

Reflections on trying to import cultural practices from one country to another

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I have been revisiting interviews from about 25 years ago that have not, formally, been written up. Soon after each mathematics teacher's first lesson with a new group, I interviewed them focusing on the detail of what happened in the spirit of Bruner's "culturally sensitive psychology": How does what is done give insight into thoughts and beliefs? I would now describe the process differently using Petitmengin's protocol, but my current interest is driven by the question: "How possible or desirable is it to try to import the culture and practices of one country's mathematics teaching and learning to another?" After sharing the outcomes of the original interviews, I will compare and contrast teaching and learning mathematics in Hungary and the UK, drawing from a 25-year experience of an exchange link of prospective teachers. No matter what new initiatives are suggested by governments, the culture, values and beliefs of the teachers will tend to influence what becomes the experience of learners in the classroom.

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Background thinking and assumptions

When politicians decide on a mathematics education policy to implement in classrooms, do they believe that all mathematics teachers in their country will be able to create that vision in all classes? To do this would involve heads of departments interpreting the policy documents similarly and most teachers in a process of change. This process involves individuals and groups reading the policy through their previous experiences. When different schools implement different changes in response to the same policies, I am not surprised. What are my background assumptions that lead to that belief?

Recently, at the University of Bristol where I work, a public lecture was announced given by Beau Lotto, who had written a book entitled, *Deviate: The science of seeing differently* (2017). The phrase, "seeing more, seeing differently" appears in papers I have written (for example, see Brown, 2015, p. 190). I bought the book and went to the lecture. The central point, that fits with my way of seeing the world, is that we create our reality. We do not see what is there but see patterns in context and action. For instance, "We evolved to perceive in order to survive, which presupposes action on our part ... the need to *do* something (Lotto, p. 59). Our "ecological brain *constructs* meaning out of the only other piece of information it does have access to ... past experience (Lotto, p. 66).

The main difference, for me, between Lotto's language and mine from an enactivist perspective is the use of brain, where I would use mind. Otherwise, the ideas have a striking similarity, "Minds make motions and they make them fast" (Clark, 1997, p. 1); we act out of our history of structural coupling with the environment (Maturana, 2002). The key question for me, then, is how do we ever manage to do or see something

new? How can we implement a new policy document as the authors intend, when we act from our past experiences, our personal histories of interaction? To help me think about these questions, I went back to some interviews I had conducted, about 25 years ago, with experienced mathematics teachers who were considered to be effective by the local mathematics advisory teachers. These interviews were exploring their first lessons with new groups of students.

First lesson interviews

Over 25 years ago, I would not have called myself an enactivist. I was interested in Bruner's (1990) ideas of a "culturally sensitive psychology":

[which] is and must be based not only upon what people actually do but what they say they do and what they say caused them to do what they did. It is also concerned with what people say others did and why ... how curious that there are so few studies that [ask]: how does what one does reveal what one thinks and believes. (p. 16-17)

I was aware that first lessons with a new group of students were important to teachers in establishing their ways of working, but often were times where observers of the lessons were not so welcome. As a new mathematics teacher educator, I was fascinated by observing different teachers and their students interacting and wanted to try to get at "what they say they do and what they say caused them to do what they did" (Bruner, 1990, pp. 16-17). I designed an interview protocol where each teacher interviewed was invited to tell me in detail about a first lesson or sequence of lessons with a group of students who had not been taught by them before. I wanted to focus on what happened in some detail as the teacher established their ways of working with the class. For my reanalysis, I was thinking about the same ideas but also in relation to how the students were supported in new behaviours.

In looking back at the interviews, I was struck by how similar the protocol was to one I currently use adapted from the work of Petitmengin (2006), with its focus on behaviours in interaction:

- 1) Stabilising attention. A regular reformulation by the interviewer of what the subject has said, asking for a recheck of accuracy (often in response to a digression or judgement). Asking a question that brings the attention back to the experience, *e.g.*, How did you do that?
- 2) Turning attention from "what" to "how" (never "why").
- 3) Moving from a general representation to a singular experience, a re-enactment, reliving the past as if it were present. Talking out of their experience, not from their beliefs or judgements of what happened, often involves a move to the present tense. Staying with the detail is important, a maximal exhaustivity of description that allows access to the implicit. (adapted from pp. 239-240)

One of the changes in my own behaviour as an interviewer over the years has been to let go of "why" questions, whilst still supporting interviewees "talking out of their experience, not from their beliefs or judgements" (Petitmengin) to focus on "what people actually do [and] say they do" (Bruner). With Alf Coles, I have also extended the protocol for what we call narrative interviewing to a fourth point for an unpublished conference paper. This process can be useful for prospective teachers to access new behaviours in relation to incidents that they have found to be uncomfortable:

- 4) Getting to new category labels. After dwelling in the detail, telling stories and exploring without judgement or digressions, invite statements of what is being

worked on. In this way, new category labels might be identified [...] that will link to learning new actions.

I will illustrate in the next section how the question of what is being worked on leads to the energetic articulation of what one teacher thinks and believes.

“I like to give things a story”

One teacher in his first lesson with a new group described using the following problem:

I had a dream last night and, in that dream, this is what I heard. You must build a tower and from the top of the tower sort of like a plus sign from the side it should look like two staircases meeting. We haven't decided yet how big the tower should be but when we decide, you must be able to build it and organise the building of it.

After telling the problem, the following exchange occurred where there was a shift in the teacher's comments to be about what he had described, giving access to his thinking and beliefs:

Teacher: I like to give things a story because I like to give the children a natural language as a parallel to the mathematical language.

Laurinda: So, a story for you would apply basic language, not mathematical language. Any other things that you would say in the story?

Teacher: I think it allows enabling people to enter the world of maths you are talking about then if you have got a story if it's amusing or catchy in any way they might get interested in the first place, but it does provide short simple language with which they can converse with one another. So, it allows for group work which is something else I think.

In this extract, my contribution is stabilising attention, repeating back what I have heard said and returning the focus to the story, to the detail of what happened. However, this comment is followed by the teacher saying more about the thinking behind his decisions. I recognise these energised comments as what I want to focus on when analysing the interviews. Here is another contribution by the teacher in the interview, where this time he initially gives insight into his vision of how the lesson will develop over a sequence of lessons before returning to the detail of what happened:

By the end of two days' work we were going to have posters of this and I wanted the posters to be different and I wanted people to have things to look at which would be new for them and interesting, and I wanted different people to have different problems that they would be solving, partly so they would have to rely on their own thinking. And just to show that a huge range of possibilities can come out of story anyway. There is not one right answer, there are lots of answers which are valid to various degrees. [...] I then asked them in groups again, individually, to write down the task and everything and the story and then in groups giving them five minutes to do that, in their groups to decide what kind of questions or concerns or worries the architect has.

The other teachers interviewed about their first lessons with a new group were energised about different aspects of their practice and how they established the culture of their classroom. In implementing a new policy, a teacher is not going to be able to completely change their teaching because in becoming experienced at motivating mathematics through their own beliefs, this is not going to be easy to let go of, especially since, for instance, story seems to be an effective strategy. This teacher could be implementing a new national strategy alongside using story.

At national level in the UK, currently, there is curriculum development related to visiting and hosting teachers from Shanghai and what is being called teaching for

mastery (Stripp, 2017). In the next section, I want to discuss lessons learned from a 25-year-long link with a university in Budapest, Hungary where each year a group of prospective teachers and a tutor would travel to the other institution to experience mathematics teaching in schools and mathematics teacher education in the university. When we visit another country and observe teaching, what do we see?

Bristol/Budapest link: Contrasting cultures of maths teaching and learning

The exchange stabilised on a maximum of six prospective mathematics teachers and a tutor travelling each way. For the student teachers on the one-year postgraduate (PGCE) course in Bristol hosting the Hungarian group, this was relatively near the start of their one-year studies in late October/November. The Hungarian students got to know each other well through organising the link so formed a strong catalyst for bonding with the new group of PGCE students in Bristol. Similarly, by Easter, when the English PGCE group travelled to Budapest, they knew each other well and helped the Hungarian students to bond. There was a sense in which the exchange could not end, in that there was always a group of prospective teachers who had supported the visitors and were anticipating travelling to their country later in the year.

Although, over the years, the mathematics education lecturers on the courses visited the other city in the link many times, each new group of students were engaging with seeing differences to their own country experiences for the first time. Given that we see from our past experiences, gradually seeing more complexity in the new classrooms needed work with the visiting group of students on the detail of their experiences. Reflecting together with the hosts became a feature of the link from both sides. Some things seemed easy to notice (see Table 1):

	Hungary	England
Class size	Up to 15, half classes.	Variable, often 30 plus.
Dress	Informal, both pupils and staff.	Uniform, both pupils and staff (professional clothes).
Marking	Little sign of much marking of books in or out of class.	Considerable time spent on marking by most teachers.
Behaviour	Generally calm. Children speak when others are presenting at the board.	Variable. Some problems for most teachers, often linked to setting (<i>e.g.</i> , lowest achievers grouped together). Children attend to student sharing their solution.
Environment	Display of pupils' work varied.	Teachers have a room to teach their subject in so displays of pupils' work the norm.

Table 1: Easily seen differences between Hungarian and English maths classrooms.

Some of these noticings brought with them strong feelings. We often experience difference as “wrong”, hence the need to hold off from judgements after the initial reaction. For instance, in England almost all schools have a school uniform, for teachers and students. This is a largely unquestioned taken-for-granted background to education. However, there is no such dress code in Hungarian classrooms. One male PGCE student

told me that he had taken his school clothes (suit and tie) to Hungary and continued to wear them on school visits despite not being necessary to “keep up appearances”. It is sometimes hard to accept for an English teacher that classrooms do not descend into chaos if uniforms are not worn.

Over the years of visiting, I became more aware of the underpinnings of the Hungarian system, but it took me many years to even begin to appreciate some aspects. One awareness, that was to support changes in my own classroom behaviour, was educated in a lesson observation shared with a Hungarian tutor and the Bristol group. The children were young and the class was around 30 students. The teacher invited the students to draw different nets of an octahedron. We were seated in a row at the back of the classroom. The teacher was not going around the room looking at what the children were doing, a typical teacher behaviour in England. I asked the tutor if it would be alright if I walked around and looked. He asked, “Why would you want to do that?” When I went around looking I collected a few of the drawings the children were making (see Figure 1). What would you, as a teacher, do with these responses? In Hungary, the teacher does not feel a need to do anything with them.

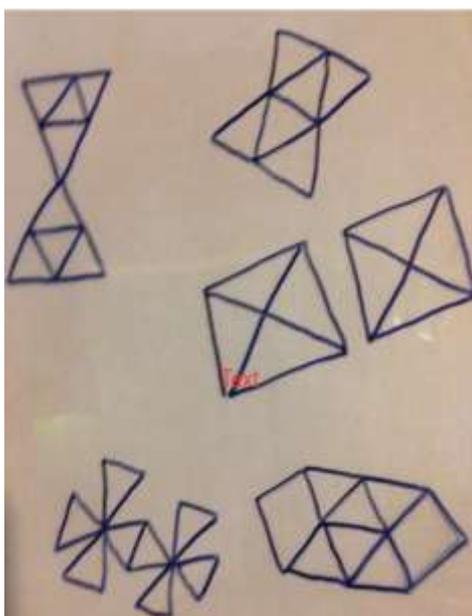


Figure 1: Children's nets of an octahedron.

There was no interest or surprise in reaction to the images I had collected. There was no teacher lust to work with the children to identify properties of nets, for instance. An octahedron was opened out in various ways by the teacher to show the net. The children interacted with their diagrams. The curriculum organisation was spiral so that the concept of a net would be repeatedly visited over future years and what was important at the moment was the children's engagement. This observation happened on an early visit to Budapest for me and I was still reacting to the differences without any sense of where those differences were coming from. What was highlighted was my own image of teaching as working with students' misconceptions and in Hungary that was the students' work, not mine.

I gradually came to be more aware of the cultural background of Hungarian teaching. For a tutor on their first visit, not seeing a teacher working with student responses, the teaching could appear dull. The following quotation, a commentary on Principle 7, “Supervision, evaluation, errors”, of Tamás Varga's *Principles of methodology*, helped me to see how the basic principles of teaching were different and culturally embedded:

From the very beginning children should, undertake the task of checking the outcome of their work instead of leaving it to the teacher to decide whether the result is correct or not. It is, on the other hand, the job of the teacher to create an atmosphere in which even erroneous views or formulation can be freely expressed. The teacher should direct their work, orient their discussion in such a way that the children themselves could distinguish between correct and false, consistent and inconsistent, effective or ineffective. Try to develop critical awareness in children,

strengthen their willingness to discover errors and correct them. (Ambrus, 1996, p. 10)

There was homework given after every class in Hungary. The beginnings of lessons, instead of being teacher-led as in England, are student-led. Time is spent while two or three children go to the board and write homework solutions. In England, everyone would need to be in silence, looking at them, but in Hungary, children are responsible for checking their errors, “being active in discovering errors and correcting them”. The teachers do not mark this homework. How would parents react in England to teachers not marking their child’s work?

In the early days of the link, there had been a PISA test in which England did well and a TIMSS test in which Hungary did well. Our governments only looked at the test that seemed to need work. Hungary implemented the Angol curriculum, interpreted as giving teachers time to choose what they wanted to teach in some lessons. In England, there was more of a focus on skills, rigour, accuracy and speed, with some new curriculum material purporting to be based on Hungarian methods. Our countries seemed to be on track, in terms of mathematics classroom strategies and focus, to pass each other going in different directions. When I first visited Hungary, teaching practices were stable, teachers teaching in the way they themselves had been taught. Cultural practices were embedded in the system. However, as changes are implemented by governments in response, often, to international comparison studies, such cultural practices can be disrupted and teachers literally do not know what to do in an embodied sense in their classrooms. Trying to implement a strategy from another country without understanding of the background cultural assumptions feels so different to the conviction of experienced teachers in teaching through their beliefs.

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