Designing for Children
- With focus on 'Play + Learn'

Plezmo : Education platform for children to 'Learn through play'

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Abstract:

Introduction to technology education at a young age is gaining ground across schools in urban and semi urban India. Its benefits such as developing critical thinking & problem solving ability are well recognized. However, educators are not effectively equipped to teach subjects related to technology & computing. Both parents & educators face challenges to engage a child in a meaningful way such that it leads to their physical and mental development. The easiest way to engage children in learning is through creative approaches such as storytelling and play scenarios that hold their attention for longer duration. The paper describes how insights into children's behavior towards learning led to the design of Plezmo. Plezmo is an open-ended platform based on the principle of 'Learn through play'. It allows children to imagine & create play scenarios as good as their imagination.

Key words: Children, Students, STEAM Education, Learning, Technology, Craft, Coding, Play, Story

1. Introduction
Conventional methods of teaching involve learning the basics about the subjects like the grammar, formulae and theorems without any understanding of the purpose behind it. This discourages many young students resulting in aversion towards the subjects, especially the ones like mathematics, technology and computing. Unlike this, subjects like music, painting, sports etc… are experiential where the students learn by doing rather than just reading and memorizing. The process of learning these subjects is much more enjoyable which encourages the students to look forward to pursuing it.

Today technology is all pervading. The challenge before today's schoolteachers is to gain interest of students in subjects related to technology and computing. A better way to capture the children's interest is by allowing them to tinker around with technology without any pre-set goals. It can also be achieved by allowing them to explore different possibilities of what can be created with technology in a hands-on environment like a computer lab rather than reading about it in textbooks and whiteboards.

Plezmo is a simple and modern way to help children build on their imagination, play and innovate with technology. While they play with Plezmo, children develop essential soft skills like critical thinking & problem solving, effectively meeting the purpose behind teaching technology subjects.

2. Understanding children in context of learning

A team of designers of Plezmo with a researchers spent time with children while they studied at schools, played in their homes and with friends. Qualitative methods of research such as shadowing, observations, one-on-one interviews were used for user study. Insights about children's behavior and their approach towards learning formed the foundation in the design of Plezmo. Interactions with children helped build a holistic understanding about their attitude while they learn & play. It revealed nuances of typical traits about playing / studying together, sharing things with friends, ownership and their carefree attitude. Children look forward to receive recognition from friends, peers and the adults around them (parents, teachers etc...).

Discussion with parents and teachers threw light on the challenges such as holding child's attention during studies and instilling curiosity to complete the task. The easiest way to engage children in learning is through creative approaches such as storytelling and play scenarios that hold their attention for longer duration. To achieve it, process of learning has to be fun & interesting for the children.

Children find it easier to learn new concepts when the teaching methods are relatable, relevant to real life scenarios, and personally meaningful. They learn better if the teaching methods & devices are part of their day-to-day play. Children look forward to instant gratification from the activities they are involved. Appreciation of their achievements motivates children to pursue the games and/or studies further. In case of games, simplicity of use or methods to play is vital for their quick acceptance.

2. Plezmo design

2.1 Plezmo elements

Plezmo elements are designed in a way that they seamlessly integrate with any games children play, making them smarter and intelligent. Design of Plezmo is gender neutral, appealing to both girls & boys. Completely wireless and small to fit in the palms of children, Plezmo elements can easily be carried around and accommodated in play creations by children. With a built in magnet, Plezmo elements can be fixed to metal surfaces easily to create a play scenario. Robust construct of Plezmo elements takes care of rough use while play and its rounded cuboidal shape makes it safe to use for children. Easy to use without the need of any instructions, children are able to start using Plezmo instantly. Plezmo App allows children to personalize elements by changing it to their favorite colors giving them a unique identity.

2.2 Plezmo accessories

Design of Plezmo accessories makes it possible to be used with toys, Lego, craft, science projects or even use it as a wearable device. Accessories increase the use possibilities multifold making Plezmo a versatile platform.

2.3 Plezmo App

Plezmo App has a crucial role in Plezmo ecosystem. Plezmo elements connect with the Plezmo App via Bluetooth. Children are able to program the elements using simple visual programming blocks. Alert pop-ups & intuitive visual triggers help to avoid errors. Plezmo community feature allows kids to share their creations online and collaborate with other members of the Plezmo community. Gamification features like ratings & badges displayed on dashboard motivate kids to do more.

2.4 Plezmo story kits

Story kits are designed on corrugated sheets that can be folded to create various types of models. These models are made interactive by attaching Plezmo Elements into them and coding instruction through Plezmo App. Story kits enable children to start with DIY models for quick realization of ideas from their favorite topic of interest. This encourages children to further explore possibilities with Plezmo. Story kits are designed to have simple build steps and provide various physical shapes for use in projects of varied themes such as Arts, Music, Science, Real World System, Robotics etc…

3. Plezmo eco system figures

Figure.1 Plezmo Core Kit, Story kit with elements
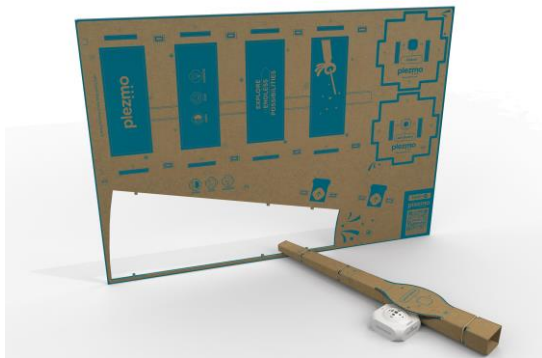

Figure.2 Charging pad, Plezmo elements

Figure.3 Plezmo Story Kit sheet

Figure.4 Plezmo App

Play Mode »

WEAR
Plezmo elements made wearable using the adapter

LEGO™
Plezmo adapter attaches the elements to Lego™

TOYS
Make regular toys smarter using Plezmo

DIY
Build your own interactive play scenarios using Plezmo

GAMIFY
Bring life to real world objects using Plezmo.

STORY KIT
Simple build steps and provide various shapes to your idea

Figure.5 Play mode

6. Conclusions

A deep understanding of children's mindset towards the process of learning forms the basis for the design of Plezmo ecosystem. It addresses key issues in the teaching and learning process, making it fun and playful. Plezmo is an effective tool for educators to teach technology and computing subjects to children. It empowers educators & parents in engaging children to add value to their learning experience.

Plezmo platform offers the necessary flexibility and versatility to ensure that children with varied set of interests such as science, music, arts, and sports can work on personally meaningful projects using technology to maximize their engagement and learning.

Plezmo is progressive to meet the expectations of age group ranging from 7 to 15 years. Design of Plezmo allows for both individual and group play, making it easy to adapt in the schools' curricula. Children and teachers alike have widely accepted Plezmo in schools across India and other countries.