



Desautels Centre for Integrative Thinking



Adaptive Intelligence and Higher Education by MIHNEA MOLDOVEANU

Adaptive Intelligence: The Integrative Re-Design of “Higher Education”

by Mihnea Moldoveanu

Here is a sketch of the predicament of “higher education. (Although it is a sketch, the outlines can be quickly filled in with sufficient precision and accuracy). First, labour economists tell us that employability and market value of human capital reliably increase with levels of education. PhD’s earn more, on average, than BS’s and MS’s; and MD’s and MBA’s, more than high school graduates. Second, leading employers currently argue that the skills of recently hired graduates are lacking relative to the problems these organizations solve, as graduates are decreasingly able to frame and solve the real problems they are hired to address. Third, psychologists tell us that the individual characteristics on which the iterative selection process on which higher education is based (conscientiousness, general intelligence) account for no more than 20 to 30% of the variance in the prediction of long run (10-15 year career success). Fourth, academia as an institution is an increasingly specialized and fragmented enterprise which develops (selects, trains, imprints) ways of thinking, communicating and acting that are idiosyncratic to different disciplines, strictured by the need to communicate in particular languages and codes that are decreasingly intelligible to the untrained and decreasingly adaptive to the real problems of the world. Fifth, even though there is broad consensus about the fact that we are societally under-investing in education, there is no consensus about the forms and aims that new investment should take, which, coupled with the institutional inertia of academic institutions (tenure, etc.) has led to a ‘stalling equilibrium’. Those in favour of preserving the status quo cite (#1 above) the value of higher education to graduates, without heeding

any of the other features of this sketch. Those in favour of radical change focus on the decreasing relevance and validity of academic research and teaching, on the fact that the half life of academic knowledge is only 1-2 years, or on other details of the sketch, while ignoring the robust market value of higher education. If you are with me so far, then you might be struck by the question: How do we steer higher education away from becoming (or, being) an expensive fraud?

Now let me sketch a solution to this predicament. It also has several components. The first is the realization that real-life, real-world problem solving has become sufficiently different from specialized problem solving that an ‘ingenuity gap’ now exists, between the problems that need addressing (like: bringing about a world free of oil, increasing the transparency of dominance hierarchies and institutions, providing personalized, real time, genetically and personally informed health care) and the stock of intelligent thought patterns and solutions provided by academia (to which ‘society’ has ‘sub-contracted’ the functions of selecting, training and developing the problem solvers of the future). The second is the realization that ‘real’ problems require patterns of thinking and communication and action that are *adaptive* and that *transcend* disciplinary boundaries and silos – “adaptive intelligence” rather than “general intelligence”. The third is the emergent understanding of the *plastic* and *developmental* properties of the human brain, which can change, modify and adapt in response to the pursuit (by its “owner”) of new problem solving activities. The fourth is a componential understanding of

problem-framing and problem solving ability in terms of a *multiplicity* of patterns of thought and action (deductive, inductive, abductive, dialogical, analytic, synthetic, etc) which are currently developed *in separation* and isolation in multiple disciplines, which makes it possible, for the first time in human civilization, to ask not only “what have you learned today?” but also “what have you learned to do with your mind/brain/body today?” Couple point four with point three, and you will realize that we are also able to design educational experiences that selectively and productively develop specific neural circuits involved in specialized problem solving, and to neurologically map the evolution of ‘expertise’. Couple points three and four with point two and you will realize that we also stand on the cusp of training humans to consciously, purposively and adaptively use their brains ‘as equipment’ for solving problems, in ways that are similar to the ways in which they use their hands and feet. Couple points two, three and four with point one, finally, and we are in the possession of a path forward for making the problems of the world increasingly tractable for the minds that we are selecting, developing and training when we do “education”.

Take these four details of the sketch together, and a solution to the problem of relevance and value of higher education emerges. It is based on the targeted, purposive, informed development of *adaptive intelligence*, in ways that are informed and guided by both a new understanding of the human brain and its potential for transformation, and an understanding of the ways in which the mind/brain solves problems that are not simplified and stylized by academic discourse to

the point where they become unintelligible to untrained humans. The new approach is informed (but not determined) by the basic science of mind and brain, and it *acts* upon this knowledge to design educational experiences that develop *ingenuity* as a reliably learnable skill set.

One last sketch: it is for a picture of where this enterprise can be in 7-10 years. First, it will produce a basic discipline of teaching and learning that develops transferrable and survivable know-how as much as currently straitjacketed approaches produce non-transferrable and short-lived know-what. Second, it will place ‘higher education’ in a close and intelligent dialogue with the sciences of mind/brain, so that the modes of teaching and learning will be guided by practical insights into the mechanisms of learning, remembering, perceiving – the ‘building blocks’ of embodied intelligence. Third, it will make ‘learning to learn’ part of the purpose and function of education, thus embedding a continuously adaptive capability into the life of the trainee or student and prolonging indeterminately the ‘use before’ date on the stock of expertise of a person. Fourth, it will make academic ‘disciplines’ more responsive to the needs, goals and conditions of real problems and predicaments, as opposed to the toy problems of institutionalized ways of speaking and thinking. As a consequence, it will steer ‘higher education’ away from its current path towards becoming an ‘expensive fraud’, while preserving what is useful in its inner workings – an intrinsic motivation for greater levels of understanding and challenge, and a commitment to validity and reliability as norms for ways of speaking and thinking