

**Embodying the Path of Sustainability: Reflections on “Learning to Juggle” in
Environmental Pedagogy**

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Abstract

We often use juggling as an everyday metaphor for balancing multiple interests, which pertains to thinking about sustainability, yet to date its potential for environmental pedagogy has not been evaluated. Here, I provide some lessons learned while teaching students to juggle as part of a senior environmental studies course at the University of Waterloo over a four-year period (2009-2012, n = 289 students). I begin by briefly reviewing four benefits of teaching environmental studies students how to juggle: 1) it embodies systems thinking, 2) it grounds environmental metaphors, 3) it helps to transcend paradigms, and 4) it promotes well-being. I then provide preliminary support for these claims from a survey of my students in the final year that I taught the course. With these lessons and some caveats in mind, I conclude that learning to juggle is a wonderful embodied metaphor for nurturing students’ reflections about sustainability, so I encourage other environmental studies educators to consider it within their courses.

Keywords

complexity, contemplation, embodiment, time is money, well-being

Introduction

I'm sure you share a commonplace experience of chatting with a student or colleague when they say something like "I'm juggling a lot of things right now" or "I dropped the ball on that project." Yet we rarely reflect on the underlying metaphor, that doing a lot of things is a risky and perhaps stressful experience like we imagine juggling to be. One of the distinctive features of metaphors is that they help us to understand something abstract and complex in terms of something everyday, though in this case it appears that juggling is being used in a very second-hand way. For if you watch an accomplished juggler, you'll observe that they're relaxed rather than stressed, a model of calm amidst a storm. The real lesson from juggling, then, might be to figure out how to get from a state of stress about multiple todos to one of relative calm.

This ideal might further extend to our role on the path to sustainability, the innumerable activities we could do on a daily basis to reduce our footprint, defend environmental values, and help to make the world a better place. Each of these activities seems so critical given the environmental stakes and rapid rate of change that we can end up feeling overwhelmed. Juggling is a common everyday metaphor for balancing such competing interests and things-to-do, yet more theoretical than practical because most people don't know how to juggle.

To explore the benefits people obtain when they learn how to juggle, I have incorporated a "learn to juggle"¹ component into a senior environmental studies course in

my department over a period of several years. Juggling has particular benefits insofar as it has commonly been used as metaphor for learning how to learn within the potentiality movement (e.g., Gelb and Buzan 1994). Furthermore, surprisingly few students can juggle when they begin, so it's inclusive and amenable to group learning. For others who may wish to incorporate it into their courses, I briefly review here some of its benefits and provide some initial support for them from a survey of my students.

Benefits of “learning to juggle” for environmental pedagogy

1. Embodying systems thinking

Systems thinking provides a common set of metaphors for reflecting upon environmental problems and potential solutions (e.g., Walker and Salt 2006; Ison 2010). It conceptualizes a problem as a system of actors and objects in context. The broader context includes diverse actors and multifarious feedbacks among them, so the system is often tremendously complex. To provide guidance for acting in this context, Ison (2010, p. 57) has introduced the metaphor of a “systems practitioner as juggler” as follows: “To be an effective practitioner, I find it necessary to continuously think about, and act to maintain, four elements: the processes of being a practitioner, the means we engage with a situation, putting the approach into context and managing my own involvement in the situation.” He conceptualizes each of these four elements as a juggling ball associated with a particular verb that he considers to be critical to the action of a systems practitioner, namely the B-ball for being, E-ball for engaging, C-ball for contextualizing, and M-ball for managing.

Ison's (2010) model provides an insightful way to apply the metaphor of juggling in the context of engaging with sustainability as a systems practitioner. Juggling presents a problem "out there" in these objects in the world, and the student must orient him/herself with them, as part of a system, to learn to juggle. Ison (2010) adopts the juggling metaphor because he proposes that one must maintain awareness of the four elements and effectively keep them in continuous balance.

There are a few limitations of Ison's model. One is that the practitioner is encouraged to juggle four objects, which is difficult to experience in practice because it is much more difficult to learn to juggle four objects than three. Further, these four elements are abstractions that are in fact verbs, and it is simpler to understand juggling three objects (even if they're abstractions) than three verb-processes. Finally, Ison attaches particular labels to these four elements, but more senior students, especially, could be encouraged to reflect upon alternative labels and their relative benefits/costs (e.g., the three traditional elements of sustainability-thinking: economy, environment, and society).

In any case, learning to juggle provides a metaphor for some of the complexity of sustainability thought and action, while bracketing all of it. The actor—here a juggler—must attend to the complex task of organizing different objects in three-dimensional space, gradually reducing the tendency to drop them or make them collide. Part of the way to attain this state is to attend to the context necessary for learning, not only external (appropriate space, lighting, ventilation, perhaps music, etc.), but even more importantly, internal (Gelb and Buzan 1994). While learning to juggle, that is, students soon experience the instantaneous feedbacks between state of mind and success. It might

appear that there is a disanalogy between juggling and holistic action, but to an engaged and experienced juggler the separate objects become part of a holistic system to which perturbations can be instantaneously disruptive.

2. Grounding environmental metaphors

I began this paper by considering some everyday ways in which we utilize the metaphor of juggling. The experience of learning to juggle helps students to experience the progression from feeling overwhelmed by juggling multiple objects—and perhaps a sense of failure when an object drops, to feeling much more comfortable with both of these experiences. The potential parallels and application to everyday life and to the challenge of sustainability provide ample opportunity for reflection.

Specifically, the course encourages active exploration and reflection about the metaphoric connections between learning to juggle, everyday life, and sustainability discourse (and thus action). Cognitive science has provided theoretical support for such exploration by demonstrating both the significant role of metaphors in structuring human thought and perception (e.g., Lakoff and Johnson 1980), and the origin of prevalent metaphors in the particular way we are embodied as humans (e.g., Gibbs et al. 2004). Consider the metaphor of balance. Technically, balance is an image schema, that is, an embodied, pre-conceptual experience (learned through experience as an infant) that is metaphorically projected for understanding external phenomena, such as, in this case, our psychological state and personal lives. Learning to juggle three objects grounds and revisits this experience of balance, not least because it is a symmetric activity, with the objects cycling back-and-forth between the two hands; one of the most common

problems for students is to learn how to coordinate their non-dominant hand. The students can then extend this embodied experience outwards to provide insight into various domains, including the use of juggling as an everyday metaphor for balancing several competing interests, a usage that even extends to academic analyses (e.g., Guendelman et al. 2009; Jang and Zippay 2011). Furthermore, through the experience of seeking an elusive balance in learning to juggle, students come to more fully realize this metaphor's appeal in everyday life. In particular, it can help them to understand why the "balance of nature" ideal still underscores so much environmental thought even though it is no longer accepted by most ecologists (e.g., Lodge and Hamlin 2006), and why sustainability policy often promotes a balance of economic, social and environmental elements even though balance is arguably too weak a directive (e.g., Gibson 2006).

There is now an extensive literature on the role of metaphors in environmental thought (e.g., Larson 2011), with a focus on critical examination of metaphors that constitute the environmental movement, such as ecosystem health, ecosystem services, and planetary boundaries (Ross et al. 1997; Norgaard 2010; Nordhaus et al. 2012; respectively). Such examination is critical because, as Princen (2010, p. 12) argues, "we need ... language that overcomes the us-versus-them of military metaphors, the build-a-better-world of engineering metaphors, the get-the-right-price and buy-it-and-sell-it of commercial metaphors. We need language that enables living *with* nature, not living *against* nature." In short, he advocates a search for alternative metaphors that can help to transform unsustainable patterns in our thought and behavior, an intention facilitated by learning to juggle, as I consider next.

3. Transcending paradigms

Most people consider juggling to be difficult to learn and many students experience periods of pessimism while trying to learn it. “I can’t do it” is a difficult paradigm to transcend, so every opportunity to practice doing so is valuable. Juggling provides a very concrete opportunity to transcend such pessimism, and luckily, with appropriate guidance most people can learn to juggle if they are committed to doing so (e.g., Bebko et al. 2003; Huys et al. 2004). Juggling reinforces the habit of moving onward from small failures (or large ones), embodied by dropping an object, towards eventual success.

An important paradigmatic metaphor that students encounter while learning to juggle is their relation to time. The metaphor of “time is money” is endemic in Western culture (Lakoff and Johnson 1980), and the experience of learning to juggle can help to draw attention to and encourage critical engagement with it. Students must juggle jobs, school, relationships, and a social scene, etc. They have a lot of balls to juggle, perhaps leading to a sense of despair from feeling overwhelmed, unbalanced, and unable to manage. Yet, while learning to juggle, they can learn to stand in the midst of their lives, having so many things to do, and focus on a very simple task: learning to juggle. Once accomplished, this sense can be extended to everyday life.

Yet for many students, time literally is money: the time they spend in a class is money spent on tuition and it is increasingly costly. They may thus feel fulfilled if lots of information is crammed into their heads. In this context, the process of slowing down and learning to juggle can be frustrating, a “waste of time.” Yet it can also open them to the contemplative possibility that their time is not money and there are perhaps other

more enjoyable and fulfilling ways to relate to it (cf. Fromm 1976 on “having” vs. “being” modes of existence).

Learning to juggle is also a metaphor for transcending paradigms through an awakening. Students may experience various awakenings in the learning process, not least the ‘aha’ moment when they first juggle three objects. Yet they may also awaken to their sensitivity to other people’s opinions. Awakening also requires patience and acceptance of their bodily pace (rather than the quicker pace demanded by the mind, perhaps); this allows them to overcome the belief that they’re not getting there fast enough. In short, it is a carnal experience that provides important environmental insight, one that will only arise with an appropriate level of effort, enough to keep at it and apply some pressure to keep trying, but not so much that failure is taken too seriously.

4. Promoting well-being

Gelb and Buzan (1994, p. 4) document several benefits of learning to juggle to promote it “as a metaphor for all human learning.” Recent research confirms that it is a complex motor task that can help develop grey matter and the ability to mentally rotate objects, among other capacities (e.g., Draganski et al. 2004; Jansen et al. 2009). Experientially, it is an apt metaphor for learning in general because learning anything involves ups and downs, complexity and failure. Juggling has the advantage that it “is easy to learn and offers equal opportunity to both genders and to people of all ages ... Progress in juggling is easy to measure, and you can continue improving throughout your life (Gelb and Buzan 1994, p. 5).”

Gelb and Buzan (1994, pp. 6-11) highlight four additional “lifelong benefits” of learning to juggle: 1) balance and ambidexterity; 2) fitness; 3) relaxed concentration/appropriate effort; 4) enjoyment and confidence. These potential benefits are largely self-evident and reviewed therein, so I instead focus here on a few additional ideas and applications in the context of environmental pedagogy.

The first point is that we seldom focus on any of these elements in environmental education (let alone higher education in general). This reflects continued disassociation of mind-and-body in learning, so learning to juggle encourages discussion of this latent assumption about education. The educational system tends to ignore the development of the whole person, so environment-oriented students, for example, are taught to focus on the problems out there in the world. Juggling provides an encounter with oneself and an opportunity to embody and practice virtues such as patience and persistence.

I also encourage my students to reflect on whether learning should always be so serious and disconnected from the body. The word “juggling” derives from the Latin *joculari*, to jest, and perhaps we need all the jesting we can get at this time. This realization struck me after conversations with the therapist assigned to students in our Faculty of Environment: it was not uncommon for students to become depressed in their final year when they realized that their idealistic wishes for their undergraduate degree—an ability to go out and solve the world’s problems—were not coming to fruition to the extent they imagined; the problems are just too complex. There is still a lot of gloom-and-doom in how we think about the environment, and learning to juggle helps to infuse a bit of lightheartedness, optimism, and (dare I say it) playfulness.

Student survey

To supplement this synthetic argument for the pedagogical benefits of juggling, I obtained some preliminary data through an informal survey of my students after the course in 2012.² Although the survey was kept quite short, to reduce burden and improve the response rate, I was able to obtain some support for the aforementioned claims.

Unsurprisingly, in most cases a significant proportion of students did not agree with the claims, which points towards areas for pedagogical refinement (see conclusion).

With regard to systems thinking, 48% of students agreed (vs. 26% disagreed) that they obtained insight into sustainability from learning to juggle (statement #1, see appendix), largely informed by use of the juggling metaphor to help inform systems thinking (following Ison 2010).

A similar percentage, 44%, agreed that learning to juggle helped to ground environmental metaphors (statement #3, with 23% disagreement). That said, more disagreed than agreed (35% vs. 26%) with the more specific statement that learning to juggle provided an apt metaphor for seeking sustainability (statement #7).

It is difficult to provide strong evidence that juggling helps to transcend paradigms, yet 52% of students agreed that learning to juggle provided insight into their relationship with time (statement #10), whereas only 30% disagreed. Another 41% (vs. 26%) agreed that it helped them, more generally, to learn about themselves (statement #9). Furthermore, learning to juggle contributed to a transformation in students' paradigmatic view of juggling. That is, there was initial skepticism about the assignment (with 53% of students doubting its value (vs. 33%), statement #4), but this transformed

into a positive experience (with 61% concluding it was valuable overall (vs. 20% disagreement), statement #6).

Finally, there was quite a bit of support for the ways in which juggling can promote well-being. Importantly, students who were engaged with learning to juggle were, unsurprisingly, much more likely to succeed. About 18% of the students did not learn how to juggle, but these students were over twice as likely to predict, at the beginning of the course, that the assignment would not be valuable to them (85% vs. 42% agreement with statement #4). Students who engaged with the exercise were much more likely to gain confidence from the experience (54% vs. 15% agreement with statement #2), to find it relaxing/meditative (63% vs. 8% agreement with statement #5), to enjoy it (81% vs. 39% agreement with statement #11), and to value it (84% vs. 50.0% agreement with statement #8).

Conclusion

These results provide some preliminary support for the claims about the benefits of learning to juggle described above, though further work would be required to provide more comprehensive and generalizable results. Such work could build upon existing demonstrations of the value of metaphor as a pedagogical intervention (e.g., Tobin and Tippins 1996; Foster 2005), and in particular, the effectiveness of alternative metaphors—in terms of the dimensions discussed above—could be examined empirically in contrasting sections of a course. Nonetheless, I hope I've provided enough support and encouragement for the more general claim that experimentation with juggling is something for environmental educators to consider.

I'd be remiss if I didn't acknowledge several pedagogical balancing acts in the process of teaching students to juggle. As one example, one must find the appropriate balance between "you can do it" and "maybe you need to accept that you can't." Gelb and Buzan (1994, p. xv) open their book by stating that "You can learn to juggle ... and, should you choose to, you *will* learn to juggle ... and your improvement is inevitable," and the literature does provide support for this claim. Nonetheless, not everyone can learn to juggle, so instructors must ensure appropriate discrimination.

There is also the perennial challenge of grading in such a course. This was not a physical education course, so I couldn't grade success-at-juggling; instead, grading was based on 'attitude and effort' and 'contribution to the group'. For most people, learning to juggle takes regular practice, and I've found that the most common reason a student doesn't learn to juggle is that he or she gives up too early. A grade can help to provide an extra boost of encouragement to keep practicing and trying, to overcome this hurdle—and eventually to enjoy the feeling of having succeeded.

Instructors must also recognize the variety of student learning styles. Some students want to pick up the objects and work at juggling until they get it, and for some students that may work, but often the slow-but-steady approach leads to more positive outcomes. Yet for all students it is helpful to build a supportive community so that people can work together to learn as part of a group. In the current era, students setting out with environmental aspirations need to develop traits such as team-work, light-heartedness, persistence and creativity—skills that learning to juggle can help to provide.

Endnotes

¹ I use the term juggling here in its most common everyday meaning of “toss juggling,” that is, keeping several objects (or props, whether balls, beanbags, rings or chainsaws) in the air while tossing them back and forth (see www.wikipedia.com). People learn to juggle most easily if they progress through a sequence of foundational, easier steps with one and then two objects before adding a third to attain the “3-object cascade” (further details upon request, though some sources for learning how to juggle include Finnigan 1987, Gelb and Buzan 1994, and www.juggling.org).

² I administered a brief survey to my students after the fourth time I taught the course, in April 2012. The survey was informal in that students were not compelled to complete it (e.g., with incentives), in accord with approval granted by the Office of Research Ethics at the University of Waterloo (ORE #18008). The response rate was thus about 55% (60/110 students), and although this rate raises questions about non-response bias, it must be interpreted in the context of the general decline in response rates in recent years.

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Appendix: Survey Instrument

Sex (circle one): Female Male

I knew how to juggle three balls at the beginning of the course. YES NO

I now know how to juggle three balls. YES NO

Please indicate your level of agreement with the following statements concerning the juggling assignment in this course:

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. The assignment did <u>not</u> really provide me with any insights about sustainability.	1	2	3	4	5
2. I feel more confident as a result of the assignment.	1	2	3	4	5
3. I feel that the assignment was an effective way to ground the environmental metaphors discussed in the course.	1	2	3	4	5
4. When the course began, I thought the assignment would be a waste of time.	1	2	3	4	5
5. I found juggling to be relaxing and even meditative.	1	2	3	4	5
6. In the end, the assignment was valuable for me.	1	2	3	4	5
7. I thought that learning to juggle was an apt metaphor for seeking sustainability.	1	2	3	4	5
8. I valued juggling as an experiential exercise.	1	2	3	4	5
9. The assignment taught me about myself.	1	2	3	4	5
10. This assignment provided insights into how I relate to time.	1	2	3	4	5
11. I enjoyed this assignment as a fun, final challenge to my degree.	1	2	3	4	5