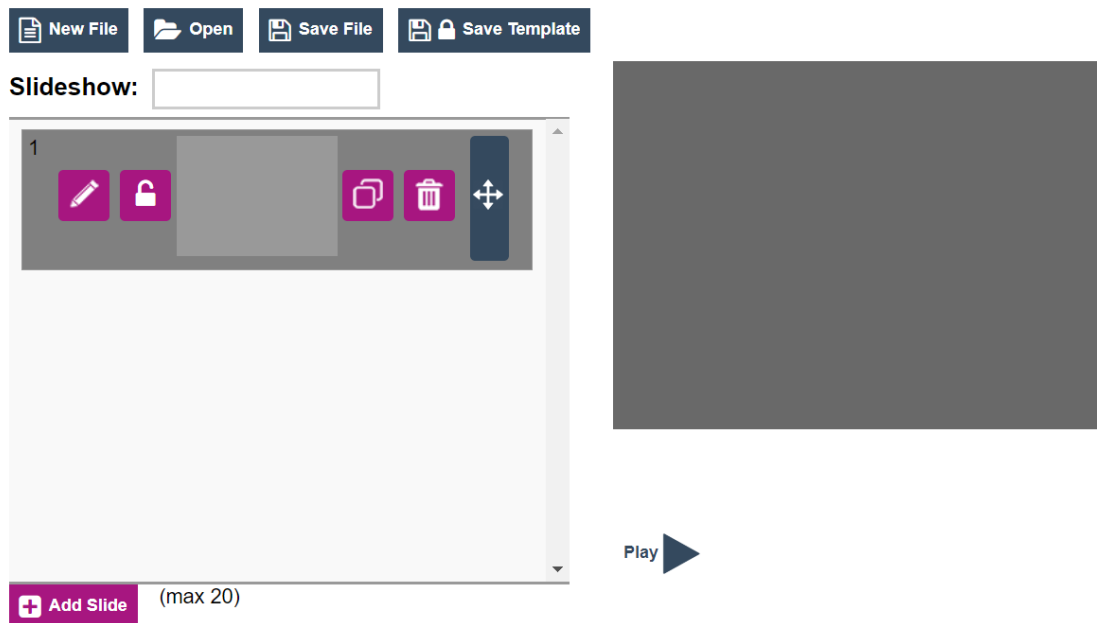


Figure 1. The Landing Page of the CLix *Open Story Tool*

The landing page of the tool allows one to create a new file, open an existing one stored in the computer, save the file created or modified and also allows one to save the file created as a template so that others cannot change certain aspects of the slides one has created and locked. The tool allows up to 20 slides to be created. The pencil icon represents the edit feature. The lock icon allows one to lock or keep unlocked the slide to disable or enable edits by future users of a saved template. The copy icon enables the entire slide with all its multi modal aspects to be copied. The button with the trash can icon is used to delete the concerned slide. The move icon enables the slide to be moved up or down to reorder the slides arrangement. The play icon enables the entire slideshow, beginning at the highlighted slide, to be played as a movie clip.

The CLix *Open Story Tool* allows one to name one's work. This feature enables the students to exercise their autonomy and they feel empowered in the act of naming their own creation. When one names an entity, one feels a sense of kinship. The act of naming is also an extremely creative one that also somehow makes the entity being named more knowable to not just others, but to oneself. The name carries in it the essence one has determined for the entity being named. The naming aspect is an essential feature of the tool.

Clicking on the pencil icon allows one to uncover the edit features of the individual slide.

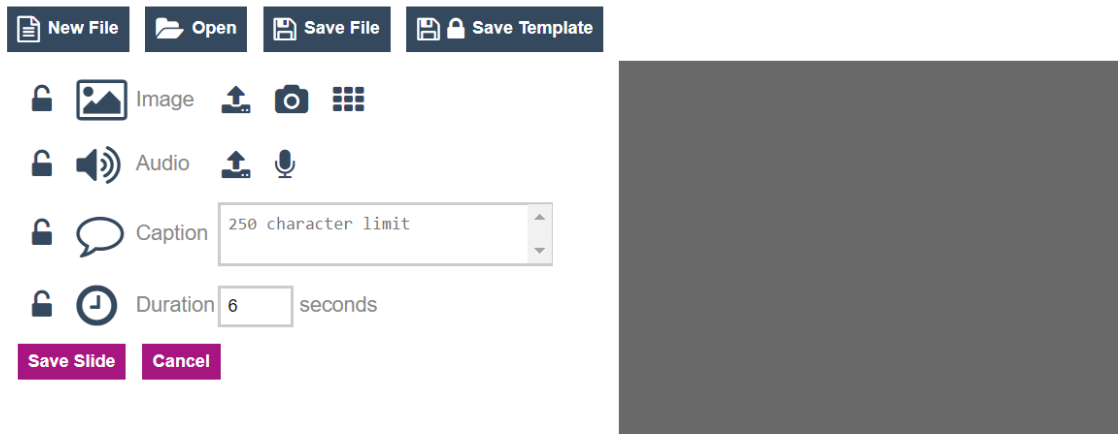


Figure 2. Edit Options for Each Slide

2.3.1 Image

The tool allows one to upload an image, take a picture if there is a camera on the device or select an image from the gallery. This enables students to get very creative and use their own drawings made in Inkscape or other applications or use screenshots and upload them onto the slide. The students can also bring the external world through their cameras, such as pictures of fauna, and build a narrative using these images.

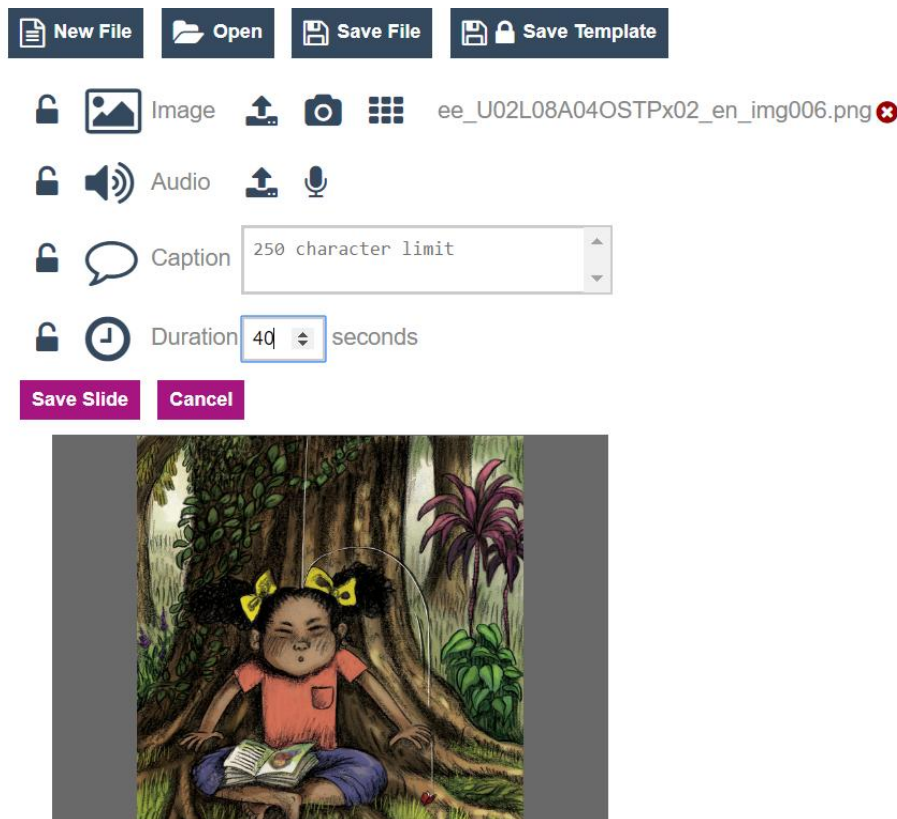


Figure 3. Image in the CLix *Open Story Tool*

On the other hand instructors can lock the image aspect of each slide as they upload pictures onto each slide and ask the students to name the image. This could be a Social Science activity for recognising famous places and could be used as a teaching or testing activity.

2.3.2 Audio

Students can choose to upload a pre-recorded audio or a clip of a recording such as a song. They can alternatively record themselves. The audio feature currently allows only 40 seconds. If the uploaded audio is longer than 40 seconds then the rest is automatically truncated. The tool does not allow editing of the audio. However, Audacity or such tools could be used to ensure that the clip is of the desired length and is the apt segment of the recording.

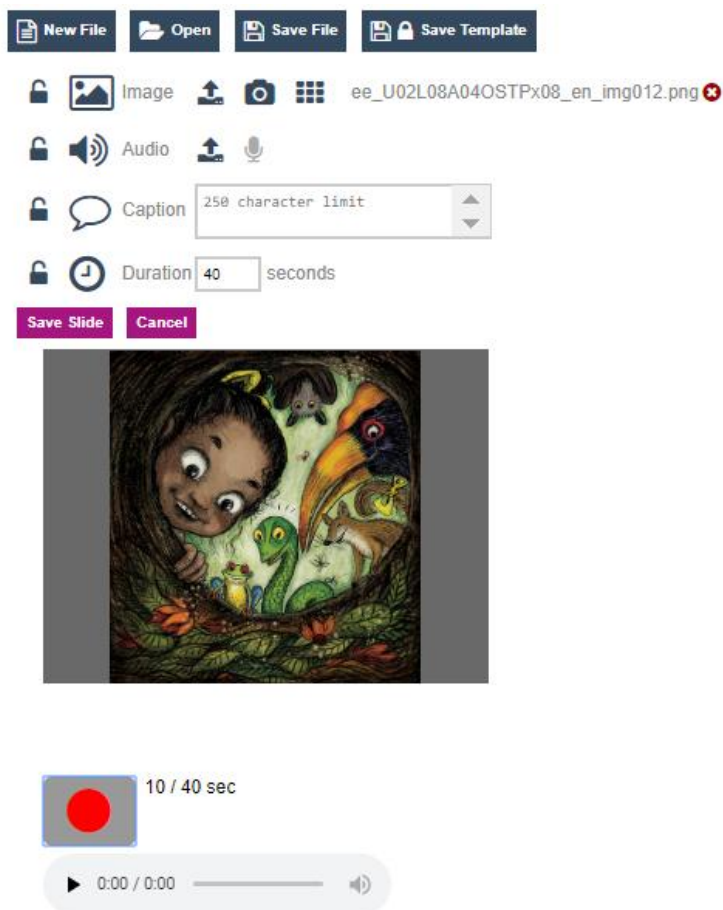


Figure 4. Audio in the CLix *Open Story Tool*

Instructors could also use this tool in a variety of ways. A simple language task could be to ask students to either type in or choose an image to match what they hear. Or they students could record a description of the image they see or read aloud the caption typed in. This could help them focus on rate of speech, intonation, pronunciation and so on.

Since they can also hear themselves and re-record themselves, the tool provides different speakers to hone their skills in a safe-space.

2.3.3 Text

There is a 250 character limit on the text that can be typed in. This character limit is both a challenge and an opportunity. On the one hand, those less proficient in writing or typing are not as intimidated to type and on the other those who are verbose have to be creative to succinctly express themselves. The text box enables one to type in any language the keyboard allows. One can also copy and paste into the textbox. Currently, however, features such as bold and italics are not enabled in the tool.

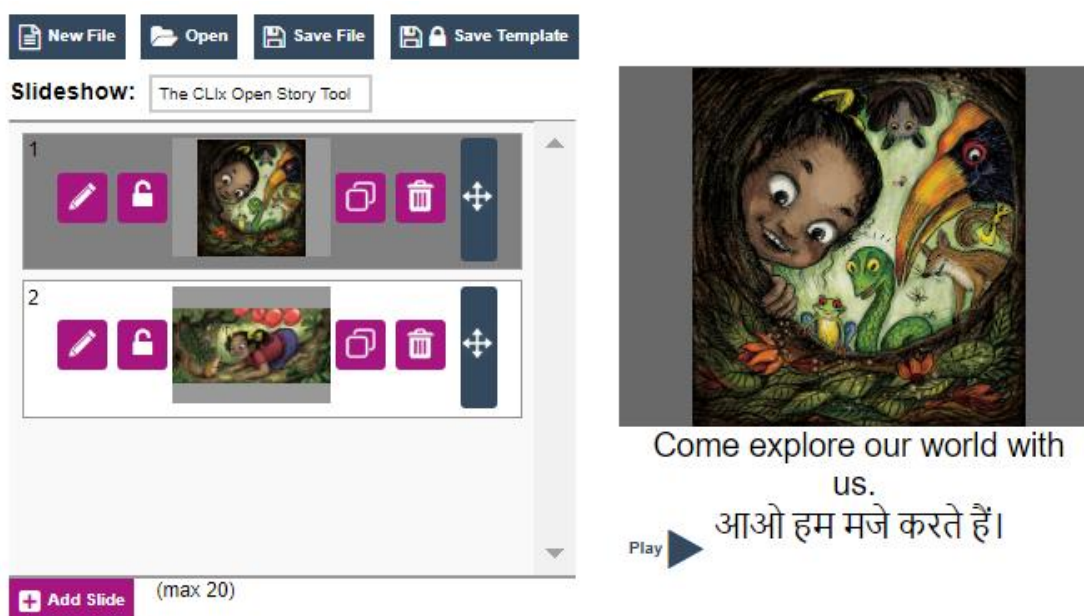


Figure 5. Text in the CLlx *Open Story Tool*

As indicated in 2.3.1 and 2.3.2 the range of activities that instructors can design is limited mainly by one's imagination. This feature could be used to make learning a multilingual exercise as recommended by most educationists in India and the NCF 2005 and Draft NEP 2019.

2.3.4 Duration

The duration that a slide, when played, should last on the screen is set to a default 6 seconds and is adjustable up to a maximum of 40 seconds. The tool automatically captures the length of the audio uploaded or recorded and accordingly auto-adjusts the slide duration.

2.3.5 Save Slide

The tool does not yet have an auto-save feature and users should take care to click on save slide and save file as applicable.

3. The CLlx *Open Story Tool*'s Appeal

The CLlx *Open Story Tool* is constructed to allow for a diverse range of tasks that allow students to choose their form of expression be it image, audio or text. The tool also enables students to exhibit different levels of creativity as they could engage in a reproduction of a story in a slide format, resequencing of slides or creating their own content. The tool allows task designers to build in scaffolds to suit learner levels thus accommodating teacher preferences. This open-ended tool is also flexible enough to be used to administer a cloze-test format such as 'match text and image' or 'record the caption'.

Since the tool allows for multiple iterations at each level, the opportunities for self-reflection, reworking the file to address feedback from peers and/or teachers make for an environment that is conducive to learning. The tool also affords users a chance to play a collaborative game of building on others' work by adding, editing or deleting slides. This focuses on key skills of the 21st century that is required in the classroom and to prepare oneself to be a global citizen. The tool leverages multimedia modality which is a key skill for the current generation of students to possess.

4. Conclusion

While the CLlx *Open Story Tool* was conceptualised as a tool aiding English language learning focusing on student creativity, it has evolved, through conscious design and multiple iterations as a result of robust field tests, as an interactive that is language, learning level and domain agnostic. It is also systems agnostic since it is a browser-based application. This open source tool can be and has been used for a range of purposes from encouraging creativity in students to collaborative learning and producing to individual task completion and reflection to discrete item assessment. Furthermore, teachers have used the tool to create their own teaching-learning materials.

The CLlx *Open Story Tool* is, true to its name, open to more changes. The tool could undergo further revisions in text features such as bold or italics being added. The image feature currently automatically resizes the selected image. In the future, users could be given more autonomy therein too. It is also limited to being opened in the same

application. An export feature allowing the final tool to be played on any video player would make it a more attractive tool.

However, despite its current limitations, the CLix *Open Story Tool* undeniably builds an argument for more innovations that enable collaborative, reflective, open-ended learning environments. Its popularity among the approximately 3000 CLix teachers and 60,000 students (CLix, 2019) who have used it makes a strong case for even further innovations and a wider dissemination and use of this tool itself. The tool both enables and is an open story.

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