How We Learn:

An Essay in Pedagogy

This short essay is intended mainly for those in the field of education, though all interested readers are more than welcome. The essay combines revised excerpts taken from a 2019 conference presentation given at the annual Canadian Society for the Study of Education (CSSE), along with reflections on my recent 2022 experience of teaching incoming student teachers entering their full-time professional training program at Simon Fraser University in British Columbia.

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Introduction

Recently, I had the privilege of teaching the entrance course in the Professional Development Program here at British Columbia's Simon Fraser University Faculty of Education. The class consisted of 34 new incoming student teachers in the first leg of their professional teacher training program toward certification. It is a breathtaking course, deeply transformative in nature, and team taught to over 400 students by 13 different instructors. The name of the course, not too surprisingly, is Foundations of Education and Schooling. As I asked my class on our first day: *where* are those foundations?

We tend to spontaneously imagine 'Foundations' as some large and comprehensive entity somewhere out there (in the Cloud, maybe?) to which we can turn for all answers to all our questions about, in this case, education and schooling. It probably sounds weird, but I challenge you to pause over the question, *where* are those foundations? There is only you and me, us humans searching and seeking and glimpsing and growing in our understanding of education and

schooling. So, as I said to my class, *you* are the foundation; *we* are the foundation. Each person holds a small piece of the whole, but *we* are the whole, some more than others. If you/we are growing, then our piece grows larger as we grow in our understanding; some are experts, some beginners.

This odd question invites a quite different twist or turn that asks me/you/us to notice and appreciate "the universe inside us" (O'Connor, 2000).[1] This universe inside us… is something quite incredible, or maybe deeply credible, a restlessness, an inner drive-desire to connect to the outer (already-out-there-now) world around us, to each other, to meaning, to spirit, whatever that might be. It is our hidden inner desire to know and to do, where "…I can ask oh any question." It is my/your/our foundation.

So, my short essay invites you to consider a different meaning of the word *foundation*, a meaning that sheds wondrous light on how we learn. In the midst of this past (stunning) semester, working with an exceptionally bright and open group of teachers-in-training, I noticed (again, not surprisingly) the lack in our course curriculum of that central question: how do we humans learn? This lack is not at all a criticism of the university or the program, which is very well recognized nationally, and for good reason; it is simply representative of where we are in our human evolution. Herbert Butterfield (1957) in *The Origins of Modern Science* notes that we humans take an extraordinarily long time to solve basic conundrums. For instance, we might find it laughable today to think of the earth at the centre of the universe with the sun moving around

[1] Sinead O'Connor's album, *Faith and Courage*, was given to me years ago by my dear friend, Sally McShane, who also introduced it to her husband, my great friend and mentor, Philip McShane, who referenced it in many of his writings. This song, The Healing Room, became one of their favourites. It is also mentioned by James Duffy in his editor's introduction to McShane's (2021) *Wealth of Self and Wealth of Nations*.

us. But if you sit and imagine (a tremendously important activity to undertake) the cultural ethos in Europe in the 14th or 15th century, then the opposite suggestion is utterly shocking. Who would suggest something so completely counter to our obvious experience of the sun rising and setting around us? Those who dared were persecuted or even imprisoned.

The problem of how we learn presents the same sort of conundrum today as planetary motion was in Copernicus', Kepler's, or Newton's time and requires the same sort of unusual thinking. It is an anomaly in need of a solution. Histories of philosophy do a wonderful job of demonstrating how thinkers have tackled the question in many different varieties and versions of answers. And yet as a human group we have not arrived at a clear solution to the problem. In fact, the need to 'pick your philosopher' rather radically demonstrates the gap in our clarity of understanding human understanding. However, hope looms on our horizon (and perhaps *in* your horizon,[2] for those of you interested in pursuing this odd conundrum) in the form of a massively re-orienting book, *Insight: A Study of Human Understanding* (Lonergan, 1992; 1957). I don't necessarily recommend that you immediately get this nearly 800 page book; there are numerous introductory efforts that are perhaps better as a lead-in.[3] This short essay, then, is one of those introductory efforts, a very brief lead-in to invite teachers to engage in pedagogical discovery-based learning, with or without their students, and to make a beginning in understanding how *we* learn, that is, to take hold of, possession of, the universe inside us.

[2] I am referring to the use of *horizon* by Bernard Lonergan (1971) as a metaphor for "the scope of our knowledge, and the range of our interests" (p. 236).
[3] I consider the best of these still to be Philip McShane's *Wealth of Self and Wealth of Nations: Self-Axis of the Great Ascent* (2021; originally published in 1975).

(Generalized Empirical Method) A Pedagogical Approach to Discovering How *We* Learn

Context is important as we ease into this discovery-based essay-exploration. History has converged in many ways (a book, or several books, are needed here) to push education toward changes long called for by progressive educators. One arm of the convergence is the unprecedented growth in technology, which is changing how students learn and how teachers teach. Trying to keep pace with these changes, educational researchers are finding a heightened need to better understand student engagement and the learning process. Hattie's (2009; 2012) research on teacher efficacy makes clear an immanent need for understanding cognitional process, and teachers worldwide are encouraged to develop meta-cognitive skills in student learning.

In British Columbia, the still relatively new K-12 curriculum includes meta-cognitive awareness and skill development in its Core Competency that addresses 'Thinking' (two other Core Competencies address Communication and Personal & Social development). Teachers in BC increasingly need to be competent in teaching meta-cognitively and, as the shift in BCs new curriculum demonstrates, able to meet the new pedagogical responsibility of more effectively facilitating and understanding the learning process.

Another arm of the convergence is a move in education (and elsewhere) toward empirical, research-based improvements to pedagogy. Earlier I mentioned hope, and here I can say that my hope regarding learning how we learn is grounded in an empirical research-based approach that, with hard-won effort, offers advancements to our pedagogical understanding – if we are willing to put in the work. The approach I allude to is first named, in *Insight* (1992; 1957), Generalized Empirical Method. It is a method that is meta-cognitive and pedagogical in nature, with the aim

of adverting to, , understanding, and personally appropriating my/our dynamic flow of consciousness, or what I have been calling our learning process. It encourages a shift away from meta-cognitive technique-based approaches on how *to* think toward a data-driven, process-based focus on how *we* think. Grounding Generalized Empirical Method (GEM) is *empirical* method (or 'theory verified in instances' as the popular summation), the familiar systematic patterned structure of scientific questioning, hypothesis, experimentation, insight, and verification that occurs over and over again in the quest to understand natural phenomena. Empirical method neatly and conveniently exposes recurrent patterns and activities of 'minding' that are fundamental to us in our scientific learning.

Clearly, though, not all learning is scientific in nature. Yet questioning, insight, and verification are activities recurrent in all learning regardless of orientation, be it common sense, artistic, scientific, practical, and so on. *Generalized* empirical method, then, neatly and conveniently exposes systematically recurrent patterns and activities inherent in *human* learning. It promotes a meta-cognitive approach that is based in experience. Students learning math, drama, history, English, whatever it may be, simultaneously explore how they learn. Teachers engaged in their craft of pedagogy likewise can explore how they learn; both are engaged in observing and noting *how* they learn *as* they learn. In GEM, we are never apart from our own meta-cognitive awareness and attentiveness that reveals to us the recurrent structure and process of our own learning.[4]

[4] Philip McShane (2010) refers to this method as *The Childout Principle* in his website essay *Bridgepoise 8: New beginnings in the global reachings of Lonergan*. http://www.philipmcshane.org/wp-content/themes/philip/online_publications/series/bridgepoise/bridgepoise-08.pdf, which connects to Lonergan's later (2017; 1985) definition of Generalized Empirical Method. The later

In a number of respects, the uniqueness of Generalized Empirical Method lies in its pedagogical nature. First, it asks teachers and learners to learn authentically from their own innate experiences of learning. “The aim is not to set forth a list of the abstract properties of human knowledge but to assist the [learner] in effecting a personal appropriation of the concrete dynamic structure immanent and recurrently operative in his/[her] own cognitional activities” (Lonergan, 1992, p. 11). The activity of knowing is an inherently cohesive internal activity, yet we can identify separate acts: questions, insights, conception/formulation, reflection, judgement, planning, deciding, doing, for instance. These moments are identifiable experiences of that inherently internal activity we call knowing, or more broadly, learning.

Second, Generalized Empirical Method takes the position that through such empirical self-attention, we will be able to systematically document actual learning processes. Students and teachers ourselves are the data for a crucial meta-cognitive experiment to discover more about our own human learning-in-process. The hypothesis that GEM puts forward is that there is a *normative, foundational structure inherent in the dynamic activities of our own concrete human learning*. More specifically, as meta-cognitive awareness develops, the hypothesis is that I/you/we can discover and verify in my/your/our own learning two distinct general types of questions and two distinct general types of insight and ‘answer’ accompanying those question-

definition expands significantly on the initial description provided in *Insight* and contextualizes McShane’s Childout Principle: “[GEM] operates on a combination of both the data of sense and the data of consciousness: it does not treat of objects without taking into the corresponding operations of the subject; it does not treat of the subject’s operations without taking into account the corresponding objects” (p. 136).

types.[5] Awareness, tracking, recording, and noting this activity slowly, indeed very gradually, reveals to us a first step in how *we* humans learn.

Third, Generalized Empirical Method provides an important contribution to meta-cognitive pedagogy. Learning is something that humans *do*. It is a concrete complex internal capacity[6] that exhibits itself moment by moment in thousands of daily acts. By taking a pedagogical approach to learning *how* we learn *as* we learn, GEM contributes to learning theory in a way that is data-driven and empirically persuasive. For instance, collective teacher efficacy is a commitment to the belief that educators together are capable of helping students improve and grow in their understanding, knowing, and doing; at present, it is one of the highest effect sizes in Hattie's (2009; 2012) Visible Learning results. The ability to identify elements of learning with precision as they occur supports teacher collective efficacy by contributing to a deeper understanding of our own capacity for learning. In turn, it can radically inform us about student learning, teaching, and teacher efficacy. An empirical awareness and understanding of our learning process helps reveal the fact that the present shift in pedagogy is not a passing trend but a long-term paradigm shift.

An Introductory Lesson: What's 'What?' in Education?

We begin this lesson experiment with our hypothesis that within the concrete flow of our learning there is to be discovered an inherent normative structure in *all* human beings. Just as in each human being there can be identified a general human anatomy (recall anatomical charts in

[5] I have presented this hypothesis in an intentionally broad and minimal way to stir curiosity and perhaps arouse desire for better understanding of the actual complexities involved.
[6] See Henman (2013) for a discussion of insight in the context of neurocognitive research.

medical offices and textbooks) that nevertheless is uniquely formed under particular conditions in each person, so in each human being's particular flow of dynamic consciousness there can be identified a similar general structure. This patterned structure of conscious acts is active and operative in us constantly, so constantly that we take it utterly for granted, to the point where it seems too obvious to advert to or even is assumed not to exist. Yet we need to attend to this most intimate of our human possessions as it operates in us in order to understand how we learn, to verify and appropriate the dynamism of a shared and vital human capacity.

An Experiment

As a first step in identifying and affirming this normative structure of human learning, we focus on questions. The many different particular questions that we ask as human beings, regardless of language,[7] can be identified as falling into one of two broad classifications. The proposed experiment aims to verify this claim through observing, noting, and identifying our own (students' and teachers') types of questions.

Method

Step one – individually or in groups, participants document (in a notebook, for example) every question they ask as it arises. For the purpose of documentation, only the first 1-2 key words of the question need to be recorded (e.g., What is the… Is it… Where did… Why was the… etc.; content details can be omitted). If conducting the experiment individually, documentation of questions can be carried out over a specified period of time (for example, x minutes/day, or y hours/week, etc.). If conducted with groups, you may wish to make use of group assignment

[7] See John Benton's (2008) book, *Shaping the Future of Language Studies*.

work during or outside of class time. For example, book club discussion, project-based science or math assignments, critical history analyses, etc. might form the basis for group observations, with one student in each group playing the role of observer/recorder.

Step two - once the question-data has been collected, we can move toward identifying and classifying questions into general types and verifying our hypothesis: do the various questions all fall into one of two types? Note that this step of identification and classification should raise (in each person) a new question or set of questions: what criteria is to be used for identifying and classifying the documented questions? Here is another puzzle, another experiment, if you like. Can each participant, or the group of participants together, find a solution that categorizes *all* documented questions into two broad types? For the purpose of this essay, we can point to those criteria as existing within the broad types of answers given to each question:

1) descriptions, explanations, formulations, plans for understanding or for action, or

2) yes-no answers for verification, including variations of maybe/possibly/I don't know, etc.

Why What Matters – A Summary

Having spent years conducting this experiment on myself and others, I can be fairly certain that all of the questions identified will be classified broadly as either **'what?'**-type questions or **'is?'** type questions, that is, questions for understanding and questions for verification. Further experiments (with increasing complexity) can move forward to begin to explore other aspects of our learning process such as: what is the full orientation of our curiosity, especially in relation to the quality we name 'openness'? How does learning move from question to answer? Are there different types of insight that correspond to different types of questions? What is the role of

concepts versus the activity of conception/formulation? How are concepts and images connected? How does verification work in judgments of fact versus judgements of value and decision-making? And so on.

But why is any of this finding of significance? Let me suggest something: *what matters*. I beg you to pause over these two words. *What* matters. Dwell on them in your heart-mind-body. Appealing to curiosity is one thing; it happens daily in our lives whether we are aware of it or not. But attending to curiosity, noticing it, and discovering how it works in us, in humans globally, is a very different and crucial undertaking. Our what-ing seeks understanding in its fullness and our is-ing seeks a wide and comprehensive knowledge. Wisdom rests on these two human attributes. Our ideas, plans, decisions, and actions at their best embrace this fullness and breadth of understanding and knowing. We can breathe its goodness, literally. But ignoring this fullness and breadth of our 'what-ing' and is-ing in favour of profit and so-called progress has brought us to an unprecedented crisis environmentally, ethically, spiritually. Our imminent what-ing has brought us to the brink of extinction; it must now bring us out of this crisis as well. Taking possession of this precious universe inside us reveals not only our personal foundations, but our human foundations for *making our way together* in wisdom.

So, I circle back to my own opening words. This short essay invites a quite different twist or turn that asks me/you/us to notice and appreciate the universe inside us. This universe inside us… is something quite incredible, or maybe deeply credible, a restlessness, an inner drive-desire to connect to the outer (already-out-there-now) world around us, to each other, to meaning, to spirit, whatever they might be. It is our hidden inner desire to know and to do, where "…I can ask oh any question." It is my/your/our foundation and our way forward, into a new paradigm.

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