RoundTable: Dealing with system shifts in Education

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Elevator Pitch

Increasingly, educators, researchers, administrators and learners are recognising the complexity of the educational systems they inhabit, from the macro-level of university organisations to the micro-level of individual learning environments (Ellis & Goodyear, 2019; Damşa, 2019; Jacobson, 2010). Moreover, previous research has indicated high levels of entanglement in these learning environments, on the micro-level (Goodyear, Carvalho & Yeoman, 2021; Fawns, 2022) to meso and macro-levels (Yeoman, 2018; Yeoman & Carvalho, 2019).
Our educational systems thrive when students are learning and growing as human beings, to become confident citizens of our societies. However, our educational systems are also systems in flux, undergoing significant changes, caused by many factors (Jandrić et al, 2018). The societal and technological structures underpinning our systems are changing significantly due to digitalisation (Rasa, 2025). Increased globalisation has changed the nature of our student and staff population, who require adapted pedagogical approaches to facilitate learning (De Leersnyder et al., 2022). Younger generations have significantly different expectations of our educational system, in line with their values and priorities, growing up as digital-first generations (Katz et al., 2021). These shifts often bring with it foundational questions of the value of education itself, which is a slow, intentional human action seeking deep understanding in a society increasingly dominated by speed of information and action.
For the people who are part of these systems and work within these systems, these system shifts present a significant problem. This problem becomes tangible in their actions (e.g. increased technology shifts such as accelerated adoption of GenAI (Nikolic et al., 2024)), their levels of motivation (e.g. significant drop in teachers/administrator numbers (UNESCO & International Task Force on Teachers for Education 2030, 2024) and mental health (teacher burnout (Thomas & Reyes, 2024)). However, there is not much support for them on how to deal with these systemic changes. Often, changes are perceived as something occurring beyond their individual or collective control, where they need to undergo the changes but cannot always direct them or choose them (Chatzipoulidis et al., 2023). A first step towards this system-level support lies in the recognition of educational systems as complex systems. But, recognising a system as complex does not equate to being able to deal with and work in complexity to achieve desired results (Chatzipoulidis et al., 2023). This is the challenge of people in education right now.

In this context of system shifts, we see core problems emerging:

- How can teachers, educators, researchers, administrators and learners keep their focus on what is essential in the educational system, namely, that students can still learn and grow?
- How can they navigate a system that is constantly in flux, in confidence and with steps towards desired results?
- When systems need to be adapted, how can they be sure that they are adapting the system in meaningful ways?
- How can they make sure that the new evolving system will be balanced and adequate to the needs of our societies?

Goal

Our approach is building insight into the system, with an intention to be able to make grounded changes. Previous methods have brought some degree of enhanced insight on a system-level (e.g. work with social network analysis (Sie, Ullmann, Rajagopal, Cela, Bitter-Rijpkema, & Sloep, 2012) and epistemic network analysis (Pantić, 2024)), but they often remain either a snapshot of the learning environment at a particular moment, not accounting for dynamics in the system, or do not distinguish between desirable and non-desirable systemic change.

The goal of the roundtable is to

1. identify the essential components and values of the educational system,

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2. to name the circumstances when educational systems are successful/thriving/balanced and within acceptable norms, and
3. to identify meaningful interventions that we can put in place to bring the educational system closer to this vision of thriving?

Participant Engagement

In this roundtable, we will start from three critical system shifts currently taking place at our educational institutions, and how our educators and adminstrators are dealing with them. Using a structured analytic description of these three shifts (following a conceptual model of the educational system as a complex system), we will compare and contrast to build analogies and distinctions, together with the participants. The goal of the discussion is to develop collaboratively more insight into the essential components of a learning and teaching process (*system-independent*), the contextual elements that moderate the learning/teaching process (*system-dependent*), and persistent dynamics between people, epistemology and technology in our learning environments.

Participants will be engaged in the following way:

- Introduction (10min): The presenters shortly introduce the roundtable and the problem setting, with a short introductory round.
- Presentation of three cases (45min):
    - In preparation of the roundtable, a complex-systems model of each case will be made, to make the system shift tangible in terms of the changes it imposes on people, epistemology and technology. As the audience may be less familiar with complex-systems analysis, the cases will also be analysed following the more established ACAD model (micro/meso/macro level) (Yeoman & Carvalho, 2019). Both models will be illustrated on paper and on a laptop (brought by the presenter).
    - Each case will be shortly presented, and its representation will be shown (5min per case). Participants will engage on the model, to discuss where they agree or disagree with the representation of the case, and what they would change. (10min per case). This results in about 15min per case.
    - The chosen cases are:
        - Case1: GenAI use in research thesis trajectories: Theses as graduation projects have been graded mostly based on final products only, to establish the capabilities of a student in fulfilling complex research tasks independently. This central tenet of higher education is under severe systemic pressure by several internal and external forces (such as (i) lack of supervision capacity, (ii) a widening chasm between the academic thesis process and the skills requirements of employees in industry in a knowledge economy, and (iii) the emergence of Generative AI with performance levels that make human text nearly indistinguishable from generated text). Although product-based thesis assessment has never been the best practice, this situation forces thesis assessments to consider how to balance (1) assessments of processes and products, (2) formative and summative functions, (3) modes of written and oral, and (4) integration of knowledge, skills, and attitude. How does the thesis trajectory and thesis assessment need to be revised systemically, to ensure equity and continued sound supervision pedagogy?
        - Case2: Assessment under pressure: In many institutions, teaching staff in higher education play dual roles as educators and researchers. They have limited capacities and resources to first become assessment literate and then have sufficient time and support to do quality assessment. Moreover, institutions expect teachers to integrate several current themes (e.g., AI literacy, inclusiveness and flexibility) into assessment design. These changes are part of a wider systemic change in the institution that wants to show continuous progress in their teaching methodologies to remain competitive on a global education market. In this process of change, the requirements of quality assessment come under pressure, with an emphasis on widening the scope of assessment that exacerbate the workload of teaching staff. How can higher education systems facilitate the system shift towards more complex assessments, but keep it workable for their teaching staff?
        - Case3: Pathways for lifelong learning: Increasingly, universities are setting up shorter courses and programmes (e.g. "micro-credentials"), to cater to the immediate needs of industry. This is driven by a systemic change: the amount of scientific knowledge is increasing but there are

no/hardly any standardised ways to get this knowledge to industry, and to train people consistently in these new developments. In this move to cater for professional lifelong learning, universities are investing in new partnerships, more technology and shorter turnover of programme. Accreditation, quality assurance processes and in-depth student learning come under pressure. How can universities maintain the balance in this system shift?

- Plenary discussion (35min): After going through the cases in detail, we will bring the conversation to a broader perspective, focussing on three primary questions:
  - What are the essential components and values of the educational system that need to be maintained?
  - What are the circumstances under which we consider the educational systems to be successful / thriving / balanced and within acceptable norms?
  - What are meaningful interventions that we can put in place to bring the educational system closer to this vision of thriving?

    A secondary question focusses plenary reflection on modelling to understand complexity in educational systems, and the merits of complex-systems modelling as a method.

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