

## How (and Why) Giving Students Choices, Can Dramatically Improve Learning

### Description

Maybe it's just my inner control freak, or all those years of violin practice, but whether my kids are practicing piano, Taekwondo, or Mario Kart, it's very tempting to intervene and direct their practice. Like telling them what to work on, how to work on it, and so on.

But then I watch as they try to solve problems in other parts of their life. And whether it's learning how to use GIMP to create transparent png's, or creating a homemade earbud holder using a sewing machine, felt, and velcro, I see them Googling and looking up YouTube videos for help, and everything seems to work out just fine. Better than fine, actually. Any time they learn something on their own, it seems to go smoother, faster, and they take more away from it.

Of course, music is a little more complex, and we don't want to allow too many opportunities for bad habits to form. So is there a way to reconcile the two? To get some of the learning benefits of self-directed learning, but with the guidance that allows them to learn new skills the right way from the very beginning?

### Ballet time

A [team of researchers](#) recruited twenty-four 10-year old girls to learn five classical ballet positions<sup>1</sup>.

Each participant was shown pictures of each position and given a verbal explanation of what to do. Then, it was time to give it a try. And after their first practice attempt, half of the participants (the **choice group**) were told that if they wanted, they could ask to see a video demonstration of the positions before any subsequent practice attempt.

The other participants (the **no-choice group**) were told that they would be shown videos from time to time, but not given any choice as to when. Each of these participants were "yoked" to another participant in the choice group, such that whenever their counterpart requested a video, they would be shown a video too.

Everyone did 50 practice repetitions (5 sets of 10), and then they were done for the day.

### Who learned more?

The next day, participants returned for a retention test<sup>2</sup> to see how much they could remember from the previous day.

Before I tell you how they did, let's take a step back, and see what their practice session looked like (see

graph below). Do you see how both groups started off their practice session performing at about the same level? And then how their learning curves start to diverge pretty quickly from there? Sure, both groups improved, but the choice group improved *way* more.

Adapted from Lemos, A., Wulf, G., Lewthwaite, R., & Chiviawosky, S. (2017). Autonomy support enhances performance expectancies, positive affect, and motor learning. *Psychology of Sport and Exercise, 31*, 2

So it's probably no surprise that when it came time to take the retention test, the groups' performances weren't even close. The **choice** group totally outperformed the no-choice group.

Maybe it's just me, but it seems remarkable that in the same amount of practice time, with the same exact amount and type of instruction, two groups of similarly skilled 10-year-olds experienced a very different learning trajectory. Simply because one group of participants had slightly more *choice* in the timing of their instruction.

## The power of autonomy

But wait. Might it just be that timing is the key? Or is it really because they experienced more autonomy in the learning process?

Well, it's probably a bit of both, but previous research suggests that autonomy has a surprisingly powerful effect on learning.

Like allowing learners to choose when to receive feedback. Or when to see demonstrations of the skill they're trying to learn. Or what order to practice a set of skills in.

And what's really weird, is that allowing learners to choose seemingly *unrelated* things still appears to enhance learning. Like what color ball to use in a putting task. Or which of two Renoir paintings should be hung up on the wall of the research lab after completing a balancing task (seriously, that [really happened](#)).

So what's up with that? Why does choice seem to make such a big difference?

## Why choice matters

Intuitively, you'd think that maybe learning is enhanced because people are more engaged and process things more deeply when they get to make choices about their learning. And there might be some of that involved, but the colored ball and painting examples suggest that this can't be all of it.

Some notable researchers in this area believe that it's also a matter of *self-efficacy*. That feeling like we're in control of a situation (autonomy) increases the sense that we'll also be successful at the task at hand (self-efficacy). And that when our self-efficacy goes up, we're more motivated, our focus is heightened, and all the factors that need to be present for maximal learning all come together.

There is also the possibility that autonomy could facilitate more positive *feelings* in the learning process too. Which is associated with the release of the neurotransmitter dopamine, that in turn has been implicated in the memory consolidation of motor skills.

## Psychological measures

To further investigate these possible factors, each participant was also given a series of assessments during the process – including a short self-efficacy quiz and a simple happiness measure.

### Self-efficacy

Participants' self-efficacy ratings were all about the same at the outset of the study (4.4 for the choice group vs 5.3 for the no-choice group). But by the end of their practice session, things had begun to shift. The choice group's self-efficacy score increased to **6.3**, while the no-choice group remained a 4.7. And the difference was even greater the next day before their test – **8.0** for the choice group, and 4.9 for the no-choice group.

### Positive affect

The choice group was also *happier* after their practice session, with a happiness score of **185.41** vs. 107.83 for the no-choice group (on a scale of 0-200).

All of which seems to provide further support for the idea that autonomy increases self-efficacy and positive affect, which in turn leads to a more effective motivational state for learning.

## Take action

So the evidence suggests that we certainly don't have to unleash our kids and students on Google and YouTube and let them freely self-direct their way to Carnegie Hall.

It's more about looking for opportunities to provide them with choices in their learning efforts. I remember one of my teachers often gave me fingering or bowing choices. With explanations about the relative pros and cons of each. But heck, even if the choice is tangential to the task (Do you want to do your math homework after practicing? Or your lab report?), it may still be worthwhile.

For those of you who are already doing this, I'm curious...what are some of your favorite or go-to choices that you offer your students that seem to boost the effectiveness of their practice?

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