Educational Things

A Big Idea…

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The Concept

Educational Things is a concept that is derived from "Internet of Things" but specific to Education. It is a collaborative environment for designing, engineering and developing a collection of technology things that are built by students to be used specifically for educational purposes and ideally benefit schools. Contributions will come across departments within the school, across schools and ultimately in partnership with large technology companies.

Educational Things is a "big idea" that will succeed because it is about execution, adding value and attracting technology industry partnership.

Examples

Educational Things can be physical deliverables of things that add value to teachers on a daily basis while working or they can be things that they use in a classroom or they can be the construct for a classroom. All will be built and delivered with the end goal of expanding usage through execution and innovation.

- **CheckIn-CheckOut Manager** – A simple barcode or chip app for checking in and checking out students/staff for events and other things. For example, Lavatory CheckIn-CheckOut.
- **Activity Sensors** – Sensors to monitor activity and movement. With machine learning modules to trigger abnormal activities. For example, movement on football field at night.
- **Test/Study Guide Machine Learning** – Construct educational tests in such a way that right/wrong components are automatically captured and results correlated to sources of material to provide insight to educators on the most valuable educational material and provide insight to students on what extra tools and focus they can take to improve performance. This would be perfect for CP Algebra 1…
- **Technology Shark Tank** – Partner Business Curriculum with Technology Curriculum to offer focused ideas around students inventing Educational Things as a business model.
- **Educational Predictive Analytics** - Partner with Statistics classes to built predictive analytics engines and databased for various Machine Learning oriented models. Some examples could include Athletics Analysis for HS sports programs, Predictive models on school traffic flow or outside education interests that might be department specific and curriculum aligned.
- **Internet of Things Curriculum** - Build a class on internet of things and offer the curriculum and source code configuration in the “Educational Things” platform.

Stakeholders

The list of stakeholders is broad. As the concept matures, the stakeholder list can change and evolve in definition. Initially these would be stakeholders to the concept:

- **Administration:** The school administration is a stakeholder in that they will need to support the concept and support potential operational and structural changes across departments as the concept and execution matures. They are also stakeholders in that they will reap the benefits of driving a world class innovation for education.
- **Departments:** Academic departments are stakeholders in that they will need to partner across departments to contribute ideas and possibly participate in project work in their respective curriculums. They are also stakeholders because they will be able to utilize the things that are built to showcase the strength and progressive nature of their department.
- **Students:** Students are stakeholders in that the will benefit from the experience of contributing to the things during the educational process. As the things become mainstream the general student body will leverage those things in their respective classes. The students that build the things will be able to reference them and point Universities and future employers to them as part of the portfolio of skills.
- **Parents:** Parents are stakeholders in that their children will benefit from the progressive nature of integration of technology concepts and things into the academic environment.
- **Teachers:** Teachers are stakeholders in that their roles can become more rewarding and challenging in a positive way. The execution focus of Educational Things will stimulate creativity and innovation. Teachers will be able to leverage Educational Things even if they are not part of the process of building them.
- **Industry:** The technology industry is a stakeholder in that as this concept gains momentum they will want to partner and contribute to product offerings. The educational industry is a stakeholder in that educational providers will reap the benefits of participating in and utilizing these things.

Educational Things vs STEM

Are Educational Things the same as STEM?

STEM/STEAM

- STEM/STEAM is a great concept that helps drive curriculum change towards continued introduction of technology.
- Some schools have struggled with the execution of these concepts
- Educational Things can be thought of as an execution vehicle for STEM/STEAM concepts

Educational Things

- Is about execution
- Delivers usable solutions by students and educators
- Creates portfolios of referenceable materials for students
- Will be attractive to the Technology Industry for partnership
- Adds value and not just extra work for Administrators, Departments and Teachers

The Physical Environment

Given that Educational Things is about execution and adding value, there needs to be a place to host, share, showcase and advertise the “educational things”.

GitHub can be used to house the source code for all things and can be used to host student portfolios.

Google Cloud and/or AWS can host demonstration or production versions of the computing servers and/or databases. They can be leveraged for the Machine Learning engines.

A school’s data center can host database servers housing instances of analytical data and learned data. It can host servers for the compute power required.

Execution Cycle

In order to emphasize execution and value add, execution can be iterative with 4 phase per iteration:

- Vision – Articulate a clear vision for an execution cycle clearly defining a project with benefits and stakeholders. A cycle can deliver multiple Educational Things. The vision for a cycle will include the goals of the cycle for growing the "Educational Things" construct.
- Construct - Once a vision is established, maturing and building out or changing the parts of the Educational Things construct that are identified in the vision. Also, a project construct will be set for the list of Educational Things being delivered in the cycle.
- Pilot – Execution on building, modifying and deploying the Educational Things to a targeted group of enthusiastic users for early feedback.
- Expansion – Deploy and leverage things by larger groups of users. Expand construct of Educational Things and educate stakeholders as needed.