

Annex 3

Curriculum praxis from perspective of systems thinking

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Abstract

Three areas of discussion arise from an examination of findings associated with the eSTeEM research project *Transforming curriculum praxis and workplace capabilities* (changing the way the game is played). First, we discuss the wider context of the game of curriculum praxis. Second, we show how this action research has informed the development of a theory of change for developing capability in systems thinking in practice. Third, drawing on findings from workstreams 1-3 of the project, and looking at the higher education (HE) sector more widely, we use aspects of systems literacy from critical systems thinking, for modelling curriculum praxis in the HE sector. A systems model is presented for comparing configurations of a competency approach with those of a capabilities approach in relation to changing the game of curriculum praxis.

Contextualising the game of HE provision in the UK

For each of the two case stories reported in the research project – developing curriculum praxis in support of (i) Level 7 systems thinking practitioner apprenticeship (STPA) Standard, and (ii) Postgraduate systems thinking in practice (STiP 2020) curriculum - a reference system was used based on critical systems heuristics (CSH) questions. These are questions of political economy – who gets what (motivation)? who owns what (control)? who does what (knowledge)? and who suffers what (legitimacy)? (Reynolds, 2023) The same framing device can be used to provide a lens for examining the backdrop features of UK Higher Education circumscribing the two case stories (Box 1)

Box 1 Four backdrop features of UK Higher Education sector during initial phases of eSTeEM project (2018-2021)

- i. (sources of motivation) Marketisation of HE and the Augar Review (who gets what?): Paul Augar commissioned by the Theresa May Government in February 2018 to look into tuition fees (on back of evident Labour Party traction during 2017 General Election for overhauling existing student payment/loan scheme). The Review recommendations (reducing maximum fee to be charged by Universities)

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were shelved, but the Review has generated considerable debate in the sector around growing marketisation of HE provision.

- ii. (sources of control) Apprenticeships and Levelling up (who owns what?): The Apprenticeship levy introduced in April 2017 might also be seen as part of the marketisation of HE, with the burden of market demand being shifted to employers and away from students. The introduction of Level 6 and Level 7 (graduate and postgraduate) apprenticeships also enabled HEIs to repurpose curriculum design in order to serve previously less-academically achieved (or inclined) students. Whilst serving a political imperative towards levelling up, in providing greater access to HE particularly for less privileged, the process has driven some concern in the sector about risks of ‘dumbing down’ quality of HE provision. A question remains on corporate versus academic integrity (control of provision)
- iii. (sources of knowledge) Teaching Excellence Framework (TEF) and trust in role of academics (who does what?): TEF was introduced by the English government in 2017 to judge teaching quality in England universities in line with research excellence (REF). TEF is owned by the government regulator Office for Students (OfS) and is being replaced from 2020. A key metric used to measure success is the employment opportunities offered to students. Whilst focussing on undergraduate provision, TEF signals a wider test in trust for academic providers and Universities more generally. The events of Brexit and the original Trump victory in 2017 signalled a growing crisis of trust in experts – exemplified by populist notions of ‘fake news’ which conflated ‘truth’ with ‘trust’. The societal role of academics was spotlighted significantly, with some more favourable redress provided through support of universities during the 2020 Covid-19 crisis.
- iv. (sources of legitimacy) Disaffected stakeholders (who suffers what?): In addition to wide societal distrust for academics, student unrest with high levels of tuition fees - exacerbated through 2020 pandemic in requiring students to pay halls of residence fees as well as full tuition fees whilst being often only provided with online tuition – was also surfacing. At the same time academic unrest was evident through industrial action with working conditions and pay. Issues of inequality and social justice became even more manifest with issues of decolonising the curriculum and concerns from Black Lives Matter (particularly following the murder of George Floyd in USA).

Both case story developmental ‘games’ being played in the inquiry - the STPA Trailblazing Group and the STiP 2020 curriculum - provide different opportunities for configuring activities in relation to systems thinking

Systems thinking for ‘changing the game’ of curriculum praxis

There are four system renditions of curriculum praxis associated with the research inquiry – a ‘simple system’ for the overall inquiry, ‘complex systems’ for capturing findings of each of the two case stories, a ‘purposeful activity model’ for steering curriculum praxis in both case stories, and finally two specific renditions of complex systems – complex industrial system and complex adaptive system - to represent the transformation required towards developing capabilities.

First, the overall game of curriculum praxis has been rendered for the purpose of this inquiry as a ‘simple system’ (what? how? why?) regarded by the research team in terms of a system (i) *to* design and enact learning systems (ii) *by means of* theory informed, morally committed, action, (iii) *in order to* enhance workplace capabilities of students and curriculum designers.

Second, the two case stories of curriculum praxis were enacted as learning systems, each rendered as a ‘complex system’: Case story A - focused primarily on the activities associated with the Trailblazing Group for the development of the STP Apprenticeship Standard; and Case story B - focused on the activities associated with the development of the OU STiP 2020 curriculum. The *complexity* of each case story is captured with the stakeholder perspectives afforded by the four sources of influence of CSH – (i) sources of motivation, and the intended *beneficiaries* of the system – who gets what? (ii) sources of control, and *decision makers* in command of resources for the system – who owns what? (iii) sources of knowledge, and *practitioners* (‘*experts*’) responsible for enacting the system – who does what? and (iv) sources of legitimacy, and those *disaffected* (‘*victims*’) by the system – who suffers what? The outcome findings from each Case story are presented in the main body of the research report -presented through address to each of the four questions.

The third systems rendition – an activity model representing a theory of change - is an output from both Case stories – the apprenticeship curriculum set up by the OU, and the mainstream STiP 2020 curriculum. Whilst we claim that the findings of this study are relevant to curriculum praxis in all subject areas of higher education, the particular subject area of STiP has a special relationship with enacting workplace capabilities.

Systems thinking *in* practice invokes praxis (theory-informed practice) which underpins capabilities. In STiP terms, a capabilities approach invokes a continual duality between being both *systemic* (thinking/ reflecting) and being *systematic* (practicing/ enacting). The relationship between the three levels of engagement between systemic sensibilities, systems thinking literacy, and systems thinking in practice capability can be viewed purposefully through representing curriculum praxis as a generic *activity model* as in Figure 1. The model is made manifest as the theory of change model in the flagstone *portfolio module* for the STPA curriculum entitled Evidencing Systems Thinking in Practice (TBXY874).²

² The Portfolio module is often regarded as the *work-based* module of an apprenticeship; to be distinguished from the *workplace* activities associated with sister STiP modules. The portfolio is work-based because of the interaction between Practice tutor, employer and employee in regular reviewing of apprentices’ work.

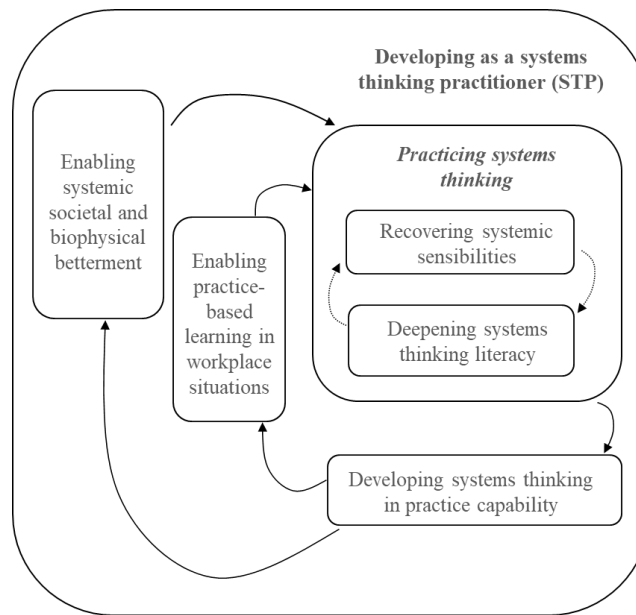


Figure 1 A purposeful activity model representing the STiP theory of change adapted from TBXY874 OU module *Evidencing STiP* Block 1, Part 3 (Reynolds and Ison, 2024)

The purposeful activity model can be regarded as an outcome from the eSTeEM research. It illustrates how developing STiP capability draws on practicing systems thinking - a continual interplay between being systemic (recovering systemic sensibilities) and being systematic (acting with deepening literacy) - whilst affording opportunities for improving situations of interest (both in the workplace and wider society).

At the institutional level, the OU has long been a pioneer in promoting lifelong learning through curriculum provision that addresses social justice (enabling access to previously academically marginalised groups) and workplace capabilities (enabling part-time study to at best complement, or at least not interfere with, workplace practices). The capacity to do this has relied on effective systemic auditing of societal needs and systematically providing requisite open-supported learning. The ability of OU to build on this capability relies on institutional responsiveness to ever changing student and societal needs (Fig. 2).

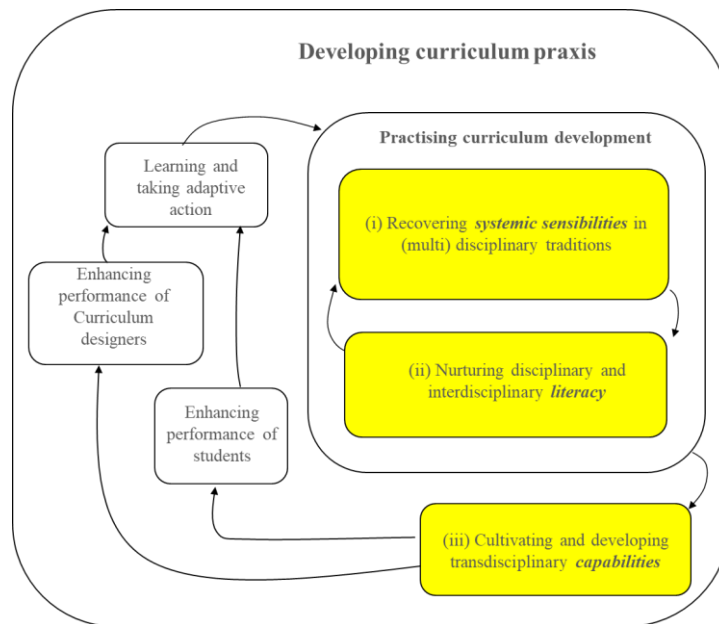


Figure 2 A purposeful activity model representing a theory of change for curriculum praxis

The theory of change relates to the wider challenge of HE sector in changing the game of curriculum praxis for enabling better capabilities enactment. Whilst the activity model demonstrates the configurations of a capabilities approach signalled by systemic drivers (e.g. restoring values of lifelong learning and open-supported learning), a competency approach by contrast, as implied by Lozano et al. (2012), invokes being more systematic – learning a set of externally defined rules and then rigidly applying them. In the following section, the fourth and final systems rendition of the curriculum demonstrates the contrast between these two approaches, drawing on findings from this study (and elements of a systems literacy of modelling with critical systems heuristics used for modelling the outcomes from Case stories A and B.

Changing ‘the game’: transforming the system of curriculum praxis

As a research outcome based on systems literacy, workplace capabilities in the wider arena of postgraduate curriculum development were further framed as a game or system of interactions. Drawing on findings from workstreams 1-3 alongside ideas of systemic triangulation³, the research team have modelled these interactions between three broad sets of stakeholders - associated respectively with CSH sources of influence (motivation, knowledge, control,): (i) actual and potential students as intended beneficiaries of curriculum, (ii) educationalists as practitioners responsible for curriculum design and implementation, and (iii) decision makers in governance responsible for resources to enable curriculum

³ Reynolds, Martin and Holwell, Sue (2020). [Chapter 7 Epilogue: Systems Approaches and Systems Practice](#). In: Reynolds, Martin and Holwell, Sue eds. *Systems Approaches to Making Change: A Practical Guide*. 2nd Edn. London: Open University and Springer, pp. 307–321.

Reynolds, Martin; Ison, Raymond; Shah, Rupesh and Wilding, Helen (2020). [Beyond employability: a more radical role for Higher Education in developing workplace capabilities](#). In: *Employability Conference 2020 Expanding the narrative for a rapidly changing world*, 11 Mar 2020, Walton Hall, Milton Keynes.

development. To explore how the game might be changed, we might re-imagine the system not as we see it, as we have tentatively analysed the OU so far ('is' mode), but rather as we might normatively envisage the system (through an 'ought' mode).

In redesigning a system (changing the game) we follow the principles of a capabilities approach to higher education (Lozano et al., 2012) - where intended beneficiaries have freedom to choose and pursue ways of being and doing they have reason to value. Here it is helpful to retain what Henry Bernstein (1992) calls a relational perspective in contrast to a residual perspective.⁴ Whereas a residual perspective abstracts out component parts of a situation and focuses down on particular entities in a *systematic* manner, a relational perspective is one that appreciates more the *systemic* features arising from the interrelationships between entities.⁵

Ideas of changing the game of curriculum development can be explored in framing curriculum praxis as six activities between the three broad sets of stakeholders (Fig.3)

⁴ Bernstein (1992) identified difference between relational and residual with reference to international poverty alleviation programmes "...relational approaches investigate the causes of rural poverty in terms of social relations of production and reproduction, of property and power" (p.24) In contrast, residual approaches to poverty analysis abstracts out 'the poor' as a homogenous entity, delinked from the social economic and political context. The residual function is pervasive in the 'trickle down' economic model of mainstream international development practice.

⁵ The relational approach is very much related to systems thinking approach which involves a complementarity between being both systemic and systematic. Likewise, it is important that the pejorative connotation of 'residual' is not taken too extensively. It can be helpful focusing on one particular entity – for example educational practitioners – in some isolation from wider institutional governance structures. Keeping a backup relational/ systemic overview is though always helpful in any systematic endeavour. 'Residual' tendencies are akin to claims of reductionism within sciences, and carrying similar health warning that 'reductionist'/ systematic practices are an important aspect of any practice.

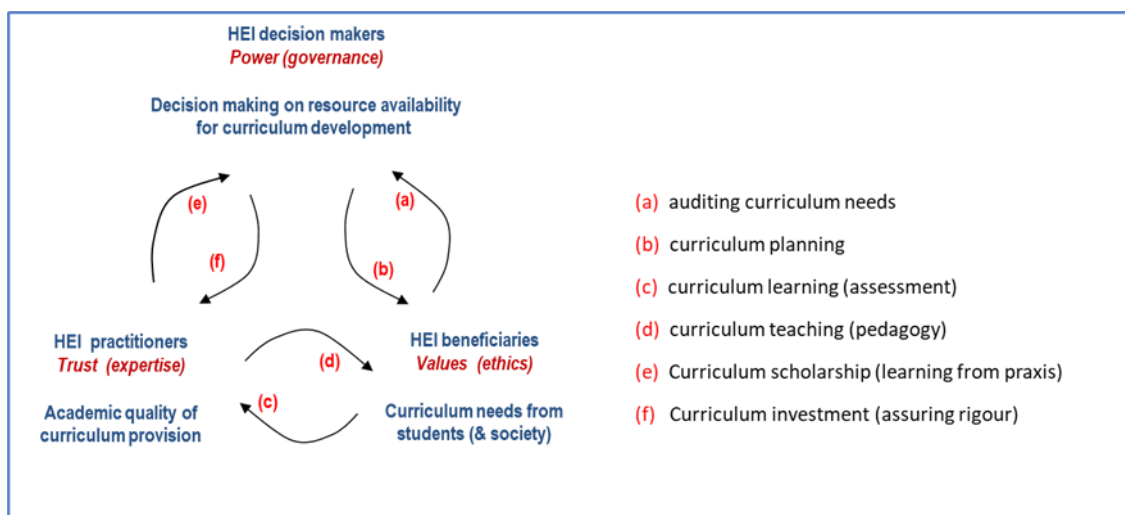


Figure 3: Framing curriculum praxis as six activities between three broad sets of stakeholders – a constellation of practices between intended beneficiaries, practitioners in knowledge support, and decision makers

Adapted from Reynolds, M.; Lyons-White, J. and Knight, A. T. (2020). Systemic failure and the 'Iron Triangle' of conservation practice. In: Wyborn, Carina ed. *Seeds of Change: Provocations for a new research agenda*. Geneva: Luc Hoffman Institute, pp. 138–142 (Copyright: Martin Reynolds, 2025)

Each activity might be re-imagined in terms of an ideal. Contrasting a relational approach to this ideal with a residual approach for each activity in effect contrasts a capability approach with a competency approach. Identifying these contrasts can help surface some of the risks in effecting curriculum development that falls short of supporting capabilities. The sets of activities might be regarded as a constellation of practises amongst those key stakeholder groups involved with a Higher Education Institute such as the OU.

Drawing on the findings from this study, Table 1 provides such a re-imagining of the game for HE curriculum development for issues of employability from both a residual and the more ideal relational perspective at a generic HE-sector level. The model is based on countering existing trend towards increased marketisation of the HE curriculum since the late 1970s, particularly in the UK (Brown, 2015).

The Table might be used as a measuring device for gauging the level of capabilities expressed at the Open University or indeed other curriculum providers of part-time Higher education for working with employers.⁶

⁶ A similar exercise was undertaken for the Employability Conference hosted at OU in early 2020. The residual and relational features for that event were explored for each source of influence rather than the relationship between sources of influence, drawing on critical systems heuristics (Reynolds, Ison et al., 2020).

Table 1: Competencies and capabilities: residual and relational features of curriculum development for ‘employability’. Dimensions of an ideal system for curriculum development associated with employability appropriate for part-time higher education provision. The ideal mapping draws on findings and experiences from the third eSTeEM project (2018-20) along with ideas contrasting competency and capabilities approaches in Higher education provision (Fraser and Greenhalgh, 2001; Lozano et al., 2012)

	Competency approach (residual) ... ‘less ideal’ mapping	Capability approach (relational) ...ideal mapping
(a) Auditing	Employer focus on existing skill ‘gaps’ requiring to be ‘filled’ in current market workplaces	Societal focus on future social-ecological needs including employee versatility in rapidly changing workplace environments
(b) Planning	Employee career progression in existing structures; work-ready curriculum (Scott, 2019)	Citizen-worker self-fulfilment through lifelong learning; i.e. beyond the work ready-plus curriculum (Scott, 2019)
(c) Assessing	Assessment of learning. Focus on summative rather than formative (traditional ‘fail-safe’ environment). Fixed learning outcome driven.	Assessment for learning. Focus on formative over summative; i.e. developmental assessment ⁷ (contemporary ‘safe-fail’ environment). LOs subject to student formulation and collaborative inquiry
(d) Teaching	Pedagogy based on positivist epistemological framing of knowledge-consumption (prioritising of knowledge and understanding and leaving ‘skills’ and ‘behaviours’ to practice tutoring)	Pedagogy based on constructivist epistemological framing around developing know-how (prioritising of cognitive and practical skills as drivers for customising individual knowing and understanding)
(e) Learning	Single loop, best practice, with focus on specific ‘training’ rather than broader ‘education’. Learning is instrumental, in terms of following fixed framings of guidelines.	Double and triple loop learning, enabling working assumptions (including employment status) to be continually questioned and revised. Learning raises ethical and political issues with practical implications for the learners and educators
(f) Investing	Subservient to (corporate) command of ‘market demands’ – item (a) – using traditional economic model of supply and demand, dependent on fixed ‘resources’. Educationist capability subject to market-accountability.	Subject to academic integrity based on co-guarantors of rigour including resonance with, and relevance to, wider socio-ecological needs. Educationist capability regarded as resource subject to care-ful nurturing.

Amidst some of the critical feedback on governance, there remains much to celebrate and be proud of with the way the game of curriculum development is played at the OU; both in

⁷ Developmental assessment might follow similar tradition to developmental evaluation – initiated originally by Michael Q. Patton and adapted for a STiP perspective (cf. Reynolds, Gates et al., 2016)

terms of promoting capabilities amongst OU students (in delivering innovative courses that help with workplace capabilities) and in capabilities experienced amongst OU educationists (in providing workplace environment enabling a culture of innovative pedagogic exploration). There remains though an unsettling anxiety that the OU might be losing some of its innovative zeal and pioneering lead in the HE sector in pursuit of becoming more ‘mainstream’ and falling in to tradition of marketisation of the curriculum.

We would argue that HE needs to tame drivers towards competencies (supporting thinking *and* practice associated with professional frameworks etc.) under the wider mission of developing capabilities (supporting thinking *in* practice associated with wider societal concerns). HE has a role beyond the game of being a provider of professional training to a more compelling game being a provider of public work.

This might be considered as part of a grander level of necessity towards taming ‘competition’ under the wider mission of promoting ‘social and ecological wellbeing’. The current problem is that both competencies and competition appear to be driving the wider system of education. The issues raised in this report are not new but have a significant pedigree. Ideas of contesting the notion of celebrating competency over capabilities complements earlier studies including deschooling society (Illich, 1971), and more practical initiatives by radical educationists. Patrick van Rensburg for example worked initially in Botswana in 1960s with ideas of ‘education for production’; setting up the Brigades movement providing education programmes intricately linked with practical work for youngsters not having access to conventional schooling. A biography of van Rensburg intriguingly documents the struggles particularly in the education establishment with promoting these radical ideas (Shillington, 2020). Elsewhere, more recent attention has been given to the tyranny of merit (Guinier, 2015) and the tyranny of meritocracy for wider democracy (Sandel, 2020).

What is perhaps more unique with this eSTeeM study is the role of systems thinking in practice alongside narratives of capabilities approach. Drawing on a historic analysis of how human societies evolve (Harari, 2014), there is room to further change and develop our shared imaginations.

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