Why Project-Based Learning Works

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In life, we often learn important lessons through real-world “hands-on” experience.

A simple example might be learning to bake. I saw a recipe for a pavlova dessert, and the written directions seemed clear and simple – basically beat egg whites and sugar, and bake at a low temperature.

However, my attempt to make it failed miserably. It turned out there was a lot of chemistry at work, and small details were critical, such as: ensuring the egg whites were at room temperature and there was no moisture in the mix, and careful calculation and monitoring of oven temperature.

It took many trial-and-error attempts, along with cognitive analysis of the mistakes, and a willingness to persevere in order to achieve something edible.

Many of our educational systems assume that information and understanding can be divorced from application. That a cognitive understanding of abstract concepts is the foundation, and that practical application will be a natural byproduct of this approach.

In a similar vein, many educational systems separate learning into disconnected “subject areas”.

However, even a simple task, such as (attempting to) bake a pavlova involved multiple “subjects areas, including: math (measuring and/or calculating), science (understanding the chemical reactions required to achieve a risen pavlova that holds its’ shape), executive functioning skills (planning and organizing the activity, self-monitoring our progress and adjusting our actions as needed), reading comprehension, and verbal communication (explaining to others why my baking attempt failed).

Clearly, one advantage to a project-based approach is that it **more closely reflects how we learn in daily life**. However, there are other important elements at work, including:

- Students tend to have a **clear concrete picture of the expected (or ideal) outcome**. This reduces the uncertainty and frustration that comes from “not knowing what is expected”.

- The learning activity is perceived as having more “real world” relevance and practical application, which leads to **increased student motivation**. A project also increases learner commitment because they are actively involved in selecting the learning activity.

- A project usually incorporates a wide range of “subject areas”, which is a **useful way of addressing topics or skills in which the learner struggles or has less interest**.

- A project approach **helps build executive functioning skills** (such as planning / organizing, self-monitoring, organization of materials) in a way that is less abstract and more concrete.

- A project-based approach **builds on existing knowledge and skills**, so new knowledge and skills are incorporated into the leaner's existing knowledge base / neural network.

- There is **increased motivation to persevere and problem-solve** because the learner is invested in activity, since the outcome usually has a perceived personal benefit.

- The activity is **multi-sensory**, so learning is reinforced through multiple channels (such as visual and tactile), and the **abstract concept and practical application are connected**.

- A project approach tends to **increase independent study and reduce behavioural problems**. The student can usually engage in the learning activity independently for an extended time, without abrupt transitions that end one activity and start another.

- The **teacher can adopt a coaching / consulting style** rather than being placed in a "supervisory" position. This is particularly useful in a home-learning situation.

- **Learning accomplishments are genuinely celebrated** rather than being artificially reinforced by a number or grade.

The QuirkyResource.com library provides several practical examples of learning projects.

Mom, this is the best learning activity I ever did.

Is it OK if I post a selfie online,

and tell my friends that

you are the best teacher in the world ?