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Using found object visuals to crystallize learning

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Using Found Object Visuals to Crystallize Learning

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1. Abstract:

To help learners consolidate learning before the end of a classroom session, they can be instructed to use found objects at hand to illustrate the most salient ideas they are taking away. Such deliberate veering from verbal language alone provides easy entry to challenging material and a way to capture knowledge using mental channels other than typical verbal-linguistic ones—making learning more likely to be transformative and lasting.

Key Words:

Experiential learning, instructional methods, realia, visual, creativity

2. Introduction

For many professors, it is common knowledge that after a lecture, discussion or other learning activity, learners benefit from an opportunity to sum up what they have learned (McKeachie & Svinicki, 2006, p. 66). To do so, I have found my students remember better what they learn if they access thinking using modes as different as possible from "business as usual" in the classroom. If people mostly read and hear words or numbers in text, PowerPoint or discussion -- whether in technical subjects in the sciences or divergent subjects in the humanities -- then a truly hands-on activity can get attention and capture learning dramatically (Schramm, 2001).

To access visual explanations (Mayer, 2003; Tufte, 1997), I occasionally have students draw out concepts with T-shirt designs (Dwyer, 1999) and concept-map the relations between ideas (Novak & Cañas, 2006). I also especially like to have people use what are called "realia," "manipulatives," or "learning objects" (Recker, Dorward, Dawson, Mao, Palmer et al., 2005), those everyday throw-away items that can be found easily at hand to explain new ideas using a means other than ordinary verbal language. After I first use objects myself in lectures and activities, I will often then have students use a similar method in groups to show that they can explain new ideas they have just learned (and have fun in the process).

In the last 20% of a session on a few given concepts, I ask students to get into groups of 5, and I give them these simple instructions:

1. First, free-write a minute about the idea you found most compelling.
2. In your groups, look for a theme in common, for which you'll create a found object illustration.
3. Take any objects you find. Use anything at hand, paper, a pen, a watch or any other physical object (from around you, in your bags, anywhere).

4. Feel free to use the objects in ways they were not intended to be used, to communicate visually the meaning of the concept.
5. Be prepared to explain to the class how your use of the objects illustrates the concept.
6. Rehearse one run through.

Students usually run with the process creatively and get excited by this experiential change of pace. In introductory modern philosophy, for example, found objects have included the following illustrations by students:

- a coin (flip its side as one takes an opposing point of view)
- a pen (its many uses demonstrated many ways of framing problems)
- a paper clip (its malleability symbolized the way theory can adjust to fit anomalous data)bullet

In one case, a student team coupled an empty plastic bottle with a notebook and some crumpled paper. Taking the tension between freedom and determinism, they explained that their illustration revolved around the big question, "Are we free or determined?" Team members relayed a fictional story where a deadly accident was averted when a person (the bottle) slipped on a banana peel (the wrapper) but was cushioned by falling onto a mattress (the paper) placed opportunely by the sidewalk.

While seemingly facile, the example displayed how one's individual agency (implying walking) is complicated by contextual factors outside of one's control (including elements of the environment such as slippery surfaces), and that both agency and chance can at times produce saving grace (as when one is rescued by someone else's providing for one's security, as with the mattress). After doing such an exercise, students have often stayed after class to tell me, "That was really fun," "It helped to make the abstract ideas more real," "I thought the activity was silly at first, but what people did ended up being something I really remembered." Many have asked, "Can we do that again?"

Such tangible work provides easy entry to challenging material and a way to capture knowledge soon after it is learned. Objects and visual tools help because they access multiple learning styles. As Kolb (1984) described, an experiential learning cycle involves not one but four elements: 1) concrete experience: full and unbiased involvement in learning experiences, 2) observation of and reflection on that experience from varied perspectives, 3) formation and integration of abstract concepts based upon the reflection, 4) testing the new concepts, incorporating them into action. One form of concrete experience has been termed the "felt sense" -- which in psychotherapy (Gendlin, 1997) and in written composition (Perl, 2004) involves attending to not only intellectual but also emotional and spiritual creation of meaning, particularly through sensitization to bodily signals.

A metaphor captures this power of interaction with objects for learning. When molecules crystallize and form a solid out of a liquid solution, they must not only cluster together, but reach a critical mass or else they redissolve. Similarly, physical classroom work ensures that learners not only make connections but also give those clusters enough metaphorical substance so as not to get lost in the wash of daily life. Using mental channels other than typical verbal-linguistic ones, then, we can help others not just gain information but experience some degree of transformation.

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