3250: Instructional Strategies
Reflective Writing 1

Instruct

Expectancy Value Theory in Web Development: A Word of Caution

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Objective

Chapter Two of "Student Engagement Techniques: A Handbook for College Faculty", by Barkley et al., 2020, lists several 'process theories' that attempt to explain, among other things, 'how a person's needs will drive their behavior so that they can achieve a relevant goal' (Barkley et al., 2020, p. 19).

The theories they mention include: Adam's Equity Theory, Locke's Goal Setting Theory, Vroom's Expectancy Theory, and Expectancy-Value Theory (EVT), which is in the literature attributed to John Atkinson and Jacquelynne Eccles.

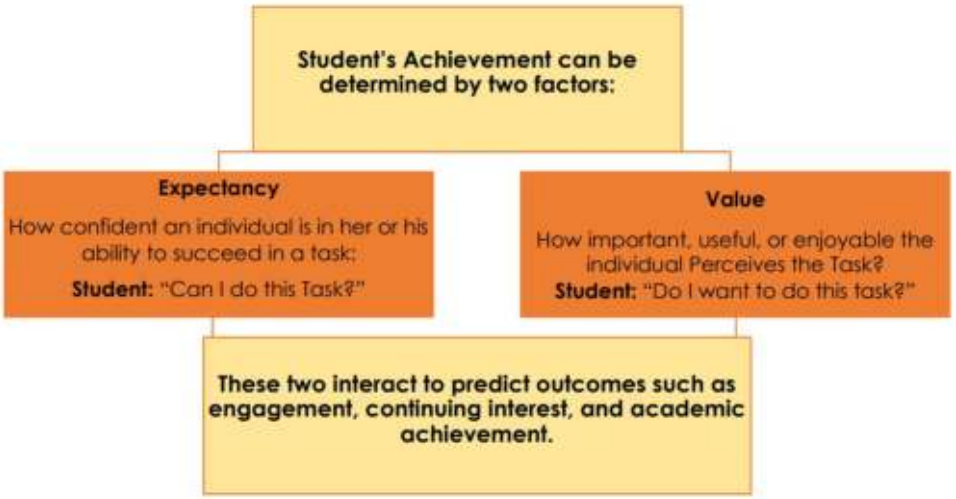
While motivation theories in general seem to be about motivating students to stay engaged, the objective of this reflection is to consider, in the context of EVT, how learning web development can be deceptive, in that students may be overly motivated (over engaged) to pursue aspects of web development that may be less useful in the long-run, because the process of learning web development is inherently rewarding and can thereby inflate the expected value of any given web development path.

This aspect of EVT caught my attention because over the years I've met more than a few novice web developers, whom after having completed a rudimentary website, became somewhat inspired with what could be described as 'a false sense of expertise.' In fact, I had that sensation myself in my own first year.

Reflective

A publication from the Research Laboratory for Digital Learning, at The Oklahoma State University, defines Expectancy-Value Theory as "a theory of motivation that describes the relationship between a student's expectancy for success at a task or the achievement of a goal in relation to the value of task completion or goal attainment" (Mathew et al., 2020, Para 1).

They provide the following image to illustrate expectancy with the question "Can I do this task?" and value with the question "Do I want to do this task?"



[Source: Mathew et al., 2020]

In web development and computer programming (unlike in computer sciences in general) skills are task and software driven. Learners often experience a sense of direct predictable input/output that can be immediately gratifying. Moreover, in web-development, skills attainment can be exciting because websites themselves are quite prevalent in the modern technological landscape.

As soon as the student learns to build a navigation menu, the student feels he has attained a widely applicable skill. The question of 'Can I do this task?' is answered quickly and emphatically with a resounding "yes," which is for many students a relieving discovery, since many other fields of study are not so obviously applicable. The expectancy resolution can be so immediately rewarding that it deceptively influences the value proposition on the positive side. "Can I do this task?" becomes "I want to do this task, because I can and it's practical."

From the view of EVT, intrinsic value, which is described as "the amount of pleasure an individual receives from participating in a task" (Jones et al., 2021), increases because the efficacy expectation increases, which is the expectation he will be able to perform the task (Eccles & Wigfield, 2002).

What he doesn't see is that one factor of EVT theory is volatile, which over-inflates his efficacy expectation.

Interpretive

> *EVT is composed of four components:*
>
> - ***Attainment value:*** *the importance an individual places on completing and doing well on a task based on their personal beliefs or values*
> - ***Intrinsic value:*** *the amount of pleasure and individual receives from participating in a task*
> - ***Utility value:*** *the importance of a task on a student's future or immediate goals*
> - ***Cost:*** *a negative construct in that a high value can serve to discourage them (a student) from participating in a task*
>
> *(Jones et al., 2021)*

The student who successfully built a navigation menu will learn in his second year (or sooner) that there are many ways to build a navigation menu, and more languages and frameworks to choose from to the build the menu (technologies) than any given developer is likely to ever learn in his or her career.

While the theory behind the navigation menu is relatively straightforward, and the way he was taught to implement it was understandable and exact, he cannot possibly accurately prepare in advance for the demands that any given menu might put on him. And what is worse is that he is likely to try.

He might, for example, decide to build a menu in WordPress, using PHP. As a particularly attentive student, he might even learn several ways to build a menu in WordPress, using different plugins or different themes, or building a custom plugin with his own menu logic.

When he gets into the field however, his first client may have an application built in Node, or Laravel, or Angular, or React. Moreover, the menu might use any kind of JavaScript logic, and the styling might be in Bootstrap, Tailwind, or SCSS, or it might use Custom CSS properties.

Web development, it turns out, is a complex and fast changing field, full of potential 'red herrings', that can take decades to master.

The novice developer cannot be expected to fully grasp the amount of study and practice that is required to master the field, or the importance of accurately selecting specializations within the field. His efficacy expectation is genuine, he can complete the task, but the cost of completing the task is much higher than he could have anticipated.

As a future instructor, EVT theory prompts me to think of ways to advise students to move forward intelligently. There is plenty of room for costly error.

Decisional

The intuition in this reflection applies in the case when the student is motivated, because of the assumption that web development itself is inherently motivating.

However, motivation theories highlight the importance of external factors on motivation, which is to say that while some students may experience the inherently motivating aspects of web development, others may not.

It should be prudent, then, to mention that chapter two of "Student Engagement Techniques: A Handbook for College Faculty" provides teachers and future teachers with techniques they can apply to bolster motivation.

> *Barkley et al., 2020 suggest teachers try to:*
>
> - *Establish supportive relationships and cooperative/collaborative learning arrangements that encourage students to adopt learning goals as opposed to performance goals*
> - *Minimize the sorts of pressures that dispose students toward performance goals or work-avoidant goals*
> - *Work to ensure an equitable and inclusive classroom environment*
>
> *(Barkley et al., 2020, p. 20)*

Returning to the general premise of this reflection, which is that, due to the intrinsically motivating nature of web development, students may be highly motivated to pursue learning goals that are not optimized for the most probable real-world scenarios, a decision to inform them of the potentially high costs inherent in web development is wise.

This can be done by reiterating throughout a course how important it is to research factors in the field, such as which frameworks are currently popular among employers, and advising students to understand theory through pseudo code, or at least through vanilla JavaScript or TypeScript. Moreover, students should be given an overview of the many different ways in which web development is applied, along with some expectation of how 'expensive' those ways may be in terms of investments in time, the risk of obsolescence, and market size and market volatility of any given technology.

References

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