

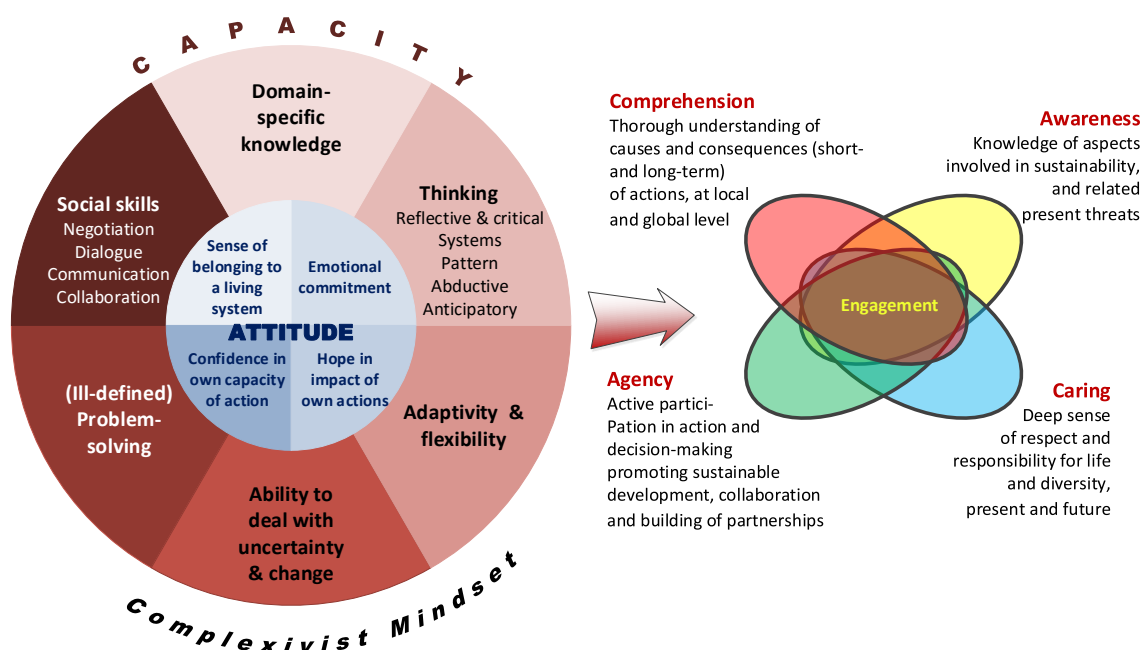
# Higher education in a complex world: nurturing “chaordic” influencers (Extended Abstract)

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We live in a complex world, defined by dynamics of constant change, and characterised by unpredictability, unknowability and uncontrollability (Miller & Page, 2007). Our world is the realm of wicked problems, which shape our future and admit no definitive solution (Rittel & Webber, 1973). The inability to cope with complexity leads to succumbing to wicked problems, with tragic consequences on human development. Such consequences include environmental emergencies, geopolitical crises, cultural decline, epidemics, and more. Ebola outbreaks, migration control problems, the rise of Islamic State, global warming, and more.

The future of our world depends on our ability to cope with its complexities and the wicked problems originating from them. Learning to cope with complexity requires holistic engagement in complex dynamics and problems, supported by a mindset geared to cope with complexity (Fabricatore & López, 2014). Holistic engagement consists of affective, cognitive and operational involvement in complex scenarios affecting human development at individual and collective levels (Tilbury & Wortman, 2004; Sipos, Battisti & Grimm, 2008). People should think and care about matters in order to identify complex problems to address, comprehend their origins and the underpinning mechanics should be comprehended as thoroughly as possible. Consequently, people should strategize and act responsibly to influence complex dynamics and facilitate the emergence of new equilibria, making situations favourable to our global community and the generations that will succeed us. Complexivist mindsets support such engagement through specific capacities and attitudes (Figure 1, adapted from Fabricatore & López, 2104), required to deal with the change, unpredictability, uncertainty, unknowability and uncontrollability that characterize complex systems (Fabricatore & López, 2011, 2104a).



**Figure 1:** Complexivist mindset and holistic engagement

Cite as: Fabricatore, C., & López, X. (2015). Higher education in a complex world: nurturing “chaordic” influencers. *Proceedings of the Proceedings of the Sixth Advanced International Colloquium on Building the Scientific Mind (BtSM2015)*.

Formal education should foster the development of complexivist mindsets and promote holistic engagement in complex contexts and wicked problems. This is essential to nurture chaordic influencers, individuals capable of generating order from chaos through engaging in wicked problems to influence complex dynamics and facilitate the development of our global society. Universities should play a paramount role in this scenario, having the key responsibility of preparing professionals to define our society through developing, leading, influencing and working in its institutions. However, this is arguably the case. Higher education systems are frequently criticised for key shortfalls that compromise the possibility of nurturing chaordic influencers within formal higher education environments. Excessive emphasis on subject-oriented performativity, overlooking the development of transferable capabilities key to engage in complex scenarios, creativity first amongst them (Barnett, 2000; Jackson, 2008; Mili, 2015). Teaching strategies overly driven by quality control, achievement of planned outcomes, cost efficiency, customer satisfaction and resource management logics that do not map to the quality of students' deep learning, nor to its meaningfulness in relation to the needs of our contemporary world (Davis & Sumara, 2008; Mili, 2015). Curricula promoting fragmentation of knowledge and isolation of disciplines, rather than integration of domains and cross-disciplinary pollination and collaborations (Mili, 2015). Programmes promoting competition, individual achievement and high-stake assessment, rather than collaboration and focus on collective solutions for the social and environmental challenges we face (Sterling, 2001).

These and further related issues generate boundaries and constraints that frustrate the efforts of educators who attempt to contribute to the evolution of higher education systems towards a greater compliance with the needs of our complex global world. Constraints and boundaries can then become insurmountable barriers, leading to the crystallisation of higher education systems into entities arguably useful to promote and serve societal development. Or, they can be embraced as a guiding lantern, a beacon that sheds light on what is not bounded, and the changes that can be effected regardless of boundaries and constraints, working "within the box" in order to transcend it. This calls for a critical reflection on the boundaries and constraints imposed by modern higher education systems. If these cannot be changed, what can be done to nurture the development of complexivist mindsets and promote students' engagement with wicked problems within the daily routine of formal higher education environments?

To address this scenario, we developed the Adapt-Engage-Learn (EAL) educational framework. EAL comprises strategies informed by complexity, game and play theories, aimed at facilitating the development of complexivist mindsets and promoting students' engagement in complex scenarios and wicked problems. So far we have applied EAL to develop courses involving over 300 students. All things considered, the results obtained suggest the following: *developing complexivist mindsets and promoting student engagement with wicked problems and related social issues within the boundaries and constraints of formal higher education environments is indeed feasible*. Further research is needed to explore in greater detail the impacts that the EAL framework has on the students' learning experience and development. Further research will also reveal methods of application, in terms of designing courses in other subject areas; this, finally, will allow the corroboration and generalisation of the results obtained so far.

The full paper 'Higher education in a complex world: nurturing "chaordic" influencers' presents reflections on the implications of complexity and wicked problems on contemporary higher education. The paper calls for the need to find ways to foster chaordic influencers, transcending boundaries and constraints that may hamper the development of complexivist mindsets and engagement in complexity. The paper then introduces the EAL framework, presenting its fundamental underpinnings and key strategies. Finally, the paper explores impacts generated by the framework so far, highlighting a special case: students engagement with the complex topic of peace through video game design projects.

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