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Learning from the Koto Wedge: The Sphere and the Shawl

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Abstract: Reflections on the educational practices that we have found ourselves using have led us to the notion of "koto". This is a concept from Japanese philosophy that has no direct equivalent in English, but can loosely be interpreted as the intersection between the concrete world of "things" and the abstract realm of feelings and thought. Although originating in an Asian setting, our ideas are generally applicable. We introduce a conceptualisation we call the "koto wedge" that can be used to ground thinking in and on education, giving numerous examples to demonstrate the predictive and explanatory power of the approach. To aid in understanding the koto concept itself we draw on examples from the real world. Two stories in particular that will help us are those of Achim Leistner, who polishes spheres, and the peasants of Slovakia, who once knew fame for their handmade shawls.

Keywords: Philosophy, Teaching Methodology, Meta-Skills, Experiential Learning, Psychology, Interaction

Introduction

> *Every theory of education is a theory of what it means to be human*
>
> — Richard Weaver

THIS PAPER HIGHLIGHTS the Japanese notion of *koto*, focusing especially on its potential when applied to education. One meaning of *koto* is simply "thing", but there is a deeper nuance with no direct equivalent in English. *Koto* can simultaneously encompass and relate the concrete world of "objects" to the abstract realm of "thoughts" and "feelings".

We use examples from real life to demonstrate the *koto* mindset. Two stories in particular will be valuable: one from the silicon spheres being made in Australia for the *Avogadro project* and another from the history of shawl-making by peasants in Slovakia. These examples will introduce the thinking tool of the "*koto* wedge".

Our central themes may be unusual to readers from Western cultures, where more absolute traditions are connected with objective "truth" and experience of the world. For instance, in the field of science, Byeongsam Bae has contrasted Western and Eastern thinking as follows:

> *If Asian studies aim at the state of "oneness between subject and object" where the "self" and nature (objects) blend, western science has the special trait of objectivism where the "self" is excluded in a "truth that exists inside objectivity."* (Bae 2006, Page 2)

Through concrete examples, we connect *koto* ideas with educational practice, and situate them within educational theory. *Koto* can be seen in thinking such as Dewey's emphasis on the social components in education, Vygotsky's social formation of the mind, and Bruner's scaffolding. It also shares aspects of Situated Learning and Problem-Based Learning approaches. However, *koto* differs in that its roots are not in a theory of how people learn, but rather in a philosophical understanding of how the world can be apprehended. Also, *koto* does not focus attention on any individual feature such as the social environment, a task, or a task's design. Instead, we will see how—especially through the tool of the *koto* wedge—it can help us to keep in mind diverse aspects, including the people involved, the way they carry out a task, and the way they interact with each other, the teacher, and the environment.

For you to Try

This is a theory paper. But first, here is a practical problem. Figure 1 is on the next page. Please leave it unseen while you read the following instructions.

1. Prepare two things: a timing device and a pen or a pencil. The timing device can be as simple as a watch with a second hand.
2. When you start the timer and turn over the page, look for the number "1" in the figure. Circle it. Then, look for the number 2 and circle it, and keep going.
3. Your score is the highest number you circle before 30 seconds is up.
4. Ready? Then start now.

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8	22	36	49	34	21	7
6	20	34	48	37	23	9
10	24	38	47	33	19	5
4	18	32	46	39	25	11
12	26	40	45	31	17	3
2	16	30	44	41	27	13
14	28	42	43	29	15	1

Figure 1: Circle the Numbers in Order, as Fast as you can

In our experience, reaching between 10 and 15 on this task is a good performance. Readers who bettered this can congratulate themselves on their abilities, or maybe on their intuitions about the themes of the paper. These themes will emerge in the following sections. If you must know now why we would start this way, please look ahead for "The *Koto* Axis". For everybody else...

Koto for Beginners

The Japanese for "human being" is *ningen*. Written in Japanese script, the word is "人間", a composite of two characters. Unlike the Roman alphabet, Japanese characters can have both multiple pronunciations and multiple meanings. Here, the first character "人" is an ideogram of a human walking. By itself this can be read *hito* meaning "person". The second character "間" can be read *aida* meaning "in between" and also *ma*, which the anthropologist E T Hall calls "a space-time concept and a meaningful pause, interval or space" (Hall 1983, Page 99).

So in Japanese, the very concept of "human being" is linguistically linked to that of "relation". This is emphasised by Botz-Bornstein (2004), who says of *ningen* that "Man is always a 'man in between' and to be human means to have a 'relational existence'" (Page 118).

Koto is a product of this Japanese cultural outlook (and philosophy) that interprets experience situationally and through relations. At its simplest level, it can be visualised as an intersection, or an interaction, as shown in Figure 2.

The words *mono* and *kokoro* in this figure can be broadly translated as "things" (the physical world) and "heart" (man himself). *Koto* signals a mode of thinking about the world in which both these aspects are present at once. One example accessible to all readers should be that of an artistic performance, such as a musical recital. The expression of self that we can readily see in this scenario is also present—when regarded with a *koto* mindset—even in mundane actions like the picking of a flower, and also in negative interactions, such as workplace disagreements. Although there is little English language literature to reference, our figure owes a debt to the Japanese author and naturalist Minakata Kumagusu, who, as described by Figali (1999, Page 54), sketched in the margin of an 1893 letter "two overlapping ovoid areas labelled *mono* and *kokoro*, the common portion of which is labelled *koto*."

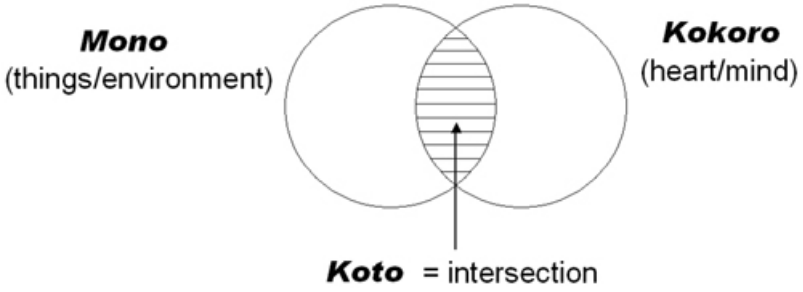

Figure 2: Visualisation of *Koto*

This is not a paper on philosophy[1]: we are interested in *koto* for the explanatory power it can offer in practice. When describing *ma*, Hall (1983, Pages 208-209) deadpans that it "does not lend itself to technical description" before wondering whether "It may very well be that, as in Zen and archery or Zen and swordsmanship, one has to go through the experience to begin to understand it". We wonder whether the same is true of *koto*. In truth, this would be appropriate for a concept emphasising the relation and coexistence of person and world. Nevertheless, we were struck by the potential for direct practical application in education, where learning can be viewed as a *koto* interaction between *mono* (the environment) and *kokoro* (students or teachers). We have therefore been exploring educational practices that focus on *koto*, working with students from elementary school level to business professionals. Below, we give the closest we can offer in a journal paper to "going through the experience": our impressions of our own encounters with this thinking in Japan, and beyond. As often with experiences, they can be related through stories. We start with two that we find particularly illustrative.

The Sphere and the Shawl

The definition of the kilogram, like many other scientific measures, dates back to a report submitted to the French Academy of Sciences on 19th March, 1791 by the illustrious team of Lagrange, Laplace, Borda, Monge, and Concordet (Sizes Inc. 2004). The physical basis for standard units recommended by this report served the times well, but gradually more "technological" definitions have been substituted. For instance, the metre was initially a metal bar against which all other countries calibrated their own metre sticks. This was replaced by gradually more accurate measures until, in 1983, the present-day definition was set as the distance light travels in a vacuum in 1/299,792,458 of a second.

The last remaining base unit in science still defined by a material object is the kilogram, which is embodied by a platinum-iridium cylinder cast by Johnson Matthey and Co. of London in 1879 and now kept at a vault at Sevres, near Paris (see Figure 3). The physical reference makes this the least reliable measure: just some water vapour on the referencing cylinder's surface will mean that today's "one kilogram" is different to yesterday's. However, achieving a more usable standard for the kilogram is a scientific priority that has defeated decades of efforts. The UK National Physical Laboratory provides a summary of the most promising known approaches, but signs off with "Any better ideas on a postcard please" (NPL 2007).

Enter Achim Leistner, a lens maker who migrated to Australia as a post-WWII refugee and now works at CSIRO's National Measurement Laboratory in Sydney. His unique talents have led him to the responsibility of making the 'perfect' silicon spheres required by the *Avogadro project* for redefining the kilogram. This initiative joins the forces of CSIRO's group with others in Japan, Italy and Germany and Russia working on separate parts of the problem.

Figure 3: The International Prototype of the Kilogram (Reproduction Authorized, BIPM, www1.bipm.org/en/scientific/mass/prototype.html)

A description of CSIRO's role in the project can be found online (Collis 1999). For us, the significant feature is that Mr Leistner's hands apparently outperform all modern technology. In fact, the article claims that his polishing is at a level that "can only be confirmed by the latest and most powerful computers".

How does Mr Leistner achieve this? He works by "massaging atoms". Here, at the forefront of precision modern science, we find someone who actually claims:

[1] Even Heidegger, when he wrote about the Japanese concept of "*iki*" was judged by Kojin Karatani to be "in total ignorance of what *iki* is" (Karatani 1983, Page 265).

> *I'm using classical optics techniques ... a blend of science and art. It's experience that gives you the 'feel' and there's no mechanical substitute ... I doubt there ever will be.*

Although this level of skill is clearly exceptional, the story highlights the power of the interaction of the human "*kokoro*" and the environment "*mono*" that we can view as "*koto*". In Mr Leistner's own words: "When I'm polishing a lens or one of the spheres I am living inside the surface. I must feel exactly what's happening..." With the technological focus of modern society, it may be hard for us to accept that there will never be a mechanical subsitute for this exacting labour. But for this very reason the story is valuable: it challenges us to question our preconceptions.

Once aware of the mindset, recognizing the impact of "feeling exactly what is happening" can become increasingly frequent. We also find it in the following story from Christopher Alexander's *Notes on the Synthesis of Form*:

> *The Slovakian peasants used to be famous for the shawls they made. These shawls were wonderfully colored and patterned, woven of yarns which had been dipped in homemade dyes. Early in the twentieth century aniline dyes were made available to them. And at once the glory of the shawls was spoiled; they were now no longer delicate and subtle, but crude. This change cannot have come about because the new dyes were somehow inferior. They were as brilliant, and the variety of colors was much greater than before. Yet somehow the new shawls turned out vulgar and uninteresting.* (Alexander 1964, Page 53)

This story appears hard to explain. Alexander introduces it in a discussion on the nature of design, where one of his key insights is that although original creation may be challenging, "we are all able to criticize existing forms" (*Id.*, Page 59). Alexander suggests that this ability to criticize, over many generations of making shawls, resulted in bad shawls being recognized as such, and not repeated:

> *They made beautiful shawls by standing in a long tradition, and by making minor changes whenever something seemed to need improvement. But once presented with more complicated choices their apparent mastery and judgement disappeared. Faced with the complex unfamiliar task of actually inventing forms from scratch, they were unsuccessful.* (*Id.*, Page 54)

Alexander goes on to develop an argument against design as a purely intuitive process. Our direction is different, for the shawl's story offers us the dual of the sphere's. With both sphere and shawl, the final product is the result of an interaction between *mono* and *kokoro*. And with both sphere and shawl, a radical difference is apparent: in one case for the better, in one case for the worse. But with the sphere, the difference is produced by the *kokoro* (there is one human with the skill to polish). Whereas with the shawl, the difference is produced by the *mono* (the introduction of new dyes). The contrast between these two stories, sphere and shawl, *kokoro* and *mono*, leads us to a way of visualising the importance of *koto*.

The *Koto* Wedge

This visualisation borrows gently from mathematics, from which we require a simple coordinate system with *mono* and *kokoro* as *x* and *y* axes. We also need to idealise the notion of "interaction" as an "equivalent balance". The simplest surface that can then represent a third dimension of *koto* on a *z* axis is shown in Figure 4.

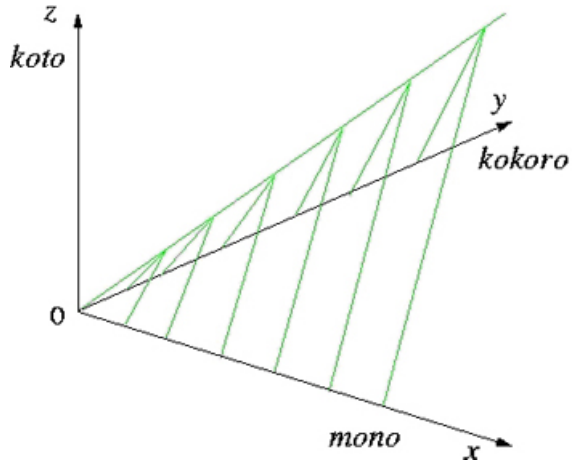

Figure 4: Visualisation of the *Koto* Wedge

To interpret this figure, consider first just the *x* axis. Along this line, the *y* value is always zero. Since we have idealised interaction as an equivalent balance, the shaded surface has zero height here, representing zero *koto*. The same is true along the *y* axis. But along the line where *x*=*y*, balance is highest, with larger values of *x* and *y* resulting in "more" *koto*.

For illustration, we can use the shawl story as an example of a situation where a long history can lead to a point of balanced equilibrium on the *x*=*y* line. But this equilibrium can be displaced away from the crest of the wedge by a shift in the *mono* (such as the introduction of new dyes), if there is no corresponding time to adjust the *kokoro*. For the sphere, on the other hand, we are pre-disposed to think of the polishing problem in purely *mono* terms. Achim Leistner's remarkable skill reminds us that, even when we may least expect it, considering the *kokoro* axis can be instrumental in producing the best solution.

The surface of Figure 4—let us call it the "*koto* wedge"—is a simple thinking tool. It suggests a three-way approach that can be used to aid thinking on any problem: consideration of the *koto* axis, the *mono* axis, or the *kokoro* axis. There are other precedents for this kind of tri-variate formalism, for instance the futures triangle, which maps the three dimensions of "push", "pull", and "weight". The creator of the futures triangle has said of it "This is useful in that with a simple diagram the dialectics of the future can be understood" (Inayatullah 2003). We hope the same might be true of our approach.

Learning from the *Koto* Wedge

To give more form to the abstract, it is time for some concrete examples. Although we find the *koto* wedge to be a general tool, in this paper we will use its axes in turn to look at teaching practices. Some of these practices we arrived at by explicitly thinking about *koto*. Others we understood only with hindsight. We hope the examples provoke thought, and maybe some inspiration. We also hope that they demonstrate the explanatory and predictive power of the approach.

Within education, we can effectively frame the examples by introducing a connection between *koto* and "wicked problems" (a relationship suggested to us by Jay Burmeister, at a recent chance meeting after many years). The notion of "wicked" problems was initially formulated by Horst Rittel to describe problems in design, where the numerous stakeholders were all likely to have very different perspectives. Here are the first five characteristics of wicked problems, modified slightly from the description of Conklin (2005, Pages 8-9):

- You don't understand the problem until you have developed a solution.
- Wicked problems have no stopping rule.
- Solutions to wicked problems are not right or wrong, simply "better," "worse," "good enough," or "not good enough."
- Every wicked problem is essentially unique and novel.
- Every solution to a wicked problem is a "one-shot operation," every attempt has consequences. As Rittel says, "One cannot build a freeway to see how it works." This is the "Catch 22" about wicked problems: you can't learn about the problem without trying solutions, but every solution you try is expensive and has lasting unintended consequences which are likely to spawn new wicked problems.

Conklin's web site states that "wicked problems always occur in a social context" (Conklin 2007). It is tempting to interpret this very simply: "Wickedness? Some property of the social". But temptation can be resisted, and we can look more carefully. Does the list of characteristics above talk of social factors? No, these are different. These are the characteristics of *things*, of a *problem space.* Conklin's quote is actually describing a coincidence. The idea we should be approaching is that of an interaction.

The appropriate interaction is easy to characterize. On one side, it has the wickedness of "things", and on the other "social context". Conklin himself talks of the problems that can be generated by such an interaction through the naming of a third quality of fragmentation: "Fragmentation = wickedness × social complexity".

We can offer a different alternative. The Japanese language has a word with a very broad meaning that encompasses both the negative and the positive caused by the interaction of "thing" and "human". It is called *koto*.

In what follows, we hope that readers will understand some new problems, and find more that is "better" than "worse". For the nature of education itself, if not malevolent, suggests much of the "wicked".

The Environment Axis

Beginning with the environment axis allows us to immediately give some concrete examples of learning spaces. For instance, consider the spaghetti towers shown in Figure 5. These were built at our workshop at the 2007 Conference on Learning in South Africa. To create them, participants were given two packs of spaghetti, one role of tape, and about 20 minutes. On this occasion, the goal was to make a tower, as tall as possible, that could support a small water balloon. At other times, we have eliminated the water balloon, so that the task is just to build the tallest possible tower. Comparing the towers built

under these different conditions is surprising: the balloon has the effect of focusing the mind on producing a structure that will be strong enough to support some weight.[2]

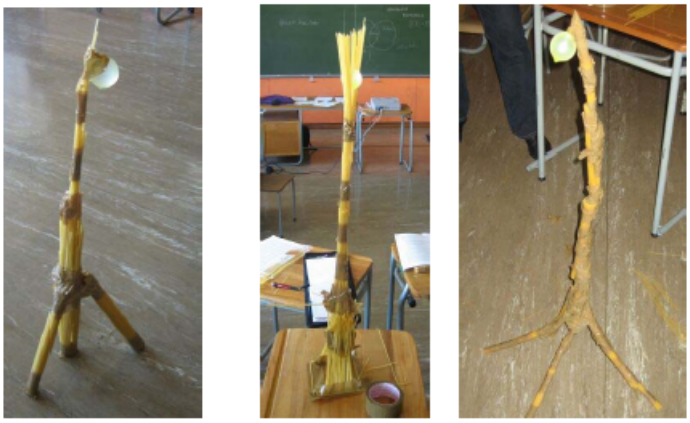

Figure 5: Spaghetti Towers Supporting Water Balloons

This illustrates a key property of environments: constraints can be a spur to performance. In fact, evidence of this feature of environments was subjectively apparent to us throughout our stay in South Africa, both within the education system and at the level of society itself. The phrase that repeatedly came to mind was the achievement of "much with relatively little". For us, this was a pleasant contrast to the all too familiar opposite of *littlemuch* (achieving "little with much").

We find that *koto* thinking leads us to seed our classrooms with things that can encourage interaction (shells, cards, lego, robots) in a "much with little" way. A key is to consciously accept the challenge to make the best use of what is available, both in terms of materials and ideas. We have found that in this endeavour, industrial trainers are often well ahead of mainstream education. For instance, the single idea of tower construction has been modified by the organizational psychologist Sam Sikes to use newspaper, balloons, or even loaded mousetraps (Sikes 2003), as well as spaghetti, with each building material enabling different to lessons to be addressed. And, having come upon the idea of mousetraps, Sikes (2003) goes on to suggest six further activities in which they can be put to good use.

Hunting down and questioning littlemuch practices can also be profitable. One obvious example here is Microsoft's PowerPoint, the prevalence of which has led to much criticism, such as Tufte's riling against the "relentless sequentiality" that makes it difficult to understand context and evaluate relationships (Tufte 2003). We ourselves have tried replacing conference PowerPoint presentations with alternatives like the ring-bound cards shown in Figure 6. They have been well received, both during presentations and afterwards: we have been approached with requests for cards from people not present at our sessions who had been shown them by other delegates.

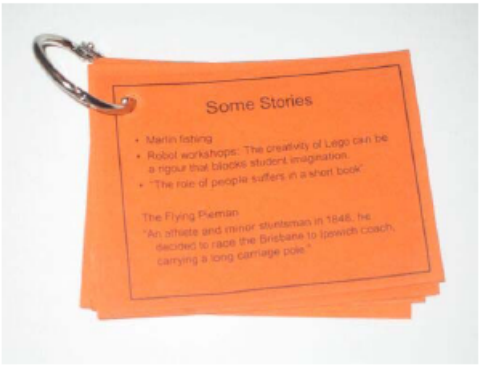

Figure 6: Non-PowerPoint Conference Presentation Materials

We encountered another littlemuch effect when working on robotics workshops for elementary school students in Japan. Robot kits typically include instructions on how to assemble the included parts in many different ways. These instructions are surely very helpful, but giving them to the students often results in little more than the simple following of a set of pre-determined steps. We found that a different

[2] More information on spaghetti towers can be found in (Sikes 1998).

dynamic could be created by presenting students instead with just the parts from a kit, plus an example robot to copy. This has the effect of forcing students to examine the robot for *how it works*. Just putting the parts together in what may appear to be the same way as the model will most likely not succeed, since there are dependencies that are usually only revealed by trial and error (for example, the exact height to build supports for an axle so that gear cogs will mesh). In our experience, students copying a model produce quite varied robots, since they realise that what matters is replication of function, not only form. On top of this, interaction in the environment can be maximised by providing just a small number of example robots. For instance, two identical model robots can be placed at opposite ends of a room and students required to move from their desks to examine them. That the students in such a classroom are doing more than just "following instructions" becomes clear by the number of times they get half way back to their seats before turning back to look again at the models. They are being challenged to think; to remember. And one way to improve memory is to construct a mental representation with explanatory power. In effect, the two models become focal points around which students gather to discuss the rationale of the robot design with those (teachers and students) around them.

Interested readers can find more about our robot workshops in (Frank & Field 2006). As with the other examples in this section, one principle they highlight is that people learn from their surroundings, and that it therefore makes sense to fill these surroundings with patterns that can support that learning. This is a topic that will return very soon below.

The *Koto* Axis

The *koto* axis is primary. It is an appreciation for thinking along this axis that the majority of the stories and examples in this paper are designed to promote.

There is much we could say here, but let us try to stay with practical examples. First, we can return to the numbers game at the start of this paper (which we initially discovered at the first-rate firststepstraining.com). The format of a journal paper is understood and prescribed. Considered as a *mono* object, we can do little to change it. And from a *kokoro* perspective, we cannot have meaningful foreknowledge of our readers. But one key of *koto* thinking is that an interaction should be involved: hence the test. The character of Si Wang-mu in Orson Scott Card's novel *Children of the Mind* understood this well:

> *"Everything I know I learned the hard way. I lived through it".*

The specific choice of the number-circling activity also allows us to illustrate how *koto* thinking can direct choice of curriculum content. We have often used this particular example in classes and workshops to give people an insight into their own thinking. There is a pattern to the number placement, and only those finding it score well. This understanding can be led in directions such as higher level thinking skills, or the "processing" of David Allen's *Getting Things Done* (which itself has many *koto* overtones, with its emphasis on clearing the mind by setting up a supportive environment).

Another avenue for examples of *koto* thinking is the writings of other educators, for instance this from another source inspired by Eastern thinking:

> *Teach the wholeness of things...Breaking down learning into small parts can make certain types of learning more complex and less authentic. Adding the parts up again does not automatically produce the original, whole learning. When a concept is about to be learned, allow students to experience it in its wholeness before attempting to teach its pieces . Singing the complete song comes before learning the notes… Expose students to wide varieties of total experiences before teaching any elements or skills.* (Nagel 1994, Page 89)

Oneness is an abundance of relation. Of course, the puzzle at the start of the paper was also a test of identifying relationships, and as Benderly (1989) has said:

> *At the heart of intuition is "the ability to perceive large meaningful patterns"*

The evolutionary biologist Gregory Bateson offered the phrase "the pattern which connects" as a synonym for his book "Mind and Nature" and lamented "Why do schools teach almost nothing of the pattern which connects?" (Bateson 1979, Page 7). One has to admit that in much education, the person who perceives the pattern is often the teacher, who diligently prepares the syllabus and examples for the students. If this work of perceiving is then not fed back to the students, teachers can mislead a class into thinking that learning is a private, unknowable process. It is not, surely. The ability to perceive patterns is a skill that can be improved. And it's something that can be focussed on in class:

> *To optimize teaching, we need to design practice in which learners are encouraged to search for the important connections between principles and procedures .* (Chi, Bassok, Lewis, Reimann, & Glaser 1989)

We can also offer this example from mathematics teaching:

> *[The teacher can challenge] his students to find difficult problems for him to solve, so they can observe his own struggles and floundering, which legitimate students' floundering as well. Students begin to realize that mathematics requires neither merely recognizing principles, nor merely applying procedures, but, rather, a creative interpretive process of exploration and reasoning.* (Halpern 1992, Page 73)

There is an obvious aspect of risk-taking here. The teacher must be prepared to be wrong, as well as be right, in front of the students. We ourselves have frequently needed to move outside our "zones of comfort" in developing *koto* practices. The presentation style of Figure 6 is just one example of this. But risk-taking is part of learning, and indeed has been identified by Dreyfus as one of the reasons for the perceived failures of e-learning: without physical embodiment and interaction in a classroom the invested stake of the learner is reduced (Dreyfus 2001).

This notion of requiring an embodied interaction with an environment is taken to extremes in the traditional personnel rotation still widely employed in Japan. This system sees workers moved internally every few years, with little control over their assigned roles, in order to experience as many aspects of their employer's business as possible. McConnell (2000) has said of this practice: "it is considered extremely rude for the outgoing person to offer unsolicited advice to the newcomer. The basic philosophy is to start with a new spirit, not influenced by the jaded perceptions of the incumbent." To succeed in a new post, then, requires sensitivity and the ability to learn from surroundings. G. Victor Soogen Hori has a term "teaching without teaching" for this approach to learning.

Although its efficacy can be questioned, the longevity of the rotation system in Japan is one testament to the power of *koto* thinking in a society. As another such testament, we cannot resist an example from world literature, showing how interaction with the world can challenge even time itself. In "Kafka and His Predecessors", Jorge Luis Borges plucks an eclectic sample of works with Kafka-esque properties from two thousand years' of literature to conclude:

> *In each of these texts, we find Kafka's idiosyncrasy to a greater or lesser degree, but if Kafka had never written a line, we would not perceive this quality. In other words, it would not exist... The fact is that every writer creates his own precursors. His work modifies our conception of the past, as it will modify the future.* (Borges 1964, Page 201)

The *Kokoro* Axis

What happens in a classroom has the power to transform thinking and lives. Visualise the *kokoro* circle of Figure 2 intersecting with the environment of a class: one way of setting up the classroom experience to encourage real transformation is to follow the advice of de Bono (1964, Page 34) "To fail to solve the problem and yet to be aware of the details of that failure is more worthwhile than to solve the problem rapidly and have no idea of how it was done." This applies to both students and teachers.

But abstract away the environment completely and consider only the *kokoro* circle or axis in isolation. This brings into focus a new set of questions, most obviously "What kinds of students are we teaching?"

There is much advice here in the literature, for instance the recommendation to "start with the students rather than the discipline" from (Bain 2004, Page 110). However in considering this question, we ourselves became aware that our own educations had not prepared us adequately for the task. That is, although there is much research on "people", it does not usually form part of an education curriculum outside specialised disciplines, such as psychology. Especially for us, Westerners teaching primarily in a Japanese context, one obviously important question is "Can we understand the Asian mindset?" As it turns out, recent years have seen significant psychological research comparing Eastern and Western thought patterns. We can give one very easily understood example, in the form of a figure. You will get more from this example if you actually participate (invest your *kokoro*), so please look at Figure 7 and write down what you see[3].

Nisbett, Peng, Choi and Norenzayan (2001) have used pictures such as this to demonstrate a reliable difference in Western and Eastern responses. What words are first in your own written description? The research shows that if you have written "fishbowl" or "goldfish bowl" before "goldfish" you are far more likely to be Asian than Western. That is, the Asian mindset is to look first at the background. The Western mindset, on the other hand, is to look first at the agent or individual, so that for this picture Westerners will tend to first write "fish".

[3] Clip art licensed from the Clip Art Gallery on DiscoverySchool.com.

Figure 7: What do you see?

We have found that research in this vein, as well as ideas such as the Fundamental Attribution Error (Myers 2002), MBTI, VAK learning styles, and Johari diagrams, are important not only for our own understanding of our students but also as curriculum material. After all, if this knowledge actually leads to understanding of students, it makes sense to also place it into their own hands.

And it should not be forgotten that we, the teachers, have our own *kokoro*. Nagel again:

> *Wise teachers learn about their own roots and share their reflections. Teachers who do not know how varied and strong their own values are cannot realise the impact of their values in judging others.* (Nagel 1994, Page 53)

Differences in values of course arise for a multitude of reasons. Since space is closing in, let us select one for special mention: age. This is surely something that will face us all. And it provides a final "pattern which connects" from Mary, the daughter of Gregory:

> *In a world of accelerating change every graduate student needs to understand that much of the shiny new learning is obsolescent, while the authority of elders is contingent on their willingness to continue to learn even as they teach. When society is fluid, young and old alike need to improvise and to teach each other.* (Bateson 2000, Page 31)

In many ways, the learning ideas we have presented in this paper have been as much about our own development as they have about the effects that we desire for our students. In the end, we have to accept the limitations of our own actual teaching abilities, and acknowledge the sentiment of de Bono (1964, Page 65):

> *It is hoped that you may be amused by the course, for you will be taught nothing but the usefulness of teaching yourself. This method has the advantage of freeing you from the deficiencies of the teacher.*

Conclusions

We have presented the notion of *koto* and, with appreciative nods to the sphere and the shawl, introduced the visualisation of the *koto* wedge. Using concrete examples, we have illustrated how the three axes of *mono*, *kokoro*, and *koto* can be used to interpret and guide practical action in education.

Our story may have been unusual for those unaccustomed to Asian mindsets. But consider the converse that some may find poignancy encountering "wickedness" in non-Asian frameworks linked to the social.

We take the wicked lesson that there is no stopping rule. Our ideas are still developing and our educational practices still evolving. For us, the *koto* wedge will shape the landscape of the future. For the general reader, we hope at least to have given some form to the past.

References

Alexander, C. (1964). *Notes on the Synthesis of Form*. Harvard University Press.

Bae, B. (2006). "The Meeting of Gyeokchi and Physical Science." *Crossroads: Journal of Asia Pacific Center for Theoretical Physics*, Vol 8, May. Retrieved from crossroads.apctp.org/article.php?number=51, August 2007.

Bain, K. (2004). *What the Best College Teachers Do*. Harvard University Press.

Bateson, G. (1979). *Mind and Nature: A Necessary Unity.* Bantam Books. Some chapters also available online at www.oikos.org/mind&nature.htm.

Bateson, M. C. (2000). *Full Circles, Overlapping Lives: Culture and Generation*. Random House.

Benderly, B. L. (1989). "Every Day Intuition." *Psychology Today*, Vol 23, September.

Borges, J. L. (1964). *Labyrinths: Selected Stories and Other Writings*. NY: New Directions Pub. Co.

Botz-Bornstein, T. (2004). *Place and Dream: Japan and the Virtual*. Amsterdam/New York, NY.

Chi M. T. H., Bassok M., Lewis M. W., Reimann P., & Glaser R. (1989). "Self-explanations: How students study and use examples in learning to solve problems." *Cognitive Science*, 13, 145182.

Collis, B. (1999). *A Load of Perfect Balls,* CSIRO Feature Article. Retrieved from www.csiro.au/news/features/achims_balls.html, August 2007.
Conklin, J. (2005). "Wicked Problems and Social Complexity." In *Dialogue Mapping: Building Shared Understanding of Wicked Problems,* John Wiley and Sons. Retrieved from cognexus.org/wpf/wickedproblems.pdf, August 2007.
Conklin, J. (2007). *Wicked Problems*. Retrieved from cognexus.org/id42.htm, August 2007.
de Bono, E. (1964). *The Five Day Course in Thinking*. Penguin.
Dreyfus, H. (2001). *On The Internet.* Routledge.
Figali, G. (1999). *Civilisation and Monsters: Spirits of Modernity in Meiji Japan*, Duke University Press.
Frank, I. & Field, M. (2006). "Lessons from Indigenous Thought — Working with *koto* and robotics." *Australian Computers in Education Conference*, 2006. Available from ianlab.ddo.jp/koto-tsukuri/LessonsfromIndigeneous-Thought_koto.doc.
Hall, E.T. (1983). *The Dance of Life*. Anchor Books Editions, 1989.
Halpern, D. F. (1992). *Enhancing Thinking Skills in the Sciences and Mathematics.* Lawrence Erlbaum Associates.
Inayatullah. S. (2003). "Teaching futures studies: from strategy to transformative change." *Journal of Futures Studies*, Vol. 7 No.3, pp.37. Retrieved from www.metafuture.org/Articles/teachingfuturestudies.htm, August 2007.
Karatani (1983). "One Spirit, Two Nineteenth Centuries." Reprinted in *Postmodernism and Japan*, Massao M. and Harootunian H.D., Duke University Press, 1989.
McConnell, D. (2000). *Importing Diversity - Inside Japan's JET Program.* University of California Press. Chapter 3 available from www.ucpress.edu/books/pages/8317/8317.ch03.html, as of August 2007.
Myers, D. G. (2002). *Intuition: Its Powers and Perils*. Yale University Press.
Nagel, G. (1994). *The Tao of Teaching: The Special Meaning of the Tao Te Ching As Related to the Art and Pleasures,* Plume.
Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). "Culture and systems of thought: Holistic vs. analytic cognition." *Psychological Review*, 108, 291-310.
NPL, (2007). *Frequently Asked Questions - mass and density.* The UK's National Physical Laboratory. Retrieved from www.npl.co.uk/mass/faqs/history.html, August 2007.
Sikes, S. (1998). *Executive Marbles: And Other Team Building Activities*. Learning Unlimited Corp.
Sikes, S. (2003). *Raptor: And Other Team Building Activities.* Learning Unlimited Corp.
Sizes Inc. (2004). *Meter*. Retrieved from www.sizes.com/units/meter.htm, August 2007.
Tufte, E. (2003). "PowerPoint Is Evil - Power Corrupts. PowerPoint Corrupts Absolutely." *Wired*, Issue 11.09, September. Retrieved from www.wired.com/wired/archive/11.09/ppt2.html, August 2007.

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