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2001 AWARD FOR EXCELLENCE IN TEACHING

PUBLIC ADDRESS

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ABSTRACT

“ The Teacher

A Parable in the Manner of Oscar Wilde

When Socrates died, his family lamented so much that they ran out of words to express their sorrow. They sought the youth who had been so fond of his teachings, imploring them to provide new words to mourn him.

- *“We do not have enough words ourselves to do him justice”, they exclaimed!*

- *“Yes! Of course!” the family replied, in a deep sigh, “how could your love for him not be infinite, his knowledge was so vast!”*

- *“Was it really?” asked the youth.*

- *“Who better than you would know that it was the case indeed?” replied the family, “he spent his days talking to you!”*

- *“Of course, but what we loved of him,” said the youth, “was that when he spoke, it was the ever surprising unfolding of our very own thoughts, dressed as his words, which flowed out of his mouth !”*

”

Claude Lamontagne

“No man can reveal to you aught but that which already lies half asleep in the dawning of your knowledge. The teacher who walks in the shadow of the temple, among his followers, gives not of his wisdom but rather of his faith and his lovingness. If he is indeed wise he does not bid you enter the house of wisdom, but rather leads you to the threshold of your own mind. ...For the vision of one man lends not its wings to another man.”

K. Gibran [*The prophet: On Teaching*]

« Consentir à être décoré, c'est reconnaître à l'État ou au prince le droit de vous juger! »

C. Baudelaire

Expressing my gratitude is clearly in order as I engage in speaking to this honour of having been chosen for the 2001 Award for Excellence in Teaching. From the more local to the more global “objects” of my gratitude, the list stretches from all those involved in making this evening’s celebration possible, to those who have contributed most intimately to make my life the rich and dense positive experience which my teaching has fed on, first and foremost of whom are my parents and other close ones. Many on this long list also stand as members or representatives of the University of Ottawa family, “my” University, starting with all the colleagues and students who have so generously supported my candidacy for the Award. What touched me most in how I felt supported by all these people is how readily they seemed to offer me this rarest of human gifts, this pure generosity of *self* vis-à-vis *other*, usually limited to healthy parental love, and which consists in *self* genuinely desiring that *other* succeeds.

I strongly believe that my views on the nature of what I will refer to as *the educational encounter*, as I wish to present them tonight, actually find their deepest roots in my above mentioned experience of *pure* generosity: that which essentially resides in the ability to suspend for a time the more primitive instinct of *self* to “feed on” *others*, and to abandon *self* to the less primitive instinct to “feed” *others*, to aim, *first and*

“Anyone can sympathize with the sufferings of a friend; it requires a very fine nature to sympathize with a friend’s success.”

O. Wilde

“... You may give them your love but not your thoughts, for they have their own thoughts. You may house their bodies but not their souls, for their souls dwell in the house of tomorrow, which you cannot visit, not even in your dreams.”

K. Gibran [*The prophet: On Children*]

foremost, at genuinely valuing and fostering growth in the *other*, at genuinely wishing *the other* success, and subsequently providing unwavering support, especially as *other* turns out to develop convictions that challenge those held by *self* (for it really is when *other* dissents that genuine generosity of *self* can be clearly distinguished from the disguised selfishness of a pseudo-generosity which extends only as far as *other* accepts to conform!). This is the pure generosity which the insane and the immature are incapable of; the former because *self* is desperately absorbed in “surviving,” the latter because *self* is excitingly absorbed in “becoming.”

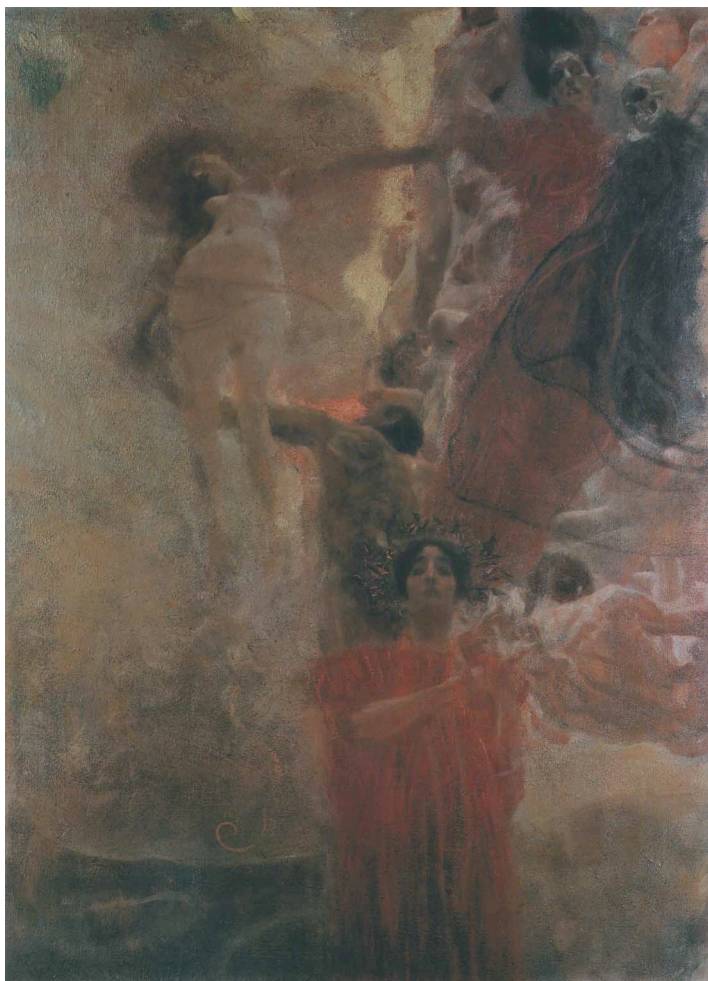
If my views on the nature of the *educational encounter*, from within the primarily *affective* context of the above reference to their experiential roots, had not found the surprisingly powerful echo which they did find in the purely *rational* context of logic and science, they could, of course, be accused, by the self-proclaimed hard-core rationalists who abound in these parts, of being trivial, overly sentimental and therefore out of place in University! This rational connection, which shaped my sense of the necessity of conceiving of the *educational encounter* as an extension of *heart-grown* generosity into *head-grown* generosity through reflection onto the plane of reason, is my topic for tonight. As I now proceed onto the bridge leading from the emotional realm to the rational realm, I suggest we pause for a moment, half-way between the two realms, in that intermediate zone from within which most of our convictions arise, and from within which I will set my stage by calling upon some of our Rector’s recent words at the occasion of this year’s Remembrance Day, spoken against the background of the September 11 events in New York:

« Si «le Coeur a ses raisons que la Raison ne connaît pas», la Raison a aussi un coeur que le Coeur ne connaît pas! »

Remembrance Day, 2001

“It is doubly important, then, that we spare more than a passing thought this year to remember those whose sacrifice allows us to enjoy life in a free and open society, because it is precisely that which we have perhaps all come to take for granted that had been threatened!”

Gilles Patry, Rector, University of Ottawa



What do you think might be meant, exactly, by “a free and open society”? I propose that “a free and open society” is a *generous* one, where every *self* genuinely values growth in every *other* ... “especially as *other* turns out to develop convictions that challenge those held by *self*.” In fact, I am prepared to go as far as to propose a *formally institutionalized* “*Opposition*” as the single most important concrete sign that there is, in a society, some attempt to implement this “freeing” and “opening” generosity. Fortunately, we live in a society which displays this sign, a sign which has, I believe, worked its way beyond the purely emotional, heart-grown generosity of intimate circles of parents and friends, through the progress of the somewhat more rational sensitivity to concepts of Equality and Justice. I cannot resist noting, however, that this sign of a somewhat more head-grown generosity is confined, in this society of ours, to but a few (albeit extremely important) specific institutions, remaining inconsistently absent in what actually constitutes the bulk of the institutionalized sources of societal control over our lives. If our great Professional Corporations (or Colleges or Orders, etc.) are amongst the most striking cases in point, the most relevant example here tonight is clearly our universities in general, and *this* University in particular, where even though University Administrations and Associations of Professors do act, at some level, as one another’s *external* Opposition, neither one displays *within itself* this unmistakable sign of freedom and openness, of societal generosity, which a formally institutionalized Opposition constitutes. Immaturity or insanity? Immaturity, of course; the immaturity of a joyful youth still more selfishly thirsty for confirmation and praise than generously open to questioning and criticism, of the kind displayed in the most spectacular way by the so called Scandal of Gustav Klimt’s University Paintings in early XXth Century Vienna where Klimt’s powerful self-critically mature allegorical portraying of Philosophy, Medicine and Juris-

prudence was received by University Authorities with utmost hostility, reportedly as a result of Klimt’s failure to focus exclusively, in his paintings, on celebrating these achievements of human reason ... which universities so successfully and munificently pour in a steady flow into the societal stream of progress! “Frankly a failure, being hopelessly confused in design ... Philosophy has little in common with this multi-coloured smoke of tears and passions whose clouds it should surely seek to dispel,” commented New York Times’ Rowland Strong about Klimt’s painting *Philosophy*, echoing, according to Braun (2001, pp. 47-48), the Viennese academia!

Now if the somewhat more rational sensitivity to concepts of Equality and Justice has brought us mid-way onto the bridge leading from heart-grown-generosity-based to head-grown-generosity-based freedom and open-ness, some distance remains to be covered to complete the “crossing” into the realm of pure rationality. Forerunners on this path are many, with their oldest surviving written legacy dating back some two and a half millennia, to the so-called Pre-Socratics. Their intellectual lineage stretches from these ancient times to this very day through teachings such as those of Anaximander, Protagoras, Socrates, Plato, Aristotle,

David Hume, Emmanuel Kant, Gaston Bachelard, Jean Piaget and Karl Popper, to name but a few whom I found particularly inspiring. From Plato’s *Apology of Socrates* to Popper’s *Open Society and its Enemies*, the same call resonates for setting claims to *knowledge* against the explicit background of the acutely acknowledged possibility of an ever-refreshed residual unresolved *ignorance*!

“**«But I shall let the little I have learnt go forth into the day in order that someone better than I may guess the truth, and in his work may prove and rebuke my error. At this I shall rejoice that I was yet a means whereby this truth has come to light.»**

«Critical Rationalism» is how Popper called this age-old perspective on how wisdom, knowledge, or expertise come about and grow, as he tackled the task of clarifying its most purely rational foundations. Popper’s logic of knowledge growth centers on the so-called Problem of Induction. In a nutshell, this problem resides in the realization that (1) just about all significant knowledge we have about the world (including scientific knowledge) lies at a level of universality allowing expectations (or predictions) to be formulated, (2) this implies that this level of universality extends beyond available empirical evidence (what is potentially expected, or predicted has not been observed *as yet*), and (3) *no* such (induced!) knowledge can therefore logically be argued true (the expected or predicted empirical evidence being in no logical way forced to comply!), such knowledge therefore standing as inescapably hypothetical, uncertain, conjectural. Granted, then: no logical certainty can be entertained about the *truth* of any “predictive” piece of worldly knowledge; but what about the logical certainty of the *falsity* of some such piece of knowledge, asks Popper! Is it not the case that if a piece of empirical evidence contradicts a prediction or expectation about worldly events, there must necessarily be something wrong (or false) with the knowledge from which this prediction or expectation derives? Obviously so, answers Popper, concluding that wisdom can only lie in fostering a perpetual disposition to *refute* currently available knowledge, to keep seeking «doors» that open onto “truer” knowledge, although this truer knowledge, also being necessarily hypothetical in nature, will

A. Dürer”
K. Popper

“**«If the doors of perception were cleansed everything would appear to man as it is, infinite.»**

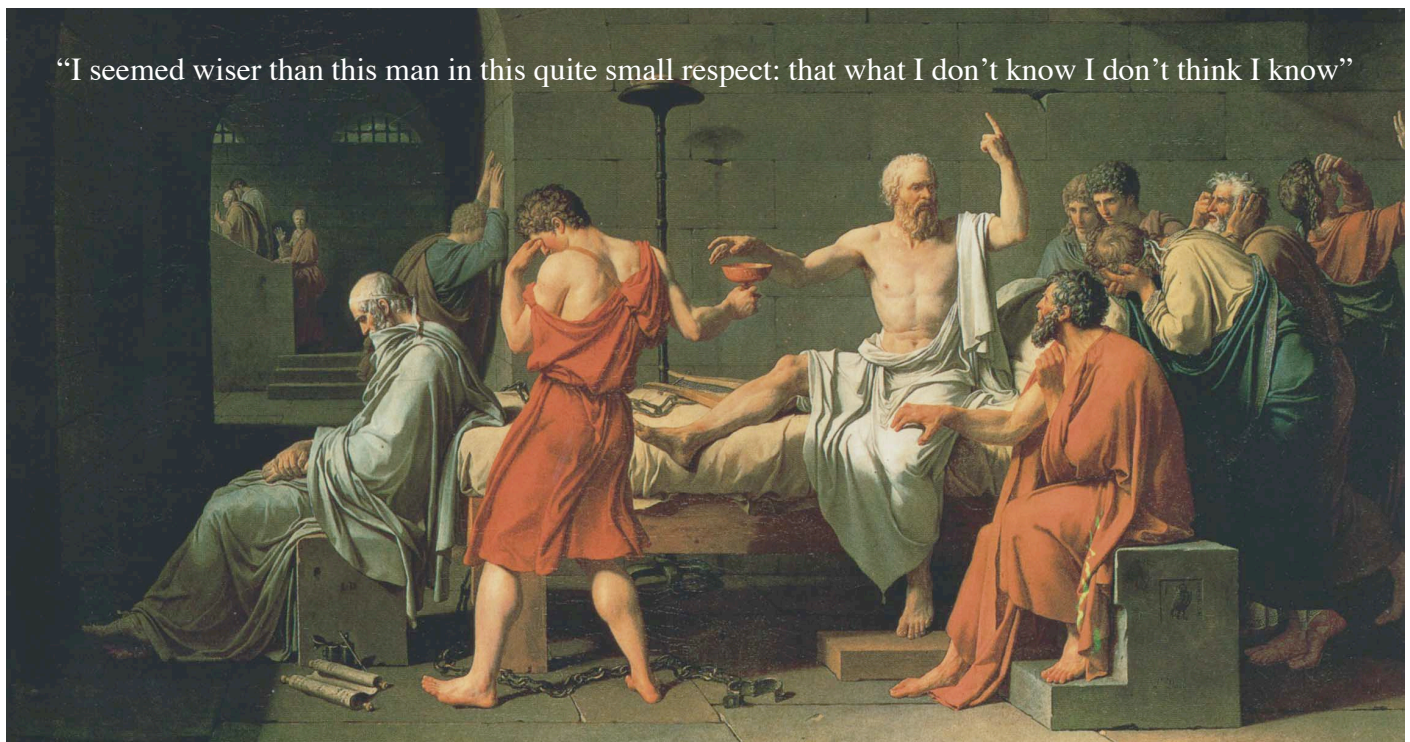
W. Blake”
The Doors

itself still stand at an (albeit shorter) indeterminable distance from Truth itself. This refutability-based, never-ending quest for truth, progressing through cycles of problem identification, conjectural problem-solving, and attempted refutations brings to the foreground the principle of necessary “testability,” “criticizability,” or, even more appropriately, “opposability” of knowledge, as the cornerstone of Critical Rationalism. Because knowledge about the world is hypothetical, empirically un-testable formulations (or un-criticizable, or un-opposable ones) are useless and should be avoided.

It is against the background of this formal proposal of Critical Rationalism, namely that “rational opposability” be adopted as the criterion of legitimacy of knowledge, that I now proceed to claim full rationality for our twin-concepts of *head-grown generosity* and *formally institutionalized opposition*. In this enlarged context, where good-will enters the realm of rational consistency, the heart-grown-generosity-based “love thy neighbour” prescription is given a surprising twist, as it is turned into the head-grown-generosity-based “let thy neighbour oppose you” prescription. Given full extension, this rationalized version of the prescription becomes: “let *otherness* oppose your-*self*, for only thus can the inescapable *possibility* that your-*self* is wrong in some way be *actualized* and brought to bear on formulating a truer stance,” with the understanding that “otherness” includes the whole “outside world,” inanimate and animate alike, as well as with the understanding that this holds as true as logic holds true from the pinnacle of the edifice of science and its boldest perspectives on physical reality, all the way down to the most subterranean basement-level of intuitive knowledge in the lay community and its pettiest common-sensical views on reality. The critical point to keep in mind

here is that whatever the level of expertise or laymanship, in order for *confirmation* (or *corroboration*) to be given *any* legitimacy, *refutation must be risked*. Interestingly, are we not, here, extending to the whole natural or empirical realm, under the auspices of Logic, Baudelaire’s subtle aphoristic warning about the fact that accepting to be *decorated* under the auspices of the State must be understood as going hand in hand with accepting to be *punished* under the auspices of the State? This warning points to the necessity of constantly keeping in check this insidious and pervasive natural preference of ours for confirmation over refutation, this fallacious preference which relentlessly draws us towards the gaping trap of pseudo-confirmation ensuing from “*un-refutable*” (i.e. untestable) explicit or implicit rationales! It is difficult, here, not “to spare more than a passing thought” to the most historically famous victim of this natural fallacious tendency towards pseudo-confirmation-fed irrationality, namely Plato’s Socrates, who pushed consistency on this matter of the necessity of “opposability” of self to the ultimate point of accepting to die for it, accepting the (albeit irrationally pseudo-confirmation-fed) opposition of his State to the legitimacy of this very principle of the necessity of “opposability” of self.

Fortunately, as I now turn to claim *head-grown generosity* on the part of my University and move to address the issue of how I conceive of teaching, or, rather, of the *educational encounter*, from the standpoint of a would-be *formally institutionalized opposition*, I am obviously not risking as much as Socrates himself risked, and actually suffered! At the very worst, I believe, I am merely risking, in the face of a highly unlikely massively hostile awarding-bodies-opposition to my generalized *Critical Rationalist* stance, having to share Klimt’s fate in being brought to reimburse my Award!



“I seemed wiser than this man in this quite small respect: that what I don’t know I don’t think I know”

“Once (my friend Chairephon) went to Delphi and dared ask the Oracle this question. ... He asked if anyone is wiser than I. The priestess replied that no one is wiser. ... When I heard what the oracle said I thought: «What in the world does the god mean ... I know that I am not wise in any large or even small way. What then does he mean by saying that I am the wisest?»... I went to one of those who seem to be wise, such as you here, **on the chance that I would refute the oracle** by pointing out: «This man here is wiser than I but you said that I am.» When I examined this man ... and talked with him I came to think that he seemed wise to many others and particularly to himself, yet was not. ... Going off by myself I reasoned: «I am wiser than this man, for neither of us likely knows anything fine and good but he thinks he knows although he doesn’t, yet I don’t know and don’t think that I know. I seemed wiser than this man in this quite small respect: that what I don’t know I don’t think I know.»”

Socrates’ words, in Plato’s
Apology of Socrates

“ We are all in the gutter ... but some of us are looking at the stars.”

O. Wilde

In order to voice my opposition to institutionally dominant views on *teaching* (or, as I prefer to call it, the “socially institutionalized educational encounter” [henceforth abbreviated to “the *educational encounter*”]), I will in fact not require anything beyond the already exposed theme of self-opposability-based, head-grown generosity, for my argument will unfold quite naturally as variations on this very theme.

“ While differing widely in the various little bits that we know, in our infinite ignorance we are all equal.”

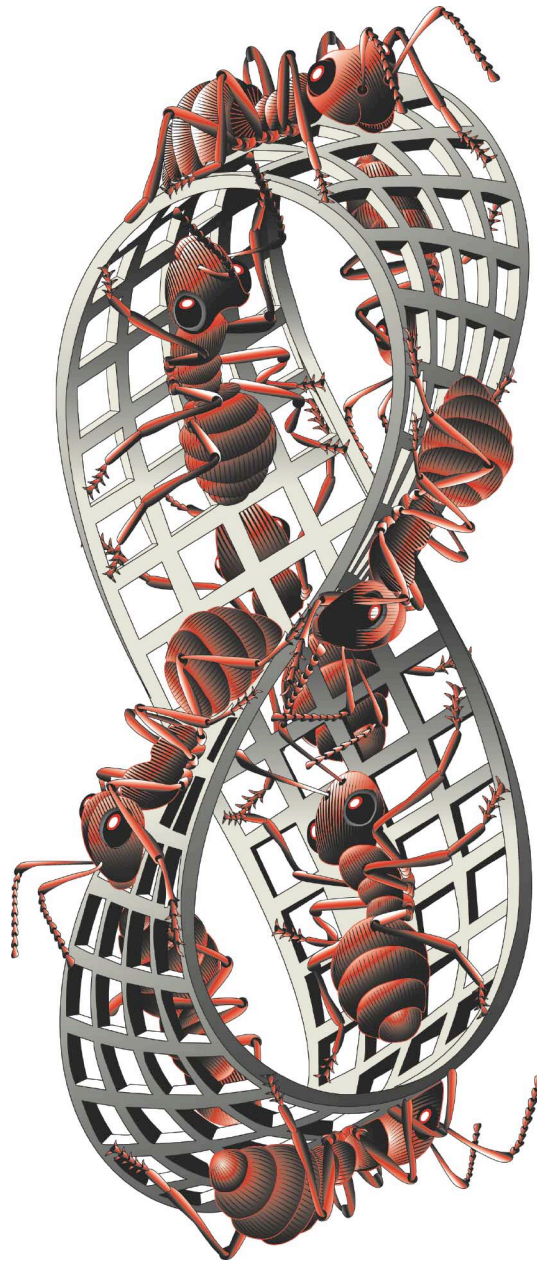
K. Popper

Before turning to address the educational encounter as such, however, one final general implication of the principle of self-opposability-based generosity in free and open societal encounters should be made explicit; and this is the *reciprocity* to which it should give rise. Indeed, as it should be made possible for all members of society to feed equally nourishingly on each other’s oppositional offerings, socially-mature selves should be understood as not only *allowing* growth-fostering opposition from other (henceforth referred to as *opposability generosity*), but as also *offering* growth-fostering opposition to other (henceforth referred to as *opposition generosity*), a particularly demanding mandate, as will be argued later.

This being said, we can now turn to the *educational encounter*, prefacing our descent into its specifics with a quick reminder that Critical Rationalism derives the necessity to accept the conjectural nature of knowledge from the logical insolvability of the Problem of Induction, from which ensues the inescapability of conceiving of knowledge as necessarily building on knowledge through cycles of refutation, conjectural recovery, and new attempts at refutation. Now as a definition of *learning*, this formula of «refutation and refutable-conjecture-creation-driven recovery» is missing but one key-specification for it to stand as an adequate

“ All acquired knowledge, all learning, consists of the modification (possibly the rejection) of some form of knowledge, or disposition, which was there previously; and in the last instance, of inborn dispositions.”

K. Popper



“ Here we are, trapped beneath this ancient dome,
Scurrying like ants forced out of their home;
We’re lost, and yet feel neither hope nor fear,
As, like the miller’s ox, blindfold, we roam.”

O. Khayyam
(after L.P. Elwell-Sutton’s translation)

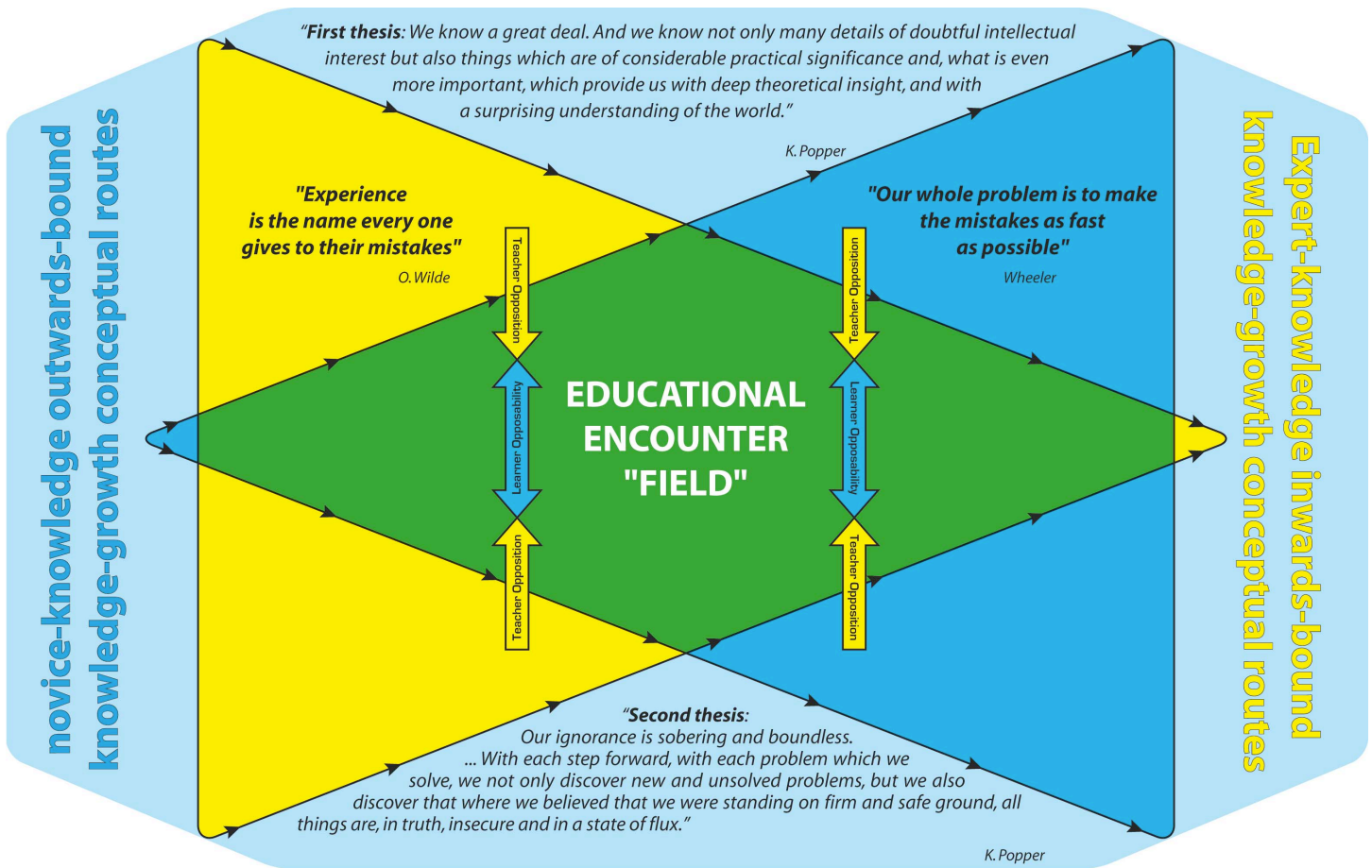
of the very *learning* which is intended to take place in the somewhat narrower context of the *educational encounter*: In

this narrower context, *learning* is essentially meant to be a *guided* process! Indeed, whereas in non-educational encounters, the learning-*self* faces absolutely *uncaring* opposition from direct or raw *otherness* (and typically winds its way blindly and painstakingly through the myriad trial-and-error scenarios imposed by the gigantic maze of Nature on a scale of centuries and millennia), within educational encounters, the *opposing otherness* has in principle been hand-picked or built from scratch for the very purpose of not only permitting but of “*care-fully*” *guiding* the learner through a knowledge-growth process which would open up within but a few years onto the mastery of these very conjectures which have slowly been distilled over the centuries and millennia of societal knowledge growth. This human-designed *carefully guiding otherness* is, of course, what the *teacher* stands to offer in the educational encounter. *Learning* within an educational encounter can thus now be fully defined as: «*guided* refutation and refutable-conjecture-creation-driven recovery». As offering “*care-fully guiding otherness*” on the part of the teacher and allowing “*refutation and refutable-conjecture-creation-driven recovery*” on the part of the learner readily translate into “*teacher opposition generosity*” and “*learner opposability generosity*,” respectively, we will say that for the critical rationalist, *the ideal educational encounter rests critically on a balanced cocktail of teacher opposition generosity and learner opposability generosity*.

“ For the Critical Rationalist, the ideal educational encounter rests critically on a balanced cocktail of teacher opposition generosity and learner opposability generosity.”

Now realizing that some form of generosity is needed for an educational encounter to be successful is one thing; being able to offer it is quite another one.

So what does the ability to offer either one of our two critical forms of educational generosity call for? Clearly, it calls for a fit between the knowledge which learner can offer as *opposable* and the knowledge which teacher can offer as *opposing*. Such a fit can only be arranged for in light of expert knowledge on possible inter-sections of (1) the set of all conceptual growth-paths *fanning out* from currently available novice knowledge, and (2) the set of all conceptual growth-paths that *can actually lead to* the disciplinary expert knowledge to be mastered. Indeed, as the navigational strategy required to travel from point A to point B must involve knowledge of both point A and point B, in addition to the viable



paths from point A to point B, a balanced cocktail of *teacher opposition generosity* and *learner opposability generosity* can only be achieved within the confines of a *pedagogical encounter field* arising from the intersection of the *set of all novice-knowledge out-bound knowledge-growth conceptual routes* on the one hand, and of the *set of all expert-knowledge in-bound knowledge-growth conceptual routes* on the other hand.

This brings us to the crux of the matter! Up to this point in my argument, there might have been little obvious cause for disagreement, and consequently debate. The next few lines are likely to offer plenty of it, as I engage in presenting and defending the highly counterintuitive thesis that:

- (1) **not only** does the expertise required to create and monitor a pedagogical encounter field (henceforth called “the *pedagogical expertise*”) *require far more* than the formally expressed expert-knowledge-to-be-mastered (henceforth called the *formal disciplinary expertise*) which constitutes standard pedagogical objectives, **but**
- (2) the very essence of what the pedagogical expertise essentially consists of, namely a knowledge-base for «*guiding refutation and refutable-conjecture-creation-driven recovery*» in the learner, *completely escapes the scope of formal disciplinary expertise.*

“ *The very essence of pedagogical expertise completely escapes the scope of formal disciplinary expertise.*”

In order to understand why this is so, mastery over the implications of the problem of induction first has to be drawn to the point of allowing realization of how fundamentally *the two inductive filiations differ*, which characterize, on the one hand, *formal disciplinary expertise per se*, and, on the other hand, the actual and

“ *Into that from which things take their rise, they pass away once more, as is ordained, for they make reparation and satisfaction to one another for their injustice according to the ordering of time.*”

Anaximander (transl. B. Russell)

possible *histories*, or *geneses*, of this *formal disciplinary expertise* (henceforth called “*evolutionary disciplinary expertise*”) as it has and could possibly have unfolded from initial novice intuition. Whereas the latter is characterized by an elaborate inductive *branching-out* arborization of *conjecture-and-refutation cycles*, the former offers *but the still unrefuted inductive end-points pattern* of this arborization, evacuating from its expression all traces of the refutation-based conceptual *branching-out* arborization patterns which did make or could have made these precious end-points possible! Since it is precisely these “*refutation-based conceptual branching out* arborization patterns” which make “*guiding refutation and refutable-conjecture-creation-driven recovery*” possible, it follows that it is *evolutionary disciplinary expertise* which is of the essence in defining pedagogical expertise, not *formal disciplinary expertise per se*!

« *Apprendre c’est se contredire – il y a un degré de conséquence qui n’est qu’à la portée du mensonge.*»

(Phrase attribuée à Custine et admirée par Baudelaire [dans le carnet d’Asselineau])

“ An example would be the encountering of an unexpected step in one’s path: it is the unexpectedness of the step which may make us conscious of the fact that we expected to encounter an even surface. Such disappointments force us to correct our system of expectations. The process of learning consists largely in such corrections; that is, in the elimination of certain ... disappointed ... expectations.”

K. Popper

So the question becomes: is there any *evolutionary* disciplinary expertise available ... which would make balanced cocktails of *teacher opposition generosity* and *learner opposability generosity* possible ... for any discipline whatsoever? «Hardly any» is, in my current opinion, the honest answer to this question, precipitating us ALL in this pedagogical gutter hinted at in this section’s heading. And not only do I dare anyone to find any significant body of knowledge that would qualify as *evolutionary* disciplinary expertise, but I also dare anyone to find any significant reference to *evolutionary* disciplinary expertise as something desirable. It therefore seems that not only *don’t we know* how expertise can or could evolve from the multitude of forms which non-expertise in a domain of knowledge can take as it winds its way up towards target-expertise through cycles of «refutation and refutable-conjecture-creation-driven recovery», but *it does not even seem to have been explicitly realized* by the people invested with educational leadership (from ministers of education to researchers in the field of Education, ... to actual teachers) that this *evolutionary* disciplinary expertise is *what we should get to know* if we are to offer a *quality* education in any rationally defensible sense of the word, digging our pedagogical gutter to the abysmal depths of not even realizing that we actually lie in one!

In other words and in a nutshell: Not only don’t we possess the (evolutionary disciplinary) expertise required to allow for teacher opposition generosity in the pedagogical encounters which we aim to offer, but we don’t even realize that we don’t possess it!

But how could such a critical state of affairs go so widely unnoticed? Because, I believe, of a fatal multi-level combination of cognitive traps, one of which sets the background for three others. This single, overriding background trap is human cognition’s natural propensity towards Naïve Realism, this intuitive epistemological attitude characterized by a firm implicit unquestioned belief that Reality is but what one experiences as reality, a “What-You-See-Is-What-IS” (or WYSIWIS) type of attitude where direct and unbiased access to Reality is simply a matter of opening one’s eyes correctly! Naïve Realism as overriding cognitive trap (henceforth referred to as the WYSIWIS Trap) appears to me to be deeply rooted in both the affective and the rational faces of the human mind, “opening up” onto more or less affectively or rationally tainted foreground-traps, of which three main ones are of interest here:

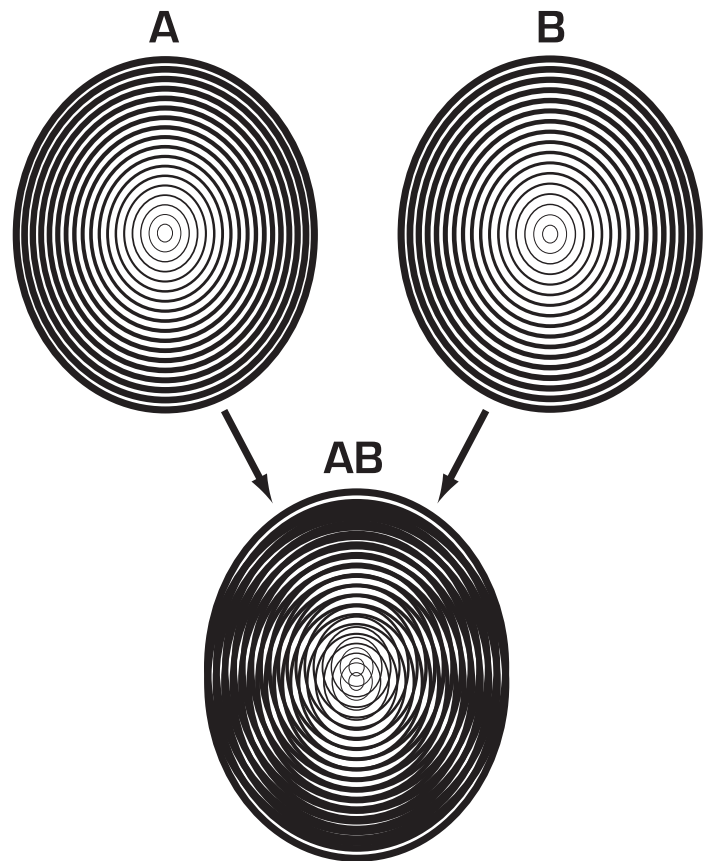
1) A predominantly affective foreground-trap (henceforth referred to as the Vanity Sub-Trap) in the form of an unduly exclusively self-serving propensity towards *personally gaining more disciplinary expertise* at the expense of *helping novices to join in the quest* (which translates into the primacy of the personal-research-career-component over the teaching-load-component in a university professor’s mandate), whose WYSIWIS roots lie essentially in this attitude’s massive intrinsic exclusion of a humbling measure of ignorance in the assumed composition of any form of human knowing, and consequent dramatic overstating of one’s own personal research potential!

2) A partly affective and partly rational foreground-trap (henceforth referred to as the Bucket-pedagogy Sub-trap) in the form of an almost irresistible propensity to directly project background Naïve Realism into what can be called a *Bucket-theory-of-knowledge-acquisition* pedagogical “philosophy”, where the learner is naïvely believed to simply require being exposed to *external* disciplinary expertise *as truth*, as opposed to being expertly hypothesized to require being exposed to current *internal* novice knowledge *as lie*, i.e. as but a temporarily useful conceptual stepping stone whose refutation-revealed falsity forces the branching out required to progress towards the end-points pattern constitutive of the expertise targeted, and

3) A predominantly rational foreground-trap (henceforth referred to as the Pseudo-evolutionary-expertise Sub-Trap) in the form of the powerfully misleading inductive-filiation-based appearance of *formal disciplinary* expertise which, indeed, as its unfolding progresses from the more readily understandable to the less readily understandable, from the simpler to the more complex, can fallaciously give the impression that it contains all that is required to specify the path to be followed by learner. A pedagogue or a teacher of Elementary Statistics might for instance believe firmly that understanding *correlation* is a straightforward matter of progressing from (1) understanding *addition, subtraction, multiplication, division, exponentiation* and *root extraction*, to (2) understanding the *mean* (\bar{x}) as simple integration of the already mastered understanding of *adding* and *dividing* according to the $[\bar{x} = (1/n \cdot \sum_{i=1}^{n} x_i)]$ formal definition, to (3) understanding the *standard deviation* (s) as simple integration of the already mastered understanding of *adding, subtracting, dividing, squaring, extracting square roots* and *averaging* according to the $[s = \sqrt{1/(n-1) \cdot \sum_{i=1}^{n} (x_i - \bar{x})^2}]$ formal definition, and finally to (4) understanding the *correlation* (r) as simple integration of the already mastered understanding of *adding, subtracting, multiplying, dividing* and working out a *standard deviation* according to the $[r = (1/(n-1) \sum_{i=1}^{n} x_i y_i - n \bar{x} \bar{y})]$ formal definition. What the pedagogue or teacher is missing here is that this typical “pseudo-didactic” inductive conceptual filiation (even as the teacher or pedagogue pays lip service to the *meaning* of concepts as opposed to the sheer *computing* of their formal expression) is in no way *evolutionary* (as it should be in order to have any pedagogical relevance), for it does not contain a single hint as to why it would *not* consist of any one of the wide variety of *other* combinations of possible operations which might (mistakenly but intuitively appealingly) have been hypothesized as relevant by the novice mind and therefore stand to be challenged! For example (amongst the myriad of other possible examples), why is it that the mean and NOT the median (or some other measure of central tendency) is used to define the standard deviation, or why is it that the standard deviation and NOT the mean deviation is used in defining the correlation? I hold (along with many others, from time immemorial, no doubt!) that it essentially is in the very meanings of these “NOT this” and “NOT that” that resides the genesis of true expertise, negations of initially possible cognitive paths which have been completely evacuated from current expressions of expertise, however inductively constructed!

« Les intuitions sont très utiles : elles servent à être détruites. ... Le schéma de l’atome proposé par Bohr il y a un quart de siècle a, dans ce sens, agi comme une bonne image : il n’en reste plus rien. Mais il a suggéré des non assez nombreux pour garder un rôle pédagogique indispensable dans toute initiation. Ces non se sont heureusement coordonnés ; ils constituent vraiment la micro-physique contemporaine.»

Now introducing this multi-level entrapment complex is but my own take on being recursively consistent with this very idea which I am presently trying to *teach* the reader: that *teaching* is guiding learner through *refutation-based conceptual branching-out patterns* leading from novice lies-to-be to expert truths-of-the-moment. Indeed, the traps in question are nothing but my current hypotheses about what the main novice lies-to-be are which have to be faced on the learning path leading to the pedagogical expert's main truth-of-the-moment —the truth-of-the-moment that learning paths are essentially paved with lies-to-be spreading out into those *refutation-based conceptual branching-out patterns* which are doomed to merciless “backwards” pruning in the final process of recording formal disciplinary expertise. The particular problem with these specific pedagogical novice lies-to-be which, in fact, explains their being labelled “traps,” is that, against the background of all possible challenges faced by the human mind, they seem to count amongst the toughest lies-to-be to become recognized as lies-that-are! These traps’ fallacious underpinnings, as unquestioned truths held by the massive majority of the scholarly as well as of the lay population have, in fact, survived millennia of repeated efforts on the part of the “skeptic” few to establish their acute questionability, starting with our background WYSIWIS Trap. Some of the oldest surviving traces of rational denouncement of the WYSIWIS Trap can be found in the pre-Socratics’ search for the archè (the “ἀρχή”, or “that from which things take their rise”), the ultimate “reality” behind “appearance” which Anaximander called the ἀπειρον (the “apeiron”, or “the limit-



“ From the symbolic depths of Buddhism and Hinduism, as from the magic of moiré patterns, emerges the Spider, Weaver of Maya’s web of earthly appearances.”

less”), but more explicitly still in Plato’s famous metaphor or allegory of “The Cave”, where humans, as “regards” their knowledgability, are portrayed as prisoners of a cave where all they can see, from birth to death, are shadows of a hidden higher-order reality (*our* reality in their case) cast on the wall of their cave, which they not only forcedly mistake for Reality, but which they overconfidently impose on their fellow prisoners as such. Far from dying with Classical Greece, Plato’s shadows have kept on haunting the history of Western thought up to this very day in a thousand heart-grown as well as head-grown echoes, as in Tennyson’s Lady of Shalott, condemned to experience Camelot but through its reflection in a mirror, a shadowy reflection which she spends her days weaving into an illusory colored web but which she dares to attempt to transcend one day by turning her head to fully contemplate Sir Lancelot’s ride by the river, at the cost of her life. Even our own Time’s religiously overstated achievements of formal logical thought and scientific progress have not succeeded in dispelling these shadowy reflections standing in the way of our unsuppressible dream of a direct access to True Reality, however dramatically widely unrecognized they still might be. Indeed, not only do they stubbornly survive in the already amply acknowledged Critical Rationalist «Meta-physics» of Induction, but they also stubbornly survive in the «Physics» of present-day cognitive and neurological sciences’ *interactionist* and *constructivist* credos: «*Knowledge is a construct, it is the product of the interaction between subject and object*» (as a Moiré pattern is but the product of the interaction between various other patterns, not any one of them *per se*), chants current NeuroCognitive Science, a mere chant, however, that the WYSIWIS trap quickly captures back, long before it made its way into most of these scientists’ stance on the



“ ... But in her web she still delights
To weave the mirror’s magic sights,
For often thro’ the silent nights
A funeral, with plumes and lights
And music, went to Camelot:
Or when the moon was overhead,
Came two young lovers lately wed;
‘I am half sick of shadows,’ said
The Lady of Shalott. ...

... She left the web, she left the loom,
She left three paces thro’ the room,
She saw the water-lily bloom,
She saw the helmet and the plume,
She look’d down to Camelot.
Out flew the web and floated wide;
The mirror crack’d from side to side;
‘The curse is come upon me,’ cried
The Lady of Shalott”

Tennyson

Décembre/December 2002

TEACHING OPTIONS



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limits of their expertise, bringing them back amongst the epistemologically naïve community of those who can never travel too far from the comforting belief that *known object* cannot really depart too much from *Real Object* (if it departs at all), reaffirming old Seneca's «*unusquisque mavult credere quam judicare*» («each and everyone prefers faith to reason»). I have yet to meet a neurophysiologically informed scientist who would accept drawing the (impeccably rational) implication that since neuronal networks implement inductive effective decision procedures (i.e. inductive computations), the brain, along with the rest of the nervous system (and of our whole experienced body, for that matter!) must be considered a mere hypothesis? At best, I found some who, having paid rapid lip service to the inescapability of the implication, advocated that since this hypothesis that we are embodied is the “best” hypothesis we have, we should not pay too much attention to the fact that it is a mere hypothesis!

From amongst WYSIWIS entrapment's three subtraps (of Vanity, Bucket-pedagogy and Pseudo-evolutionary-expertise), the first two have also, for millennia, been targets of acute denouncement on the part of the contemporary skeptical rational minds (always a tiny minority, but an apparently indestructible one!), with surviving written traces going back, at the very least, as far as Plato again. The already quoted excerpts from the Apology of Socrates in the form of Socrates's insight into why he had been proclaimed the wisest by the Oracle, could not be clearer on the Vanity subtrap! The WYSIWIS-based veil of Vanity contributing to prevent our scholarly community from realizing how deeply in the

“*When I examined this man ... and talked with him I came to think that he seemed wise to many others and particularly to himself, yet he was not.*”

Socrates' words, in Plato's *Apology of Socrates*, again!

proclaim not to be *vastly more inclined* to work at the little one can, on one's own, hope (to claim!) to offer towards the advancement of knowledge *than inclined*, under the spell of the conviction that significant progress can only be achieved collectively, to work at training the new generation of rigorously functioning minds capable of contributing significantly to the collective effort to advance knowledge? Very, very few of us indeed, if any, is the obvious answer to these questions, as everyone knows that not only is it the case that university hiring policies give absolute priority to personal research funding potential, but that it also is the case that the very dynamics of academic performance limit the ferocious competition to peer-sanctioned personal research performance. Surfing the shock-wave of the ever-changing surface-structure of state-of-the-art standard disciplinary expertise is thus so forcefully pushed to the forefront of the academic mandate that, without really noticing it, most of us rapidly lose sight of the quintessential educational aspect of our mandate (if it ever was in sight). It is obvious from talking with colleagues across campus (and across campuses) that while the vast majority of us, given the choice, would see their involvement in teaching significantly reduced, a clear majority of us, given the choice, would dispense with it altogether. Let us not be naïve to the point of denying that this widespread attitude towards the educational aspect of our mandate *does* have a *major* impact on the quality of the educational service offered to students: In my view, it contributes significantly to its appallingly primitive and sickeningly unrecognized disrespectful nature. Pushing to the extreme these manifestations of human Vanity which we ALL give into, whether we recognize

it or not, some of us feed this overly sentimental conceited thriving for personal worth (which, again, we all share ... to an extent) with dreams of teaching-releases eliminating all teaching from their responsibilities.

Others, often as self-proclaimed “guardians of elevated standards,” only grow out of their initial class-fright (over envisaged student challenge to their authority in the subject matter to be taught) to dare students to be as smart as they themselves think they are (or would like to think and show they are), hiding safely behind the unshakable pillars of their, by then, well established disciplinary authority, rejoicing in failing large proportions of their classes, ... and preparing the next generation of pedagogically insensitive conceited academics (who, having been well served by a system which limited itself to rewarding self-teaching ability on the part of students, have no reason to want to change it in any way)! Others still, in an attempt to minimize time “lost” to teaching, streamline their teaching involvement straight into Vanity's sister Bucket-pedagogy subtrap, to which I will now turn.

“*Whenever a friend of mine achieves real success a little something in me dies.*”

Attributed to T. Capote

“*Because, as Hobbes observes, all mental pleasure consists in being able to compare oneself with others to one's own advantage. Nothing is of greater moment to a man than the gratification of his vanity, and no wound is more painful than that which is inflicted on it.*”

A. Schopenhauer

It is from the mouth of Plato's Socrates again that the most ancient words of wisdom come to us, words which denounce the fallacious “default pedagogical epistemology” of Bucket-pedagogy, notably in the terms of Socratic «*Maïeutics*» as described in Plato's *Meno*, a critical portion of which is reproduced on page 11. Doubling in opacity the veil of Vanity concealing how deeply in the pedagogical gutter we lie, the veil of allegiance to Bucket-pedagogy has indeed been a faithful companion to Vanity in plaguing the History of Pedagogy on a scale of millennia. A particularly direct heir to WYSIWIS naïvety, this almost consciously held conviction amongst academics (that learner is but an empty bucket to be filled with the “objective” knowledge picked by teacher as learning objective) has, in my opinion, found its way into just about every trick used from the dawn of the «*industrialized schooling era*» to merely *manage* students, to *busy* them *away*! Sending them away to *read* is perhaps these tricks' most insidiously perverse form because it turns one of the noblest of all human inventions, the book, into an arm of mass destruction ... of mass mind-destruction! For the vast majority of books (and the quasi-totality of textbooks), when not indulging in «*distractive*» over-

“*In reading, the mind is, in fact, only the playground of another's thoughts. So it comes about that if anyone spends almost the whole day in reading, and by way of relaxation devotes the intervals to some thoughtless pastime, he gradually loses the capacity for thinking ... This is the case with many learned persons: they have read themselves stupid.*”

“*... many ... have read themselves stupid.*”

A. Schopenhauer



H. Hesse

... Socrates - And that is the line which the learned call the diagonal. And if this is the proper name, then you, Meno's slave, are prepared to affirm that the double space is the square of the diagonal?

Boy- Certainly, Socrates.

Socrates - What do you say of him, Meno? Were not all these answers given out of his own head?

Meno - Yes, they were all his own.

Socrates - And yet, as we were just now saying, he did not know?

Meno - True.

Socrates - But still he had in him those notions of his -- had he not?

Meno - Yes.

Socrates - Then he who does not know may still have true notions of that which he does not know?

Meno - He has.

Socrates - And at present these notions have just been stirred up in him, as in a dream; but if he were frequently asked the same questions, in different forms, he would know as well as any one at last?

Meno - I dare say.

Socrates - Without any one teaching him he will recover his knowledge for himself, if he is only asked questions?

Meno - Yes."

Plato's *Meno*

simplification, limit themselves to exposing plain disciplinary expertise for learner to ingest, as if, in our Moiré metaphor, pattern B, as pattern to be offered pattern A in order for the «spider» to emerge, could be the «spider» itself! Deprived of that which could provoke turning current novice knowledge into target expert knowledge, the learner has, throughout history, been left high and dry with surface-structure memorization as the most manageable remaining option in preparing to submit to the unavoidable process of student rank-ordering (the only mandate which the educational system can claim to fulfill with some significant degree of efficiency, although it hardly ever presents it as what it actually is, preferring to hide its true nature under the disguise of an actually pompous and fallacious claim to some essential phase of the educational process called "evaluation"!). And more often than not, when not sent away to read, learner has been and still is exposed to forms of pseudo-lecturing *simulating* textbook-reading to the point of making it arguable that, if campus-wide in-class teaching was to be suspended for a full term, and students told to study exclusively from the various courses' «required reading» lists, performance on exams would not be significantly worse than usual! It thus came to be that far from having fostered widespread pedagogical wisdom, Socratic Maïeutics and its critical rationalist heritage still lie, misunderstood by most¹, in the shadow of our research-career-driven academia's much more easily manageable Bucket-pedagogy, helpless in preventing the massive educational bias towards the Art of the Paraphrase, as opposed to the much lip-serviced but appallingly mistreated Art of Critical Reasoning. Let us face it, *we all* mostly train specialists in *parroting*, an epistemically close (albeit ethically distant) cousin to the *pirating* they (thus, not surprisingly) epidemically embrace, empowered by this very technology which also empowers teacher Bucket-pedagogy implementation!

As for the historical sources of denouncement of formal disciplinary expertise mistakenly held to be evolutionary disciplinary expertise, I have found no reference to it in my readings to date, and I simply wrap up my survey by stressing again how dangerously misleading this illusory candidate to the status of «formal learning sequence» can be, and how damagingly reinforcing it can be in attempting to rationalize Bucket-pedagogy.

¹As in the frequent comment heard from colleagues that if Maïeutics was quite appropriate in Socrates times, at which time available knowledge was so limited that one could indulge in being led to discover it by oneself, it is clearly inappropriate in this day and age of massive quantities of expert knowledge!

If the above comments reach but half of their intended impact, our educational system's blatant failure to offer even minimal amounts of *teacher opposition generosity* should now stand more fully acknowledged, better understood, and, of course, most profoundly deplored :-). However, and unfortunately, this failure is only *part* of the sad news, for the probing of the pedagogical gutter in which we lie, set against the critical rationalist view of the ideal educational encounter sketched earlier, requires, as you will remember, that on top of *teacher opposition generosity*, *learner opposability generosity* also be made available. The fact of the matter is that this latter form of generosity is as difficult to come by as the former! Obviously, it would be ridiculous to expect from students more Socratic wisdom than what their professors demonstrate, especially since the four previously described cognitive traps responsible for professorial lack of such wisdom are gaping as widely open on students' paths as on professors' paths! But they are free (albeit relatively inexperienced) minds, and thus have their share of rational responsibility, a share whose specifics are essentially tied to the main form which the Vanity subtrap takes on their paths, namely the impulse to feed *academic performance pride*. Whether it is set more personally or more interpersonally (e.g., in response to parental pressure), or whether it is set at the spectacular levels of winning University Medals or at the humbler levels of simply meeting the standards required to obtain some Degree or other, the chosen goal of academic achievement is just as dangerously given priority over genuine intellectual growth. Cruising full wit-steam ahead towards fulfilling his or her student-level academic career-plan, nothing can seem more pointless to a Vanity-entrapped student than to be expected to offer *opposability generosity* to a professor, whether or not the professor is himself or herself offering opposition generosity. *Being opposed* is the last thing this time-management-sensitive Bucket-pedagogy-entrapped student expects from a professor. «Had you told me right from the start this definition of Linear Regression which I finally reached,

“As the light dove in its free flight,
Feels the resistance of the air,
It could think an airless void might
Offer an even freer fare”

E. Kant

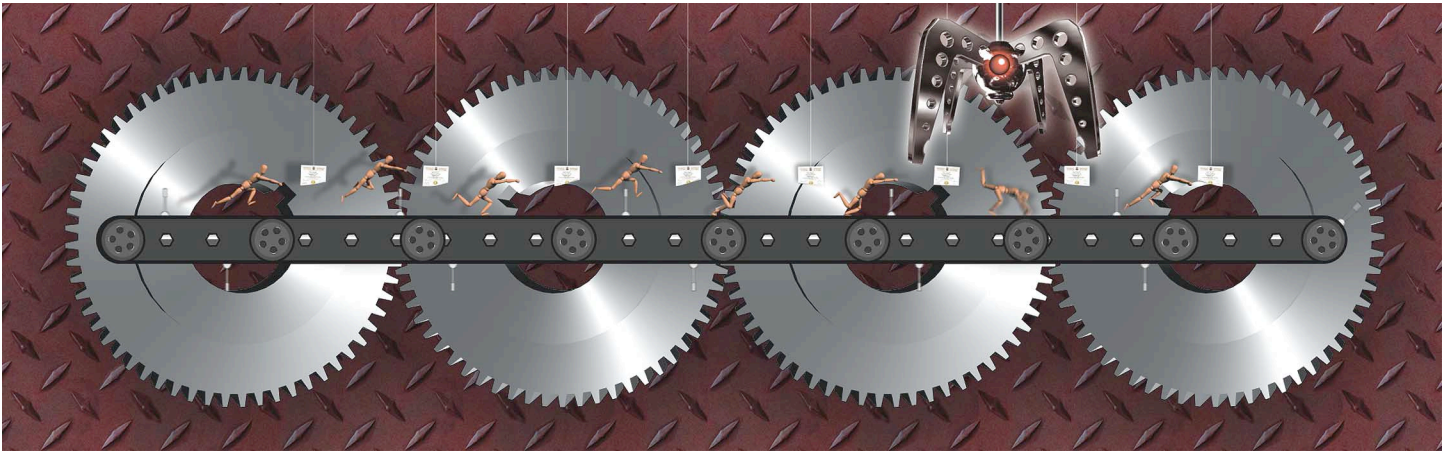
(transl. C. Lamontagne)

instead of fighting all term to make me realize what was wrong with my own successive attempts at defining it, I could have started from there, not get there at the end of term ... and lose all this time!» is the type of student reaction which I am, along with a number of student-centered-pedagogy-driven colleagues teaching Introductory Statistics, constantly facing.

As if all this was not enough, and before turning our gaze from the depths of this ever-deepening pedagogical gutter in which we lie to search for some stars under the sky, one last implication must be made explicit, namely the necessity for a critical rationalist's reflections on Education to pull out of the *educational-encounter*-domain proper, and notice the inescapability of yet another form of generosity, a third one, would you believe as dramatically absent from within our walls as the first two forms: Teacher Opposability Generosity. For beyond the necessary (local) Practitioner's Faith in his or her current theories of how to manage an optimally efficient *educational encounter*, teacher must, under the rule of Critical

Rationalism (which, I argued, is simply the rule of plain rationality) apply the principle of necessary (global) Researcher's Doubt in these very current pedagogical theories of his or hers!

When was it, for the last time, that you witnessed a colleague only wonder what part *some* lack of pedagogical ability on his or her part *might possibly* have played in the outcome that very few (if any) of his or her students could, at the end of term, be argued to have reached the pedagogical goals which were established at the onset of term? «If only their secondary school teachers had minimally taught them how to 'read,' 'write' and 'rithmeticize,' I would have had a chance to get my topic across!» ... «If they only had worked half as much as they were expected to, they would have come out of this exam laughing» ... «what are these people doing at University anyway, they so miserably fall short of having the required intellect» ... is all I can personally recollect having heard from colleagues (echoing to great a portion of my very own reactions, I must shamefully admit)!



“ My dear Dr. Gilbert,
Please be kind to your fellow beings! Don't think that they are all damned fools, even if they say excitingly foolish things, even if they are the most inconsistent idiots. Allow for one grain of wisdom in all their foolishness. Can't you conceive of a physicist that thinks and speaks of atoms, yet is convinced that those are merely his own abstractions? That would be my case. I have not the faintest idea what "psyche" is in itself, yet, when I come to think and speak of it, I must speak of my abstractions, concepts, views, figures, knowing that they are our specific illusions. That is what I call «non-concretization.» And know that I am by no means the first and only man who speaks of anima, etc. Science is the art of creating suitable illusions which the fool believes or argues against, but the wise man enjoys their beauty or their ingenuity, without being blind to the fact that they are human veils and curtains concealing the abysmal darkness of the Unknowable. Don't you see that it is life too to paint the world with divine colours? You never will know more than you can know, and if you proudly refuse to go by the available "knowledge" (or whatever you like to call it) you are bound to produce a better "theory" or "truth", and if you should not succeed in doing so, you are left on the bank high and dry, and life runs away from you. You deny the living and creative God in man and you will be like the Wandering Jew. All things are as if they were. Real things are effects of something unknown. The same is true of anima, ego, etc. and moreover, there are no real things that are not relatively real. We have no idea of absolute reality, because "reality" is always something "observed." ... I am sure all this stuff gets your goat, but that's not the point. The point is that if you create a better theory, then I shall cock my ears. Cordially yours, C. G. Jung”
(2 January, 1929)

“*I am sure all this stuff gets your goat, but that's not the point. The point is that if you create a better theory, then I shall cock my ears.*”

C.G. Jung (1973)

“ We are all in the gutter ... *but some of us are looking at the stars.*”

O. Wilde

After such “doom and gloom” as that which colors the last few pages, one might wonder if, in a critical rationalist’s mind, there is room for any hope! Hope there is

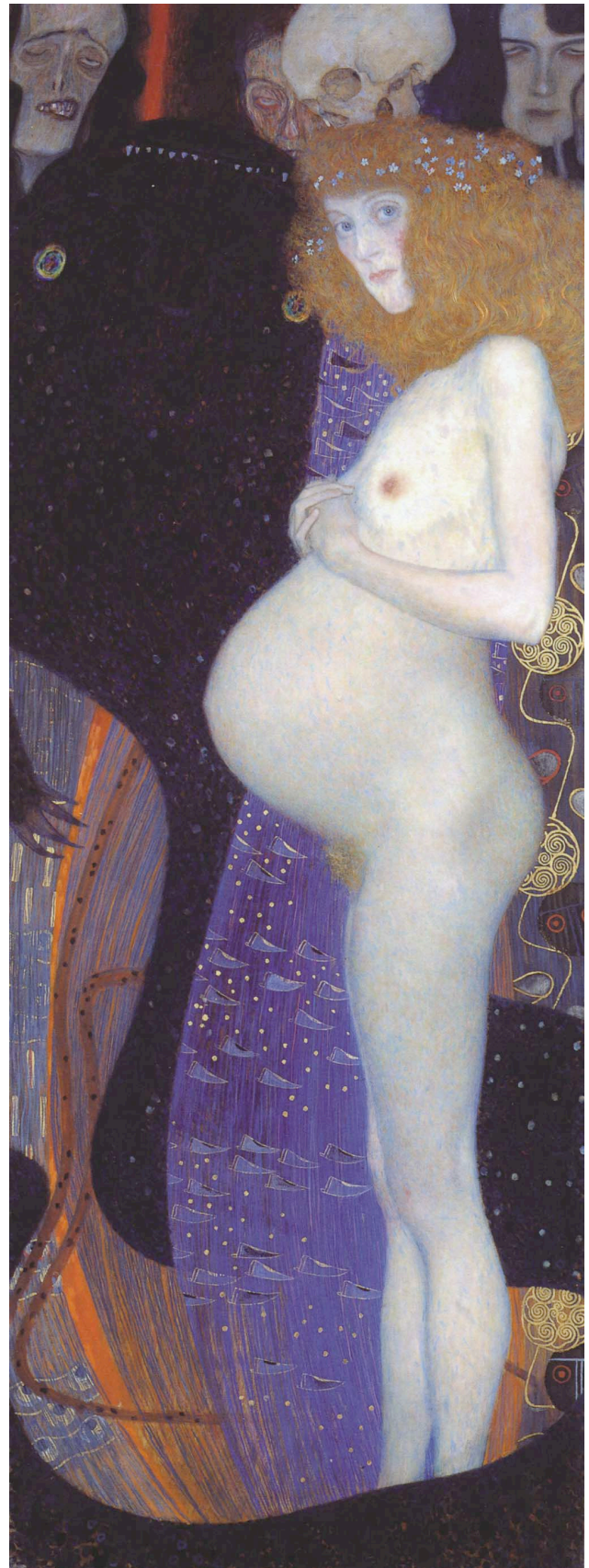
“ *Everything is ugly: she is, and what she sees -only within her is there beauty growing, Hope. And her eyes say that.*”

G. Klimt

indeed, not the naïve and vain hope for «the True» which lies beyond human reach, but the more rationally mature and spiritually enlightened hope for «the truer», and for the magic and beauty that it brings about! Thank God, «into that from which (we took) our rise, (we) *pass away* once more, as is ordained, (to) make reparation and satisfaction to one another for (our) injustice, according to the ordering of time», as Anaximander put it. Generations «succeed» generations, and thus make change possible! The «beauty growing within» beyond the «ugliness» of our universities’ pedagogical face, as in Klimt’s magnificent allegorical treatment of the concept of Hope, obviously lies in the perpetual gestations of which they are the theater. For the critical rationalist, this hope extends into seeing the new generations of academics «embody» more and more fully such «truer perspectives» as those underlying the idea of the necessity of promoting growth-fostering opposition in every way one can, especially in the recursive application of the idea to the realm of Pedagogy, as discussed above, even if this progression takes the mere form of a growing lip-service paid to it! Consistency, in the long run, should prevail, as (albeit extremely discreetly) evidenced by the very fact that the present *opposing* discourse is tolerated, if not sanctioned, ... if not encouraged.

From amongst the variety of (albeit mostly underground) ways in which it can be argued that the Twentieth Century has served the critical-rationalist program of making growth-fostering opposition more widely and more profoundly sought and offered in the academic world, one in particular stands out in my mind as promising something beyond the scope of classical Critical Rationalism’s wildest dreams. Hiding deep under the thick cloud of dust which the hype surrounding the massive economy-driven penetration of computer technologies in our society has raised, it lies at the very heart of the Computer Revolution, is already a way of life in countless sectors of scientific activity, and is merely awaiting the formal invitation to serve the world of Pedagogy. *It is the technique of Computer Simulation*, a still little-recognized, absolutely revolutionary technique which is pole-vaulting us into a quantum leap in improving upon our stocks of available reflection-empowering techniques, these most precious means of extending our mental abilities beyond the confines of our ever-moving, slowly and lazily unfolding, and so hopelessly easily distracted lines of thought. In order to more fully understand the truly revolutionary nature of *computer simulation* as a reflection-empowering technique, one must stop and meditate for a moment on the one reflection-empowering technique which it descends from ... and so outstandingly transcends: The very ancient art of *writing*.

If *writing* can easily be argued to have been, historically, the one key-invention in this realm of reflection-empowering techniques, it now comes so naturally that its technical nature and purpose are hardly ever reflected upon, even by those who live by it! Who fully realizes, for instance, that as an aid-to-reflection (the most fundamental role which it is called to play in academic life), what writing essentially offers is a drastic increase in *self-opposability* by allowing one’s otherwise inescapably fleeting trains of thought to be snapshot, brought to “stand still” long enough for *both* their intended and *unintended* semantic reach to be explored at leisure, and stand to be reformulated and extended in the light of the flaws



encountered in the exploration, ready for a new (refutation and refutable-conjecture-creation-driven recovery) writing-empowered cycle? And who further realizes where this most useful technique of writing as an aid-to-reflection frustratingly finds its limit? For one, Plato realized it (yes, Plato again!) ... as he noticed that written words, as useful as they might be in various other ways, lay inert, hopelessly lifeless on the page, “preserving a solemn silence” when queried as to the various interpretive paths onto which it is their purpose to open up! Plato, however, for all his genius, could not possibly think of a more powerful reflection-empowering technique, one that would transcend the lifelessness of the written word, and bring it to life. For the dream of pushing reflection-empowering techniques beyond the “lifeless” inking of paper to take form, millennia had to tick by and bring about the Computer Revolution along with the technique of *computer simulation*, whereby written word is *transmuted* back into autonomously (albeit artificially) flowing idea, pushing the “anchoring advantage” deep into the very dynamics of human thought as such, into the mental exploration of the “intended and unintended semantic reach” of the ideas at play, for us to play and replay at leisure! For more than thirty years now have I marvelled at the magic of letting the computer expose me, acutely Socratically, “to the ever surprising unfolding of my very own thoughts,” enhancing a thousandfold my quest for the ever-truer. Even though the actual nature of my research domain (that of the Psychology and the Neuro-physiology of Cognition, in general, and of Visual Perception, in particular) obviously lends itself to the exercise more readily than other domains do, I simply cannot see the slightest reason why any domain of reflection would lie beyond the reach of these techniques, still in their early embryonic stage of development!

“ *I cannot help feeling, Phaedrus, that writing is unfortunately like painting; for the creations of the painter have the attitude of life, and yet if you ask them a question they preserve a solemn silence.*”

Socrates’s words, in Plato’s *Phaedrus*

“ *The computer is the proteus of machines. Its essence is its universality, its power to simulate. Because it can take on a thousand forms and can serve a thousand functions, it can appeal to a thousand tastes.*”

S. Papert

In order to understand how computer simulation stands as a revolutionary promise in the realm of Pedagogy one now only needs to extend slightly the core idea of «computer-simulation-empowered reflection» (understood as meaning «this form of reflection where one enjoys the “anchoring” advantage of being able to entrust the computer with the task of exploring and reporting on *both* the intended and the unintended semantic reach of those ideas which are to pave one’s very own winding way through the refutatory arborizations leading to greater expertise») to the very closely related (if not identical) idea of «computer-simulation-empowered learning» (for *reflecting*, when it succeeds, always amounts to reaching some previously unknown conclusions, which clearly fits the notion of *learning*). I believe that there already is, in this general learning-empowering ability of computer simulation techniques which educational-encounter-driven learning necessarily inherits, reason enough for utmost excitement. But there is more, this time to be found in the *specifics* of educational-encounter-driven learning. In order to fully appreciate this more specific perspective on the promises which computer simulation can be argued to hold, one must be reminded of how «whereas in non-educational encounters, the (learner) faces absolutely uncaring opposition from direct or raw otherness (and typically winds its

way blindly and painstakingly through the myriad trial-and-error scenarios imposed by the gigantic maze of Nature on a scale of centuries and millennia), within educational encounters, the opposing otherness has in principle been hand-picked or built from scratch for the very purpose of not only permitting, but of care-fully *guiding* the learner through a knowledge-growth process which would open up within but a few years onto the mastery of these very conjectures which have slowly been distilled over the centuries and millennia of societal knowledge growth». It is this very need for a pedagogically intended «hand-picked or built-from-scratch opposing otherness» which computer simulation techniques can also and most spectacularly specifically serve in educational-encounter-driven learning, by having this precious “pedagogically intended opposing otherness” *simulated* in the very simulation environment offered the learner ... who is thereby freed from having to suffer the all-too-human teacher’s idiosyncrasies!

Somewhat paradoxically, the most dangerous weapon in the hands of the forces at play against this dream of widespread acknowledgement, development, and use of computer simulation in the realm of education along the lines sketched above might well be educational computer technology itself, with its still growing half-a-century-strong grip on servicing academia’s self-serving (WYSIWIS-rooted Vanity-driven) unquenchable thirst for Bucket-pedagogy, on the part of teacher and student alike (as amply discussed above)! A grip which can be seen to

“ *Perilous to us all are the devices of an art deeper than we possess ourselves.*”

J.R.R. Tolkien,

not only extend its reach deep into pedagogically naïve academia (through such widely accessible tools as Internet browsers and some particularly user-friendly Presentation softwares) but which can also be seen as having carved the very course of nearly all high-profile mainstream research paradigms¹ from the Learning-Machines of the 60’s to the very contemporary E-learning (through such main phases as those answering the famous CAI, ICAI, ITS, and ICTE acronyms), with their shared and unquestioned conception (or “model”) of the learner picturing him or her as but this portion of the target-formal-disciplinary-expertise (the “knowledge-base”) on which he or she has successfully been tested on!

Whatever the case may be, the dream lives on in an (albeit still marginal) ever-growing number of critical rationalist converts, carried by the deep conviction that however challenging the task of developing all those forms of expertise which are required to bring it to convincing realization, it still stands infinitely more realistic than the task of convincing a majority of the human actors on the educational scene to turn towards the kinds of head-grown generosity which our background pedagogical perspective demands, transforming on the way the romantic fear of losing the essentially altruistic goodness of the Human Nature to the implacable rationality of computer technology into the surprisingly exciting perspective of but only losing to it the all-too-persistent miserly wickedness of the Human Nature!

¹With the one notable exception of Seymour Papert and followers’ visionary work around the concept of “MicroWorlds”.

References

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Teacher Ability Quiz

- 1.** When I prepare for class, I am more concerned with how my students might misunderstand the subject at hand than with how I understand it.

Never	Rarely	Sometimes	Regularly	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 pts	1 pts	2 pts	3 pts	4 pts

- 2.** When I actually teach, I am more concerned with bringing my students to understand how they misunderstand the subject at hand than with exposing them to my obvious expertise.

Never	Rarely	Sometimes	Regularly	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 pts	1 pts	2 pts	3 pts	4 pts

- 3.** When I think back to my failure to bring my students to completely master the subject at hand, I am more concerned with trying to determine which aspect(s) of their misunderstanding I misunderstood, than with trying to determine whether it is some previous teacher who was incompetent or whether it actually was the students who lacked intelligence or failed to study as hard as they should have!

Never	Rarely	Sometimes	Regularly	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 pts	1 pts	2 pts	3 pts	4 pts

Total Score*:

*With 6 pts or less, welcome to the gutter's gutter!

Please complete and return to the Center for University Teaching, University of Ottawa, 621 King Edward Ave, Ottawa, ON, K1N 6N5



Call for Reactions

Claude Lamontagne's paper has aroused in you an irrepressible impulse to react? Please let this urge bear fruit in a short text that we will be happy to publish in the Spring issue of *Teaching Options* (April 2003). Your (1000 to 2000 words) text should be sent to the Center for University Teaching (University of Ottawa, 621, King Edward Ave, Ottawa, On, K1N 6N5) no later than March 15. Four public figures in our academic community have already accepted to offer such a text, namely Pierre Lévy (Canada Research Chair in Technology and Knowledge Transfers, University of Ottawa), Robert Major (Vice Rector, Academic, University of Ottawa), Gary Poole (3M Teaching Fellow, President of the Society for Teaching and Learning in Higher Education (STLHE), and professor at the University of British Columbia), and Tim Pychyl (also a 3M Teaching Fellow, and professor at Carleton University).

Vos réactions sont les bienvenues

L'article de Claude Lamontagne a déclenché en vous un désir de réagir difficile à contenir? N'hésitez pas, et soumettez-nous un texte de 1000 à 2000 mots qu'il nous fera plaisir de publier dans notre numéro du printemps (avril 2003). Les textes devraient être reçus au Centre de pédagogie universitaire (Université d'Ottawa, 621, av. King Edward, Ottawa, On, K1N 6N5) au plus tard le 15 mars. Quatre personnalités en vue dans notre communauté académique ont déjà accepté de soumettre un tel texte. Il s'agit, en l'occurrence, de Pierre Lévy (Chaire de recherche du Canada sur les technologies et transferts de savoirs, Université d'Ottawa), Robert Major (Vice-recteur (Études), Université d'Ottawa), Gary Poole (Lauréat du prix 3M, président de la Société pour l'avancement de la pédagogie dans l'enseignement supérieur (SAPES) et professeur à l'Université de Colombie-Britannique), et Tim Pychyl (Lauréat du prix 3M et professeur à l'Université Carleton).

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