What's in a name?

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How bad ideas survive and thrive in the world of education.

The idea that knowing the name of someone or something gives us power over them is a common theme in folklore, from Rumpelstiltskin to African folktales. Names are more than just a label. We have invested them with a greater potency. And this tradition is alive today in philosophies such as critical theory that assert that language is more than just a way of communicating – it is used by dominant groups to perpetuate their power. In this context, it is intriguing to watch critical theory inspired social justice movements wriggle, squirm and object strongly to attempts to name them.

Perhaps this history has something to do with the word games we play in education.

I receive emails from mathematics teachers from time to time, and there is one recurring theme – their school or district has implemented a new program, and the teacher wants to know if there is any evidence available about its effectiveness. This always comes from a position of scepticism. The teacher knows the program is nonsense, but they are being told, with no citations, that it is evidence-based. Two recent examples of programs I have been contacted about are 'Building Thinking Classrooms,' and 'Cognitively Guided Instruction'.

When emailed like this, it is often the first time I have heard of the program and so I look it up and realise it is a form of problem-based learning but maybe with a few tweaks and idiosyncrasies. However, I know it is futile providing my correspondent with the evidence on problem-based learning because their colleagues will dismiss any evidence unless it is about *this specific thing*.

Yet *this specific thing* is unlikely to have been thoroughly researched by advocates, let alone anyone who may be critical. So, instead, I advise my correspondent to flip the argument. It is, after all, down to the advocate of this specific thing to provide evidence for it, not the duty of everyone else. Still, this seems unsatisfactory when the wider evidence shows it's unlikely to be effective.

Notice how I called it 'problem-based learning'. I like this term because it's what you see if you walk into one of these classrooms – students attempting to solve problems. However, other names have come and gone like 'discovery learning' and 'constructivist teaching'. They are always initially owned by advocates who, a few years down the line, disavow them.

For instance, if you post online a criticism of 'discovery learning' that is as relevant today as it was when it was written, you are likely to be greeted with a chorus of, "Nobody is in favour of *discovery* learning!" from people who promote a remarkably similar approach under a new name. If pressed, the only features of their supposedly new method they are likely to volunteer are that it uses lots of explicit instruction and provides lots of guidance – doubtful claims that at least show a growing awareness of the available evidence and likely criticisms.

I don't actually care for the term 'discovery learning' because I don't think students discover all that much. As a label, it refers more to an intention than a realistic outcome. Logically, if a student is presented with a problem they don't know how to solve, they have one of two options. They may deploy problem-solving moves they already know, or they may invent new problem-solving moves. Given that our collective body of effective mathematical problem-solving moves has been developed over many centuries by mathematicians, the first response seems far more likely than the second one. So, at best, problem solving involves practising moves we already know.

Practice is an essential part of learning mathematics. Once students have learned certain moves, they need to practise them. However, the kinds of problems used in problem-based learning are usually an inefficient way of doing this. Moreover, if we *base* teaching on problems, we limit the amount of new mathematics students will learn.

When attempting problem-based learning in real life, I have seen teachers scour the room for maybe one student who is halfway towards the new idea they want students to 'discover', push that student over the line and then loudly trumpet this to the rest of the bemused-looking class, usually by requiring the successful student to ventriloquise the teacher's thoughts.

All a bit pointless.

However, I am happy if you want to call it 'discovery learning', or anything else. As long as you are using those basic principles, the same criticisms apply. Ultimately, it's not what you call it, but what it *is* that counts.

This is similar to the response to the publication of Kirschner, Sweller and Clark's seminal 2006 paper that I linked to above – *Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching*.

You might think that the near exhaustive list the authors supplied would be enough to stop with the word games. Unfortunately not.

Instead, critics picked on the term 'minimal guidance'. Rather than engage with the arguments in the paper – too hard – they argue variations on: "My form of constructivist learning uses loads of guidance." Again, having seen problem-based learning in action, I doubt this.

This was a theme of two of the three critical responses to the Kirschner et al. paper ([here] and [here] – [this is the other one] for completeness). The authors then responded to these in [a reply to commentaries]. There was then a conference debate and finally a book where both sides could put their case – *[Constructivist instruction: Success or failure?]*

Sigmund Tobias, one of the neutral editors of this book, had the following to say in his conclusion (p. 346):

> *A careful reading and re-reading of all the chapters in this book, and the related literature, has indicated to me that there is stimulating rhetoric for the constructivist position, but relatively little research supporting it. For example, it is encouraging to see that Schwartz et al. (this volume) are conducting research on their hypothesis that constructivist instruction is better for preparing individuals for future learning. Unfortunately, as they acknowledge, there is too little research documenting that hypothesis. As suggested above, such research requires more complex procedures and is more time consuming, for both the researcher and the participants, than procedures advocated by supporters of explicit instruction.*
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> *However, without supporting research these remain merely a set of interesting hypotheses.*

> *In comparison to constructivists, advocates for explicit instruction seem to justify their recommendations more by references to research than rhetoric. Constructivist approaches have been advocated vigorously for almost two decades now, and it is surprising to find how little research they have stimulated during that time. If constructivist instruction were evaluated by the same criterion that Hilgard (1964) applied to Gestalt psychology, the paucity of research stimulated by that paradigm should be a cause for concern for supporters of constructivist views.*

Which seems pretty conclusive until proponents of the exact same methods decide to now slip off the 'constructivist' label. None of Tobias's argument then applies, right?

It is this ability to shapeshift and extricate itself from names that have fallen afoul of the research that allows these methods to keep returning. The only solution I can think of is a better understanding of research within the community of teachers. That way we may challenge or, at the very least, laugh at and ignore those who seek to sell the same old magic beans under a new name.