Article

An Instrument of Transformation – Introducing a Creative Futures Pedagogical Framework

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Abstract

As a plotline for the future story of our inherited knowledge infrastructures, the Creative Futures Pedagogical Framework is introduced as an organisational architecture that might facilitate Futures practices to meet Design where it is needed most. This paper sets out the rationale, context and elements of a pedagogical design, piloted within a Government funded, multi-institutional, national project, as a mechanism for shaping a sustaining, organisational transformation in Higher Education, as Design, by design. The paper seeks to detail the interconnected elements of this Framework. In doing so, it brings Design Thinking to Futures positioning with the intent of proposing the needed compound pedagogical infrastructure capable of re-framing knowledge across Design, and Creative, Higher Education.

Keywords

Preface to the 2025 Publication

Re-editing a paper in 2025 which had been authored midway through 2022, is revelatory in terms of the accelerated global changes that have permanently altered the world in which Design Higher Education lives. Now, more than ever, the ways that educational organisations shape, hold and sustain knowledge creation must transition. In three years, the need for agile and adaptable knowledge infrastructures, for skills-led as well as knowledge-based learning, teaching and evaluation and for transparent, accountable facilitation of transformation, has become critical. Now, more than ever, Design needs Futures-facing, Futures-relevant, Futures thinking inside its organisational architectures.

In navigating this paper it is critical to understand that it is written from a design educational perspective on Futures Studies, with regard to the way that the presented design reimagines the role, function and form that Futures might hold inside Design, and Creative, Higher Education. It is equally important to acknowledge that this design is set out as a simply that, as a model, supported by the theoretical and operational grounding of its ideation and application. Subsequent to the original paper, individual Framework elements from the pilot are detailed and analysed in individual papers, which are beginning to validate the impact of this Framework.

This paper is an act of storytelling, it is a narrative that sets out the Creative Futures Pedagogical Framework in design terms, as design writing. Throughout this paper, the Creative Futures Pedagogical Framework may be termed interchangeably as the design, the Framework, and described as a device or mechanism. Words that may elsewhere be understood as generic terms, here, are capitalized to emphasize that the *it* is an It, and It is recognised as an entity: they are proper nouns because of their understood nature but also in respect of what they are representative of. For example, design is Design unless it is describing the functional acts or artefacts of practice. And higher education is Higher Education unless it is referring to the journey, discipline or general field of learning and/or teaching. Here,

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in this paper, Creative and Design Higher Education is capitalized not for stylistic reasons, not to legitimize it's place or position, but because this wider body of work emphasizes it as a distinct cultural entity.

As a reflexive practitioner, as an educator, developer and researcher, the value in re-viewing and re-editing this text from three years previous, is the opportunity to bring clarity to thinking which, at the time, was still emerging from a larger project. This paper and the design it narrates, are now the cornerstone of a body of pedagogical work – in practice and in theory – which is acting for the transformation of the Design Higher Education paradigm.

Introduction

In navigating the ongoing debate about where or how Futures sits within a Design Higher Education paradigm, the design set out in this paper, a Creative Futures Pedagogical Framework, is presented as an organisational architecture that might facilitate Futures practices to meet Design where it is needed most. Described as a poly-discipline, Design is able to take the pulse of the world, enabling or responding to challenges and behaviours (Clèries & Morrison, 2020), it entangles relationships and enacts cultural expressions. And it is to the characteristic of entanglement and culture that this action learning (Ramos, 2013) speaks. It is widely understood that Design is an invaluable tool for interpreting, making and shaping our collective futures, however Design Higher Education, as the provider of the theoretical and practical foundations for literate practitioners capable of imagining a desirable future, is struggling to position itself for what comes next. In response to the notion that bureaucracies, organisations and leaderships de-focus the future and jeopardise innovation (Slaughter, 2008), the self-governing curriculum model presented in this paper re-imagines Higher Education by becoming necessarily tangled in the organisational layers (Davies & Dubberly, 2023) as Design, by design.

In conversation, Systems Architect Indy Johar and radical Economist Kate Raworth propose that everything is entangled, that things should be tangled (Johar & Raworth, 2021). They suggest that our relationships with things can no longer be based on their value as owned objects, but as objects in their own right following a many-to-many model, which points to a new world-view as being built on a holistic re-understanding. As a sustaining transformational architecture for Higher Education, as a device that might enable organisations to embrace Futures as an intrinsic part of both their organisational and pedagogical ecosystem (Seimens, 2005), the Framework acts as a mechanism for re-understanding the existing, unchangeable functions of the organisational systems. Having grown from participation in, and resistance to, the existing creative and design knowledge systems (Tonkinwise, 2015) in the situated context of Northern Europe, the genesis of this Design is an act of Life Based Learning (Staron, 2011).

The paper seeks to set out the elements and assets in the Creative Futures Pedagogical Framework, to position it as an elementary and self-governing model of curriculum design, as a management device for futuring Design, and Creative, Higher Education organisations. The Framework manages the dynamic relationships between staff and learner participants and the organisation, with key themes underpinning its design including: performance; inter-relationships; staff and learner participation; practicing reflexive teaching and learning; and a lived curriculum.

The Design Concept and Rationale

This section locates the design story of this Framework, which is important to do before detailing how it works in delivery, because many aspects of the pedagogical structure are informed by the physical experience and intentions of an architectural piece, the Centre Pompidou (1977). Architects Richard Rogers and Renzo Piano's architectural intervention cuts into and disrupts the historic heart of Paris with an inside-out insertion: the services and structure form an exoskeleton that leave clear, internal spaces for flexible use and programming. Half of the site is a public piazza, an uncontrolled space where the city engages with the building. The architects' aspiration was to create porosity for circumstance and context, to set conditions for social and cultural worlds to collide, to design a flexible container for imagining different futures. Embodying this, the performance, adaptation and critical staging of this pedagogical design opens up, interrupts, and makes porous, a participatory infrastructure for not only enacting but continuously researching Futures as a Design Higher Education architecture (Popp, 2013). Mapping out different futures and ways of being (Mitrovic et al., 2021), the Framework structures without expectation, giving imaginative and cognitive responsibility to its users by staging a narrative without scripting the story. As such, the Creative

Futures Pedagogical Framework could be described as a piece of Design Fiction (Sterling, 2009).

To support this conceptual grounding, the Framework draws on design theory and methodology, encompassing a range of elements that structure new, participatory (Sanoff, 1990) ways-of-working to strengthen the curriculum; programme development; delivery; teaching; measuring; evaluation of learning experiences. Designed to adapt to complex, nuanced and unpredictable settings across Design Higher Education it actively enables individual, team and organisational sense-making. Employing strategic design thinking to enhance the existing systems that support teaching, learning and management, the pilot design acts as an instrument for transitioning organisational knowing into a more adaptive, responsive architecture for engagement and participation. In its initial pilot, each component of the Framework is related to its context embedded and designed to suit specific characteristics and circumstances (Simonsen et al., 2014) of a particular project. The design was initially piloted during 2021/22 at the National College of Art and Design (NCAD) in Dublin, in a four-year (Phase 1) Irish Government funded, multi-institutional, multi-partner Creative Futures Academy (CFA) project.

The body of knowledge generated through designing and piloting key components of the Framework, and further evaluating its impact two years later, are described in this paper to support the wider introduction of the Framework as a tool for enabling Futures to be practiced, critically, inside existing educational models as organisational systems. In doing so, the paper seeks to evidence a mechanism which applies Futures thinking beyond the content and communication of learning, utilising it to radically re-imagine (Walker, 2006) a sustaining intervention in the context, in the systems for managing, governing and growing Design, and Creative, Higher Education.

Context of Designing with Futures

Contextualising the location of the Framework, this section reviews Futures Studies and Futures thinking in relation to Design. In briefly reviewing Futures history (Schultz, 2015) synergies across fields and disciplines are revealed, which lead to precedents of where and how Futures Studies are currently working with, and as, Design.

To move away from the Anthropocenic tendencies that have led to this point in the collective narrative, different stories need to be told by Design, and Creative, Higher Education, which requires visualisation, developed in facilitated collaboration, of what might be (Manzini, 2020). This collaborative effort reimagines (Manzini, 2015) an open-ended space where knowledge grows through dialogue, from individual positions of autonomy. A re-thinking, a re-forming and re-viewing encourages diffracted (Kaiser and Theile, 2014) Communities of Interest to frame practices embedded and involved from differential positions instead of disciplinary, oppositional stances (Haraway, 1992) as currently promoted by educational infrastructures.

Beyond the Anthropocene, in Escobar's pluriverse (2018), where educational organisations will need to look at how to grow the tree not simply understand why the apple falls (Raworth, 2017), Futures Studies might be positioned as a boundary practice bringing cross-disciplinary methods (Candy & Potter, 2019) across knowledge institutions. In reimagining what the organisational and management architecture looks like, as part of a restorative learning ecology (Siemens, 2005), Futures Studies might become a core function of Higher Education. Releasing organisational infrastructures from performing as a cognitive frame or gestalt (Berardi, 2017) enables them to meet a future (Inyatullah, 2008), wherein the framing itself can act as a move toward solutioning (Schön, 1991).

In Higher Education, the role of Futures to date has been disciplinary and additive, modules or electives are added in to existing provision to act as agents of learner and learning transformation (Ollenberg, 2018) and to shape collaborative Futures spaces (Abdullah, 2023). Alongside this, Futures Studies can be seen to facilitate innovative adaptation of learning approaches (Glenn, 1972; Barbara and Scupelli, 2021; Angheloiu et al, 2020), and the training and upskilling of teachers (Bell, 2002).

Programmes and initiatives are more commonly positioned in schools of Business or Management, within universities, as opposed to being in Creative and Design Institutions. Whilst a small number of design institutions are introducing Design Futures research and studies, Futures Studies, Design Futures and Futures can be seen foregrounded in specialist, cross-institutional, transdisciplinary institutes such as the Edinburgh Futures Institute and the Technology Foresight Centre in Politecnico Milano. Projects such as the Planetary Civics Initiative or the research-led, sustainable futures partnership with Dark Matter Labs at RMIT University bring together Futures and Design across the education, private and public sectors.

Designerly ways of knowing (Cross, 1999) and doing must evolve. Futures must integrate and collaborate in telling new knowledge stories. Creative and Design Higher Education must take responsibility for reshaping its pedagogy and its organisations. For the Design Education paradigm to grow knowledge generatively through adaptation (brown, 2021), it is essential that *Futures as Design* informs an architecture for that transformation story.

Situating the Creative Futures Pedagogical Framework

The only certain thing about the future is that it will entail a profound break in continuity with the ways of doing and being, that we are used to (Manzini, 2021). Design institutions have an opportunity to scaffold this break-point to ensure that it becomes an active, critical domain of inquiry which re-imagines a collectively needed, longer-term, design-ed notion of ~~future~~ foresight (Scupelli et al, 2016) for knowledge creation. Breaking with continuity, the future requires organisational infrastructures that are built on knowledge experienced through change, which can then construct new knowing. Therefore, if this break-point does not ask for past or current management, knowledge and organisational frameworks to be extrapolated onto imagined future teaching and learning models (Berardi, 2017), now is the time to introduce alternative ways-of-working.

As a device, the Creative Futures Pedagogical Framework, can be utilised to make sense of Higher Education's response to global narratives, as they unfold; it is a transitioning tool that shapes an adaptable space inside existing systems to anticipate change (Bishop and Strong, 2010), instead of reacting to change. Reliant on audit processes, following Social Constructivist theories of knowledge generation, pedagogies, curriculum and practices build on collated prior patterns, on knowns.

As a dynamic staging of evaluations within the existing, overarching frame of knowledge creation in an organisation, the Framework is understood as a performative act that responds to the critical condition of now. In consideration of potentially creating a crisis of imagination (Willis, 2019) as one risk of responding to the now, the design for the Framework installs an infrastructure which supports and directs the characters, narrative and the pedagogical production to engage with the complexity of the existing organisational conditions. It is a mechanism for re-focusing and innovating for the system, in the system: the Framework acts as a dynamic device for imagining the future in education (Slaughter, 2008).

The Framework, as a staged performance, aligns with the Futures Action Model (FAM) developed by Futures theorist and educator José Ramos (2013), as an experience of imagining futures, where, in this scenario, teachers and learners actively engage in contexts which allow for solutions, instead of passively absorbing information (Schön, 1983). The FAM model supports and directs participants to move from foresight to innovating around known problems, and is described as a form of anticipatory action learning, which, following Inayatullah (2002) locates Futures and Strategy together in an action-based, engaged learning cycle of planning, acting, observing, reflecting. The Framework presented in this paper follows this combined approach by incorporating a five-step Problem Based Learning (PBL) approach (Koschmann, 1994) in a cycle that maps participant action across imagining and foresight, into solutioning – whether in project-time as a learner, or in the designing, delivery and evaluation capacity as a lecturer or management team.

In addressing both the teaching and learner needs, the Framework nurtures knowledge creation through action-learning, on all sides of the participatory experience. In doing so, the design allows space between stimulus and response (Covey, 2004) aligning to theory that the process of creating and dealing with situations is rooted in self-regulation (Zimmerman, 2000). A critical aspect of successfully embedding self-regulatory processes into the activities within this design is the integration of a reflexive approach to its development. Alongside docking elements for integrating the Framework with existing, formal institutional systems, this design imagines a programmable, permeable pedagogical architecture; a Participatory Evaluation System for staff and learners structures pedagogical activity for reflexive understanding of performance and experience, which shapes the model as it evolves; a set of tools and processes support staff to expand on delivery styles, approaches and content; and a universal delivery model structures the possible variables, scenarios and activity.

Practicing the Creative Futures Pedagogical Framework

This section describes the elements of the Framework, outlining how its implementation can be managed, communicated to staff teams, then utilised to enhance existing pedagogical and organisational processes. The Framework is a design intervention, intent on providing an architecture for supporting a *Futures as Design* approach to the transformation of Creative and Design Higher Education in the situated context of the Global North.

The pilot Framework was applied to shape five new courses within existing module vessels in the undergraduate Design Studio. These courses were delivered in remote or hybrid modes, four of which were delivered synchronously by teams of two non-tenured staff, to class cohorts with approximately thirty learners. The pilot is as sequential set of two synchronous *Thematics* module courses, delivered across twelve weeks during each fifteen week trimester. In the first trimester, the two courses were shaped as research-led studios where learners build knowledge of change in and around design. In the second trimester, these courses grew into two distinct research labs: one, developing a tangible, material understanding of change in action, and the second, discovering the invisible systems, policies and governance around designing change. In evaluating and analysing the Creative Futures Pedagogical Framework – its design, strategic impact and pedagogical value – it is these sequential, synchronous courses in the two over-arching module vessels that provide the data and inform the narrative created across that pilot year.

As part of an adaptable, capable system, key Framework elements include: a Process Map that structures the journey of new course delivery and is supported by a Designing, Developing and Delivery Procedure which creates visibility for new staff and around new course directions, thereby reducing unnecessary, institutional risk; a learning Development Guide (LDG); a Typology and the Delivery Model enhance staff recruitment and onboarding processes, support the development of transformed teaching and learning experiences, and course concepts; a Staff Self Evaluation, and Discursive Evaluation activity align with a learner Reflective Self Evaluation activity introduces modes for evidencing impact and thereby validating the changed organisational models, whilst integrating knowledge capture and measuring approaches within existing processes.

Elements are set out under three segments of the Self-Regulatory model (Zimmerman, 2000) framing capability across activities in a sequence of: Forethought (planning and decision-making), Action/Performance (integrating and applying) and Reflection and Meaning-making (thinking, comparing and attributing).

Forethought: Planning and Decision-making

All design moves along a path from ideation to solution and proposition. Embracing the five aspects of design capability (Cross, 2006) to respond to the ill-defined problem of design education, the Creative Futures Pedagogical Framework redefines and adapts to problems, as it evolves, during project-time. In the Pilot Phase, the staff teams engaged in delivery are seen to hold parallel lines of thought (Lawson & Dorst, 2009) for the duration, actively re-thinking and re-contextualising in response to the shifts of perspective and altered views of the problems or solutions that the Framework elements offer in play. This activity requires real-time analysis and synthesis, and is an example of Design Thinking as dual processing (Tovey, 1984).

Process Map

The Process Map (Figure 1.) is a tool to assist teams in analysing and acting on shifts, during delivery, to design with the problems of delivering teaching and learning. Issued during onboarding, the Process Map shows the design elements needed, where, when, and what role they play in delivery of the course/module. As a device, this map is essential in docking the new Framework to existing Quality Assurance processes; tracking progress of the pedagogical components or supports required during delivery; creating visibility at programme, department, school levels; supporting new staff/teams to navigate teaching and learning; and in shaping data collection and reporting.

The value provided by this element, in this scenario, is the visualisation of a system for integrated, holistic teaching and evaluation, throughout a module. Having this tool impacts positively on learner wellbeing by guiding staff to introduce embedded reflexive and autoethnographic practices at appropriate points across the delivery. The Map impacts on teaching by providing staff with a clear guide for what happens, when, showing connections to where that information is then applied across the delivery. For the organisation, it provides transparency around assets required in preparation for, or during, delivery which allows central resources to be planned and maintained.

The Process Map integrates elements that capture staff and learner evaluation, distinct to the existing Quality Assurance (QA) steps that focus on post-experience feedback.

Learning Development Guide (LDG)

For the Creative Futures Pedagogical Framework to operate as a learning system, as well as delivering its learning, it builds-in criteria that informs the framing, that supports moves, whilst tracking activity for evaluating impact, creating value and thinking for future transformation. This requires an element that acts as an anchor and driver for mutual learning – of the staff and learner, of the system and the programme, of the delivery and the organisation.

If Higher Education pedagogical innovation is to be more than an idea, it needs meaningful and useful educational practices that give concrete expression to the theory or ideas proposed (Jackson, 2011), the Learning Development Guide (LDG) (Figure 2.) is the key to unlocking the potential of the Framework. This element has multiple functions. The primary use is as staff wayfinding, indicating the kinds of teaching and learning required for the course or module: it contains core information on the type, site, duration and mode of delivery, cohort size, teaching hours, learning hours and allocations. The LDG introduces the course or module concept, relevant theoretical and methodological direction, and it communicates the characteristics of the learning – based on overarching, co-created project attributes – which can inform the potential teaching activities or exercises.

Including this LDG document in the staff recruitment package ensures that applicants understand whether their course concept and their preferred teaching approach fits, which in turn makes the application/review process more efficient, thereby creating time for providing specific feedback and to identify staff/courses for future programming. Once recruited, this document becomes a resource for course/module designing, and in combination with other elements in the Framework, during the pilot, the process of building a new course was completed by staff within two weeks.

As a vehicle for tracking impact, value and transformation, the criteria contained within the Guide is applied across multiple activities in the Framework to create common data sets. The criteria informs the structure for staff reflective processes and a learner summative, self-evaluation activity, which are brought forward into the cumulative Discursive Evaluation activity where the staff team collaboratively synthesize the impact and value of the course.
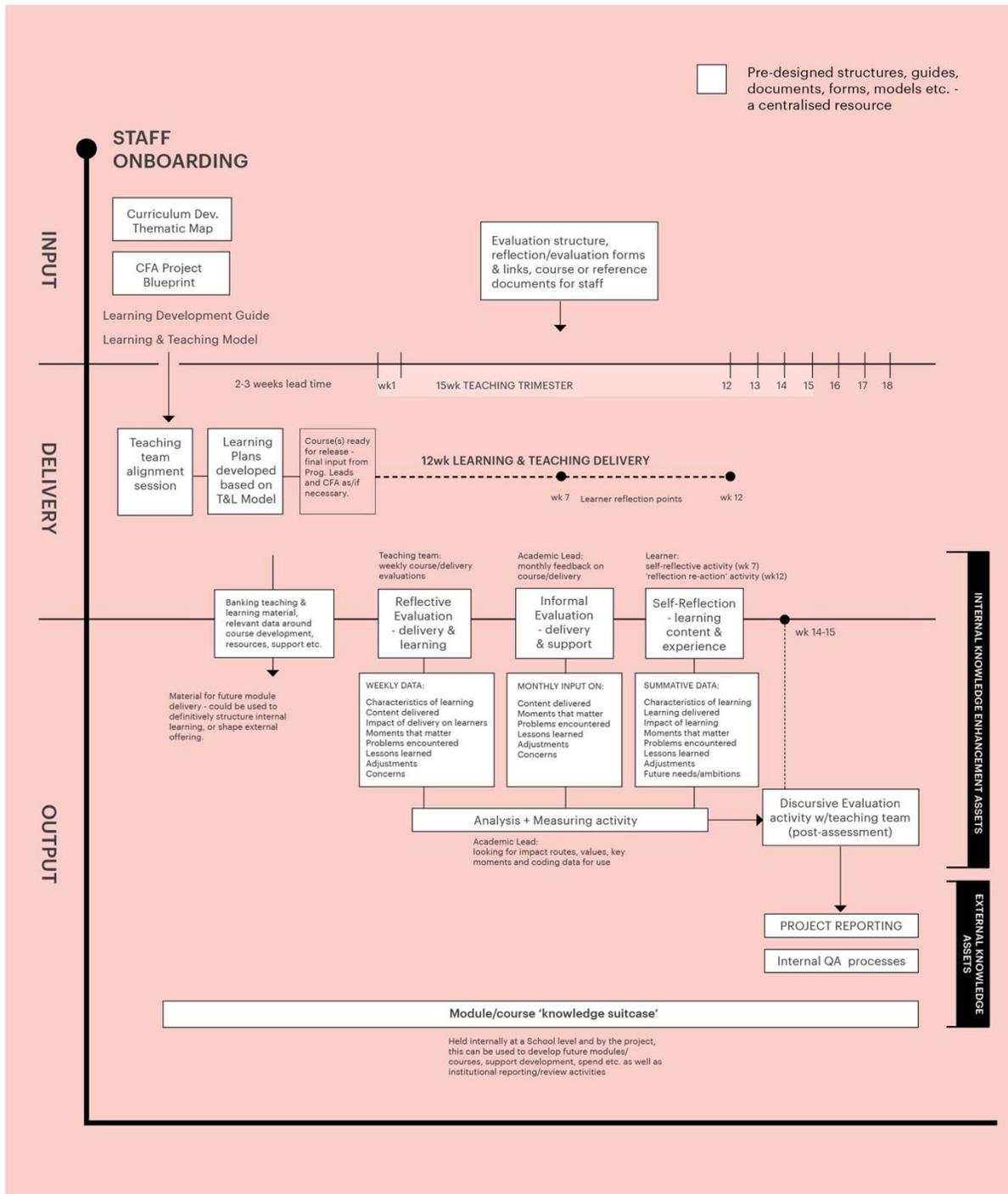
Fig 1. *Process Map.* This becomes a roadmap for how staff will move through delivery, indicating what is produced and how that aligns to the larger project and organisation.
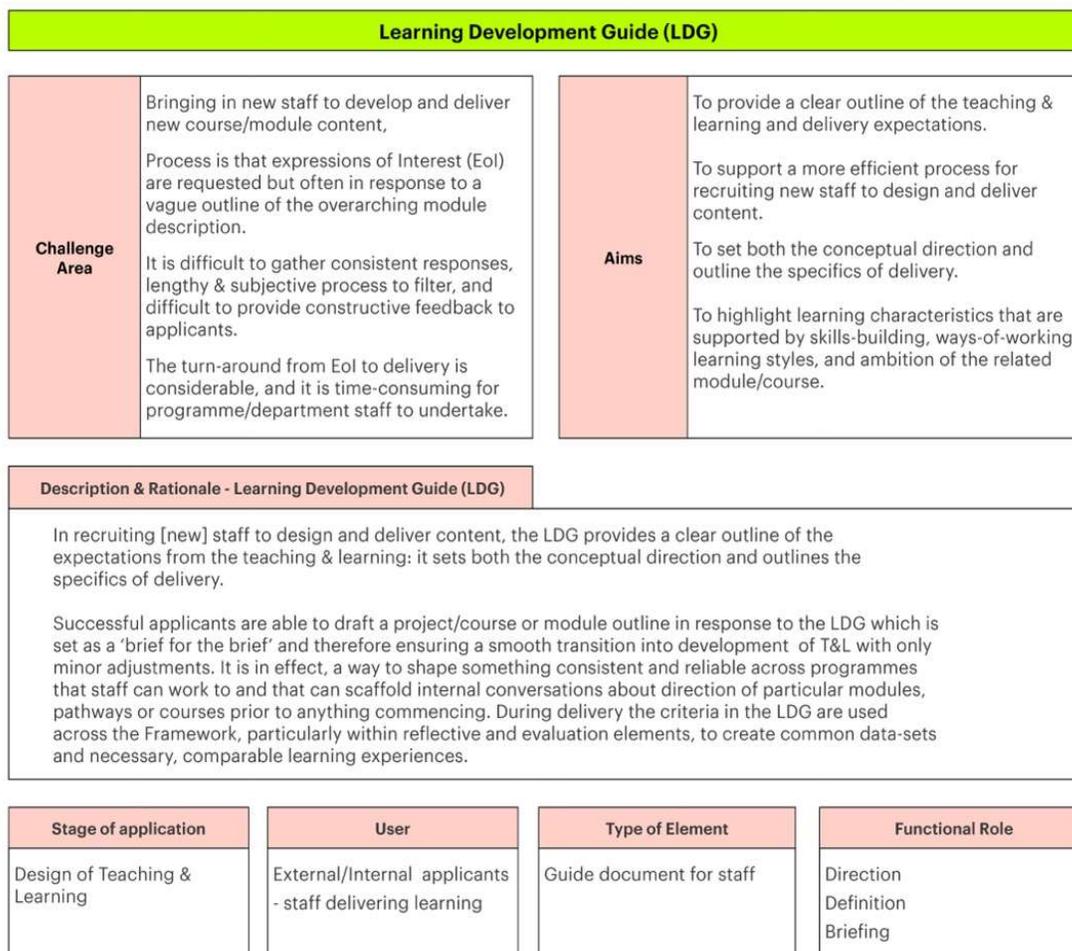
Fig 2. *Learning Development Guide.* This guideline supports staff or departments in producing consistent and effective LDG documents for onboarding staff by providing prompts for content, rationale and suggested information.

Action/Performance: Integrating and Applying
The Typology of Teaching and Learning Models (Figure 3.), and the Delivery Model (Figure 4.) elements in the Framework are inextricably linked: the type of module for a particular mode of learning acts as the structure for housing the course model, adapted for each specific delivery by the staff team. During the pilot, courses are delivered as remote/hybrid studio experiences, the teaching and learning occurs in what can be considered a dissonant space (Martin, 2025).

In combination, these two Framework elements inform a new approach to the design and delivery of learning that actively challenges the typical, creative and design learning formats of long and skinny, or short and fat module types. These elements construct an autoethnographic opportunity for staff-owned, pedagogical knowledge which can be re-viewed when channelled into subsequent or different course delivery vessels. Creating a significant, positive support for new staff, or staff joining from industry with professional knowledge without pedagogical grounding, these elements become theory-led tools to shape existing expertise into an academic programme of

learning. In application, these elements build the capability for multiple modules to run with a universal journey and route, whilst taking distinct content directions; this common journey enables module cross-over points to be identified easily, common workshops, lectures or team-teaching moments can be scheduled and learner movement becomes viable.

Typology Model

The variants of the Typology Model (Figure 3.) are influenced by staging and performance, the structure of a theatre informs the design of the models in relation to the type of learning undertaken. For example, a short, summer module is designed as a balcony model: overlooking broader, longer-term learning journeys it takes in a specific focus, delivered at a more intensive level for a professional, life-long learner. A module for broad learning, with a longer, gradual learning journey, such as a Framing module, outlines knowledge around a focus/topic allowing a learner to build their own stage for future learning directions.

In considering the teaching and learning site as dissonant, the opportunity for delivery structures that create intrigue, concern and tension grows a learning model that demands the attention of its audience (ibid), encouraging disturbance to become an opening into critical reflection rather than into studying the routine activities of the everyday (Koskinen et al., 2011). Not only is this an innovative proposition for staff teams, but equally, for the learner. The everyday routine of teaching can become about abstractions from professional experience and peer observation which amounts to what educator and theorist Mathew N. Powers (2017) describes as a *Folk Pedagogy* of accumulated beliefs, conceptions, and assumptions about learning that responds to local cultures of teaching and learning. The Typology Model encourages capable teaching and learning, changing to meet external needs as they evolve, instead of conforming to a communally established definition of teaching, learning, and learning expectations.

Delivery Model

Influenced by the Kaos Pilots *Learning Arches* method (Kavanagh, 2019) the Delivery Model (Figure 4.) creates a staged sequence of scenes for teaching and learning to move through; it includes an alignment session, moments to reflect, a script-reset step and integrates Thomas Kvan's (2001) variation on Problem Based Learning (Koschmann, 1984) as the underpinning rationale for the model. A Structural element accompanies the Delivery Model, providing a guide for how this staging might be delivered, a rationale for activating the steps, methods and possible scenarios where these could be used.

Segment 2. ACTION/PERFORMANCE: Integrating and Applying

Teaching & Learning Typology Model

Challenge Area	Existing staff follow known 'models' for designing and delivering learning. There is resistance to new types of learning, skills, or knowledge requirements, and to adapt to new requirements of learners. In contrast, new or short-contract staff may not have the experience or confidence to shape learning delivery to fit requirements of the programme or school, and need a template to guide their thinking for developing the learning.	Aims	Create a structure for the design and delivery that encourages staff to re-think how a programme of learning might be shaped. Open the module/course to diverse learning styles and needs of context, participant or available space/staff. Give form to different types of teaching & learning, with the potential to integrate these into larger/longer pathways. Shape a vessel that provides rigour, but also offers enough versatility for nuanced, individual adaptation.

Description & Rationale - Teaching & Learning Typology

Developing a module typology, holistically, is critical to shaping both the learning and the learner. It has the potential to positively influence the teaching mindset of staff designing and delivering learning, thereby creating an opportunity for change, for experimentation and risk taking within the existing organisational structures.

This Typology is a set of models for different forms of learning e.g. lectures, making/production, facilitated workshops, studio, etc. that apply a range delivery structures - sequential, sessional, intensive, interval - alongside distinctions for on-site, remote, hybrid, mixed-reality modes of delivery. These forms and modes expand on the established, standardised types of delivery for UG and PG creative learning.

Stage of application	User	Type of Element	Functional Role
Design of Teaching & Learning - prior to staff recruitment	Staff - Academic Lead or Programme Lead	Model/Structure	Direction Communication Action

Fig 3. *Module Typology.* This guideline accompanies a suite of models and documents that help new or existing staff to think creatively about how teaching and learning can be shaped in response to contextual factors.

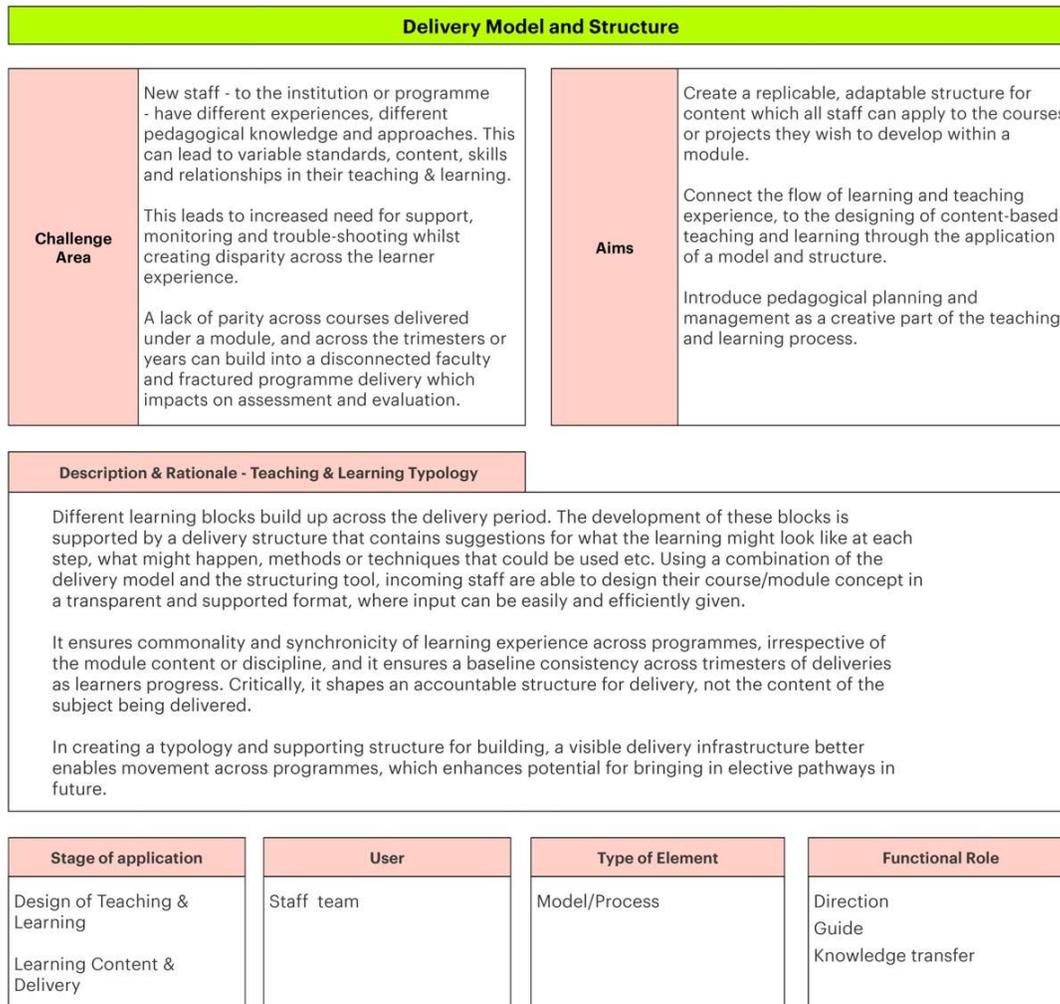**Segment 2. ACTION/PERFORMANCE: Integrating and Applying**

Delivery Model and Structure

| Challenge Area | New staff - to the institution or programme - have different experiences, different pedagogical knowledge and approaches. This can lead to variable standards, content, skills and relationships in their teaching & learning.

This leads to increased need for support, monitoring and trouble-shooting whilst creating disparity across the learner experience.

A lack of parity across courses delivered under a module, and across the trimesters or years can build into a disconnected faculty and fractured programme delivery which impacts on assessment and evaluation. | Aims | Create a replicable, adaptable structure for content which all staff can apply to the courses or projects they wish to develop within a module.

Connect the flow of learning and teaching experience, to the designing of content-based teaching and learning through the application of a model and structure.

Introduce pedagogical planning and management as a creative part of the teaching and learning process. |

Description & Rationale - Teaching & Learning Typology

Different learning blocks build up across the delivery period. The development of these blocks is supported by a delivery structure that contains suggestions for what the learning might look like at each step, what might happen, methods or techniques that could be used etc. Using a combination of the delivery model and the structuring tool, incoming staff are able to design their course/module concept in a transparent and supported format, where input can be easily and efficiently given.

It ensures commonality and synchronicity of learning experience across programmes, irrespective of the module content or discipline, and it ensures a baseline consistency across trimesters of deliveries as learners progress. Critically, it shapes an accountable structure for delivery, not the content of the subject being delivered.

In creating a typology and supporting structure for building, a visible delivery infrastructure better enables movement across programmes, which enhances potential for bringing in elective pathways in future.

Stage of application	User	Type of Element	Functional Role
Design of Teaching & Learning Learning Content & Delivery	Staff team	Model/Process	Direction Guide Knowledge transfer

Fig 4. *Delivery Model.* A guideline for developing sequential blocks of different types of learning, accompanied by a delivery structure to guide staff thinking around methodologies, techniques, spaces and tools.

Reflection and Meaning-making: Thinking, Comparing and Attributing

A reflexive model of designing is premised on understanding design as an inherently social activity embedded into, and mediated by, the situation it arises from and aims to change. Designing therefore, from this perspective, is not just an intellectual process, but a process embedded in and shaped by the world. To meet future needs, design educational models will require the elemental processes of *knowing-in-action*, *reflection-in-action* and *reflection-on-action* (Schön, 1987) in their pedagogical construction. Applied to the signature pedagogy of the Design School, including reflexive approaches across the pedagogical model could support the visualisation of a future through the liberation of individual and collective knowledge that Berardi (2017) calls for.

Reflexive Design assumes that neither the problem nor the possible solutions are given, but are actually created in the process of designing. Therefore, at a programme and modular level, the processes of teaching and learning engage with the development of strategic systems that utilise reflection actively, within the experience. This requires aspects of the curriculum to bring in personal experience and perspective to understand an individual's positioning (Goldschmidt 1977) within that pedagogical narrative. As such, the process of practicing reflexive teaching and

learning becomes a self-ethnographic exercise (Hayano, 1979): in performance, it facilitates the knowledge needed to study its own culture of teaching and learning.

A Participatory Evaluation System
The Framework utilises a Participatory Evaluation System (Martin, 2023) which includes a Learner Self Evaluation activity (Figure 5.), a weekly reflective Staff Self Evaluation activity (Figure 6.) and a cumulative, participatory Discursive Evaluation element (Figure 7.). Each of these elements employ criteria from the Learning Development Guide (LDG) to enable tracking, measuring and visualisation of the value and impact of the teaching and learning experience.

The Learner Self Evaluation activity is a summative survey with strategically sequenced questions that provide the learner with opportunity to recall, notice and respond to their experience of the learning journey. Designed from the perspective of guiding learners to reflect, the format encourages connection between their experience and their future visions: it enables them to gain insight, for themselves, on how they've approached their own learning, how they have shaped the moments-that-matter and understand what they might do differently. Consideration is given to the language, phrasing and sequencing of questions to ensure that it is a restorative experience at the conclusion of the course. It is specifically structured to focus on the individual, personal experience, not the work produced. Whilst included in the final submission, the teaching team only view anonymised, summarised responses after assessments are complete.

The staff team are invited to complete a short, self-evaluation survey after each session they deliver. Some questions contain criteria from the LDG – which are also contained in the learner evaluation activity – to establish correlation between the teaching perspective and learning experience, around key aspects of the module ambition. This fosters visibility through the real-time, generation of human data which encourages organisational sense-making whilst managing delivery. Equally, it facilitates responsive action to the teaching team needs. In bringing awareness to their practices of teaching this Framework element holds a space for regular, journal-style, self-reflection within busy schedules and inspires confidence in adapting directions or thinking for the following week of delivery as/when needed.

A synthesising element of the Participatory Evaluation System is the Discursive Evaluation (Martin, 2024) activity. Current, internal QA steps rely on annual student forums for general, academic feedback; a Higher Education Authority (HEA) survey; and individual problems raised by staff at a departmental level. There is, in this particular context, no universal or consistent approach to gathering experiential or wellbeing-based understanding of delivery, or for generating knowledge through holistic reviews of delivery. The staff Discursive Evaluation element is a facilitated session where the teaching team work with clustered themes and insights drawn from across the learner evaluations and weekly, staff reflections, which relate to key directions and criteria outlined in the LDG. In the activity, staff build statements that become pedagogical impact routes and stories for impact. This is an opportunity to filter, refine and resolve observations about successful ways-of-working, issues or concerns that arise, and highlight techniques or approaches that work.

From these three activities, a new type of report is produced to evidence impact routes, directions of learning, moments-that-matter, values and themes emerging in teaching and learning. Holistically, these activities and products hold the power to influence institutional decisions on future programming, feed into Quality Assurance processes and validate future thinking. Alongside the organisation-facing report, a subsequent staff communication piece is designed to visualise and narrate the knowledge transferred through these reflective activities. Considered as a teaching enhancement tool, a digital book contains the staff team dialogue during the Discursive Evaluation activity, including key words, highlighted approaches, learner quotes, and prompts for acting. It is accompanied by a set of posters for the identified top characteristics of the teaching and learning - based on the data gathered across the elements in the Participatory Evaluation System – which are supported by staff generated key actions, key attributes and learner experiences.

In combination, the outputs of the Participatory Evaluation System, as part of the Creative Futures Pedagogical Framework, produce the knowledge suitcase for handover to future teams for delivery, to the school for future planning and development activities and to the Academic Affairs office to support existing Quality Assurance processes.

Segment 3. REFLECTION & MEANING-MAKING: Thinking, Comparing and Attributing

Reflection Re-action - Learner Self-evaluation

Challenge Area	From a learner perspective, reflexive practice is often seen as being distinct from designing/making the project or work. Often self-reflection, self-evaluation and critical understanding is not taught as part of the design learning process yet it is often expected to be apparent in the work submitted. Ways-of-working, tools and techniques for teaching the practice might be overlooked. therefore thinking about how, why and the ways that they work, for themselves	Aims	Use Action Learning to 'teach' reflexive practice in a way that feels relevant and useful to the learner. Create learner awareness and ownership of their own ways-of-working and how they've learned, Shape a step in the design project that specifically supports the learner to 'walk through' a self-reflective process where they consider how they learned, the ways they went about that, what it led them to realise, how that informed their designing practice and how they might take it forward for themselves.

Description & Rationale - Teaching & Learning Typology

This is an Action Learning activity. Learners receive a questionnaire in the weeks prior to the course/module concluding. This form is structured to lead the learner through a process of uncovering self-ethnographic knowledge around their experience of learning from the content in the context of the delivery.

This concluding activity connects with a mid-point reflective exercise (set within the project) and takes learners through a series of questions that ask them to look deeper into how they have worked, how they feel about it, and draw out what they might take forward from the learning experience. It does not ask quantitative questions related to estimating scales or levels of work they've undertaken, instead it cumulatively builds qualitative self-knowing. It is part of the final submission but not assessed. From an institutional perspective, it functions as a thermostat for the delivery of each course/module.

The questions in the form relate to the weekly reflective activity undertaken by staff, thereby creating visibility of how the learning delivery and the experience of learning are perceived from both sides.

Stage of application	User	Type of Element	Functional Role
Learning Activity & Delivery Evaluation of the Learning	Learners - designed by Lead and issued by staff team for cohorts to complete	Activity	Reflection Evaluation

Fig 5. *Learner Self-evaluation.* This guideline supports the formal introduction of reflexive practice as an auto-ethnographic method for working whilst learning, within content delivery.

Segment 3. REFLECTION & MEANING-MAKING: Thinking, Comparing and Attributing

Reflective Evaluation of Delivery and Learning - Staff Self-evaluation

Challenge Area	Visibility of delivery, teaching and learning can be difficult when overseeing multiple courses, modules or programmes simultaneously. Moving forward, with an increase in hybrid/remote and alternative delivery modes, being able to notice if/when there are problems or when input is needed will become increasingly critical. Identifying ways of creating a positive and supportive 'practice of noticing' is vital to introducing visibility that enhances delivery, teaching and learning experiences.	Aims	To create visibility of the teaching and delivery experience in a way that feels positive, beneficial and healthy for the staff. To create a method for understanding the perspective of teaching alongside the experience of the learners learning - to move toward effective, human-centred insights and value indicators as a way to 'measure' impact and effectiveness.

Description & Rationale - Teaching & Learning Typology

This activity uses a questionnaire format for a weekly (or periodic), structured, journalling activity for staff to complete after delivery sessions. The questions align to key aspects of the Learning Development Guide (LDG), and to questions in the learner 'Reflection Re-action' activity, which enables the identification of themes arising in delivery, alongside any pedagogical or curricular concerns. From this, common data set can be created for further analysis.

Aligned to the approach taken with the student 'Reflection Reaction' activity, the series of questions build toward a sense of wellbeing, self-reflection and awareness of pedagogical practices. It provides an opportunity to self-identify what is working and what isn't, then adjust if needed during delivery. This activity creates a log of responses and allows visibility of the course without having to send emails, sit in on sessions or overtly manage. It is a live connection point to the delivery.

Stage of application	User	Type of Element	Functional Role
Evaluation of the Delivery Evaluation of the Learning	Staff team	Activity	Reflection Evaluation

Fig 6. *Staff Self-evaluation.* A guideline for an intervention that can support teaching enhancement and development during delivery which compliments the learner self-reflective activities.

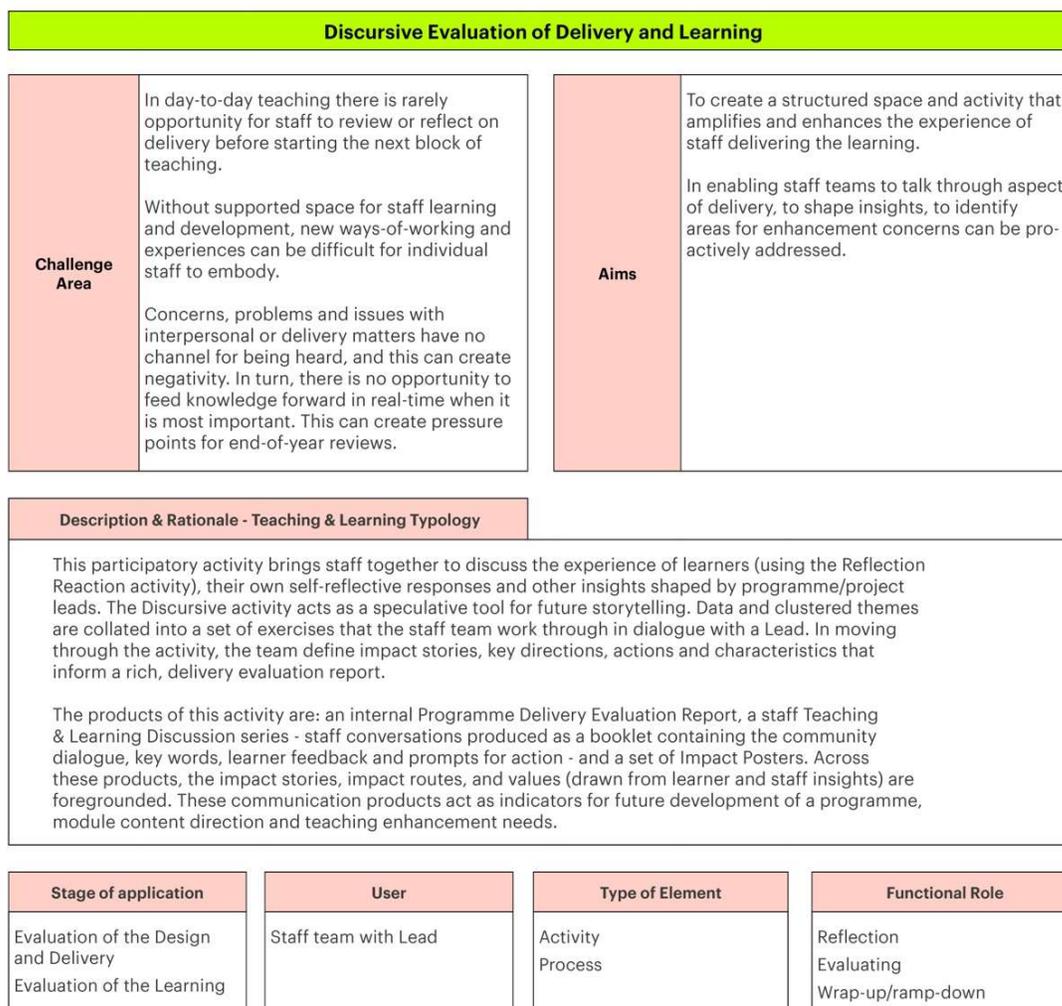Segment 3. REFLECTION & MEANING-MAKING: Thinking, Comparing and Attributing

Discursive Evaluation of Delivery and Learning

| **Challenge Area** | In day-to-day teaching there is rarely opportunity for staff to review or reflect on delivery before starting the next block of teaching.

Without supported space for staff learning and development, new ways-of-working and experiences can be difficult for individual staff to embody.

Concerns, problems and issues with interpersonal or delivery matters have no channel for being heard, and this can create negativity. In turn, there is no opportunity to feed knowledge forward in real-time when it is most important. This can create pressure points for end-of-year reviews. | **Aims** | To create a structured space and activity that amplifies and enhances the experience of staff delivering the learning.

In enabling staff teams to talk through aspects of delivery, to shape insights, to identify areas for enhancement concerns can be pro-actively addressed. |

Description & Rationale - Teaching & Learning Typology

This participatory activity brings staff together to discuss the experience of learners (using the Reflection Reaction activity), their own self-reflective responses and other insights shaped by programme/project leads. The Discursive activity acts as a speculative tool for future storytelling. Data and clustered themes are collated into a set of exercises that the staff team work through in dialogue with a Lead. In moving through the activity, the team define impact stories, key directions, actions and characteristics that inform a rich, delivery evaluation report.

The products of this activity are: an internal Programme Delivery Evaluation Report, a staff Teaching & Learning Discussion series - staff conversations produced as a booklet containing the community dialogue, key words, learner feedback and prompts for action - and a set of Impact Posters. Across these products, the impact stories, impact routes, and values (drawn from learner and staff insights) are foregrounded. These communication products act as indicators for future development of a programme, module content direction and teaching enhancement needs.

Stage of application	**User**	**Type of Element**	**Functional Role**
Evaluation of the Design and Delivery Evaluation of the Learning	Staff team with Lead	Activity Process	Reflection Evaluating Wrap-up/ramp-down

Fig 7. *Discursive Evaluation.* This guideline defines a structure for building in a 'lessons learned' staff team exercise at the conclusion of delivery as a space where delivery, issues, learning can be informally discussed and reflected on for future development.

Reflections on Delivery - A Future Curriculum for Change

Across the design and in activating its elements, the Creative Futures Pedagogical Framework responds to educational theorist Melanie Walker's (2006) positioning, that radical thinking around the purposes and values of Higher Education – in relation to student development, agency, democracy and learning – are needed.

As a prototype, self-governing curriculum design, its elements and roles enacted across delivery and management, the elements in the Framework might be described as Sense-making tools, in that they support the process of the management of education, designing teaching, the delivery of learning and reflexive cultures around these. Despite there being many variations of what the term curriculum means (Fraser & Bosanquet, 2006), here, following Edwards et al. (2006), it is considered from the individuals' experience of the model, as a lived curriculum, as experienced in the learning space(s), not as a structure or context. Understanding the Framework as a curriculum design enables its outputs and impact to speak to future creative educational policy (Barnett & Coate, 2005), thereby

shaping value beyond an organisation to affect wider sectoral transformation.

In this paper, the Framework is discussed from the perspective of its potential for incubating comprehensive curriculum transformation, based on the idea of changing complex systems through cumulative activity, of unfolding transformation (Thackara, 2015). Located in an anticipatory action learning space (Ramos, 2013), the Framework practices new approaches that create socially transformative situations (Gidley, 2017) for engaging the organisation, staff and learners. It scaffolds the critical future of design learning in Higher Education by negotiating with the existing organisational and knowledge generation systems. In doing so, it evidences a strategic systemic intervention that allows design pedagogy to act on theorist Arturo Escobar's (2018) call for design to move out of its social and economic comfort zone, and embrace its role of transformation through situated, open-ended, socially oriented, participatory practice.

Conclusion – Visualising Design Futures

The business of Design Higher Education futures, both as a subject and action, in everything it does; it designs for, into and through (Frayling, 1993) people's innate capacity to engage with changeable, changing futures (Slaughter, 2008). In the imagined future, designers will need to play diverse, emergent roles (Abdullah, 2021; Escobar, 2017; Gaziulusoy & Öztekin, 2019; Rogers & Bremner, 2019) across strategic, tactical and operational domains. These are currently, typically, not supported within the existing, disciplinary-led Communities of Practice structure of Design Higher Education. For the necessary future practitioners to emerge, new imaginaries must be created at a systemic level in education, the right vocabularies and language must be used for design to be heard (Gaziulosoy, 2022). If visions of the future are to be understood as performative in the present, these visions must be practiced in real life and in the real world (ibid), they must intervene in the systems and work with deep leverage points to create sustainable change (Meadows, 1999).

The value of visioning is not only in the envisioning of something, but in the way it connects that which was previously detached or unknown, to the other. In visioning this design, the potential is to bring collective knowledge from across disciplines (Furniss, 2015), experiences, organisations and geographies (Dorst, 2021) together in an adaptable organisational architecture for Higher Education. This frames opportunities to grow social Communities of Interest, and thereby, a paradigm change in collected, collaborative thinking and doing (Ceschin & Gaziulusoy, 2016) across Design education and Futures education. In discussing sustainable and sustaining design learning for transition (Tonkinwise, 2015), knowledge is the source of emancipation, for growing distinctly within the entangled state. If design pedagogy is to transform towards learning as transgression (hooks, 1994), it needs to create the moves and systems where new languages can grow the knowledge.

A Capable Architecture

The Framework and its elements could be described as the draft of an effective plotline for transformation, embedding emergent thinking around Critical Futures as a hybrid area of research (Candy & Kornet, 2019) in Design, and Creative, Higher Education. Transdisciplinary in its thinking and practice, the design of the Framework embodies approaches from across research fields, aligning primarily with User-centered Design (Manzini, 2007), Situated Design (Simonsen et al., 2014) and Design Futures (Taylor, 2029) to inform moves for the creation of a Design Education Imaginary (Gilbert & Lennon, 2005). In execution, the Framework design actively incorporates Critical Speculative Design (Mitrovic, 2015) as a methodology for distilling a Participatory Design (Schuler & Namioka, 1993), infrastructure that produces and grows the visions of change. For the Creative Futures Pedagogical Framework to become a sustaining (Fry, 1999) strategic intervention in the Design Higher Education system, to enhance teaching and the management of education, and thereby transforming the capability of a creative curriculum, it must emancipate the future story, by Design. In the context of defining that new storyline for Design education and Futures education, the Framework seeks to to ask what we might need to do, and then enables us to develop the responses (Voros, 2003) inside its architecture.

Inspired by the Centre Pompidou, the Framework introduced in this paper is a speculative visualisation of how *Futures as Design* might build, together. As with Rogers and Piano's vision, the Framework attempts to engage the

context around it, whilst challenging its own environment and empowering inhabitants to move differently, to shape alternative viewpoints in a familiar setting. Building a porous architecture that opens up and interrupts dialogues to create different perspectives on the landscape, enables the organisations, but also staff and learners, to become capable of living in their future (Bishop and Strong, 2010). It constructs an exposed, responsive curriculum design for a new future, one entangled with current organisational infrastructures and thinking. The pilot of the design presents the potential to hold a space (brown, 2021) for facilitating a pedagogical transformation that affects more than the content of the learning, one that begins to explore an infrastructure for re-imagining the knowledge experience. This design does that through enhancing capability, embodying the concept that capability is the integration of knowledge, skills, personal qualities and understanding used not just in familiar contexts but in response to new and changing circumstances (Stephenson,1998). If capability is understood as holding the power and ability to do something, to perform a certain functional role, then a system that is capable and fosters capability in participants is one that will enable different being and doing (Sen, 1992). And that might enable the Higher Education system, its organisations, its participants and their actions, to truly embrace a Futures philosophy that enacts a different future story, by Design.

References

Abdullah, A. (2023). The Use and Usefulness of the Futures Triangle. In *World Futures Review* 15 (2-4), 133-145. https://doi.org/10.1177/19467567231203167.

Abdullah, D. (2021). Disciplinary disobedience: A border-thinking approach to design. In C. Mareis and N. Paim (eds) *Design struggles: Intersecting histories, pedagogies, and perspectives* (pp 227-241). Plural, Valiz.

Angheloiu, C., Sheldrick, L., Tennant, M., & Chaudhuri, G. (2020). Future tense: Harnessing design futures methods to facilitate young people's exploration of transformative change for sustainability. *World Futures Review*, 12(1), 04-122. https://doi.org/10.1177/1946756719844050

Barbara, A., & Scupelli, P. (2021). Teaching to dexign futures in cities. *TECHNE – Journal of Technology for Architecture and Environment, (2*), 112-116.

Barnett, R., Parry, G. & Coate, K. (2001). Conceptualising curriculum change. *Teaching in Higher Education*, 6 (4): 435-449. https://doi.org/10.1080/13562510120078009

Barnett, R. & Coate, K. (2005). *Engaging the curriculum in higher education*. The Society for Research into Higher Education and Open University Press.

Bell, W. (2002). A community of futurists and the state of the futures field. *Futures*, 34 (3–4), 235-247. https://doi.org/10.1016/S0016-3287(01)00041-6

Berardi, F. (2017). *Futurability: The age of impotence and the horizon of possibility*. Verso.

Bishop, P. & Strong, K., E. (2010). Why teach the future? *Journal of Futures Studies*, *14*(4): 99–106.

Boehnert, J. (2019) Ecocene design economies. Three ecologies of systems transitions. *The Design Journal*, 22 (1), 1735-1745. https://doi.org/10.1080/14606925.2019.1595005

Böninger, C., Scmidhuber, S., Frenkler, F. (2021). *Designing design education: Whitebook on the future of design education.* IF Design Foundation. GmbH.

Bonsieppe, G. (1997) *Interface - an approach to design*. Jan Van Eyck Academy.

brown, a., m. (2021). *Holding change – The way of emergent strategy facilitation and mediation*. AK Press.

Candy, S., and Kornet, K. (2019). Turning foresight inside out: An introduction to ethnographic experiential futures. *Journal of Futures Studies*, 23 (3), 3-22. DOI:10.6531/JFS.201903_23(3).0002

Candy, S. & Potter, C. (Eds.). (2019). *Design and Futures*. Tamkang University Press.

Ceschin, F., & Gaziulusoy, I. (2016). Evolution of design for sustainability: From product design to design for system innovations and transitions. *Design Studies*, (47),118-163. https://doi.org/10.1016/j.destud.2016.09.002

Clèries, L. & Morrison, A. (2020). Design futures now: Literacies and making. *Temes de Disseny (*36), 8-15. https://doi.org/10.46467/TdD36.2020.8-15

Covey, S. (2004). *The 8th habit: From effectiveness to greatness*. Simon and Schulster.

Cross, N. (1999). Design research: A disciplined conversation. *Design Issues*, 15 (2), 5-10. https://doi.org/10.2307/1511837

Cross, N. (2006). *Designerly ways of knowing*.   Springer.

Davies, M., & Dubberly, H. (2023). Rethinking Design Education. *She Ji: The Journal of Design, Economics, and Innovation*. 9 (2): 97-112.

Dorst, K. (2021). Transdisciplinary innovation as driver for systemic change. *Civic design education: New notes and methods.* Archis/VOLUME.

Edwards, M., McGoldrick, C. & Oliver, M. (2006). Creativity and curricula in higher education: Academic ' perspectives. In N. Jackson et al. (Eds), *Developing Creativity in Higher Education: an Imaginative Curriculum*. Routledge.

Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds (New ecologies for the twenty-first century)*. Duke University Press.

Fraser, S. & Bosanquet, A. (2006). The curriculum? That's just a unit outline, isn't It?. *Studies in Higher Education*, 31(3), 269-284. https://doi.org/10.1080/03075070600680521.

Frayling, C. (1993). Research in art and design. *Royal College of Art Research Papers*, 1(1) [Monograph]. https://researchonline.rca.ac.uk/id/eprint/384.

Furniss, L. (2015). *Beyond discipline: design practice and design education in the 21st Century*. Strategic Creativity Research Lab, Council for Higher Education in Art & Design, UK.

Fry, T. (1999). *A new design philosophy: An introduction to defuturing*. Sydney, University of New South Wales Press.

Gaziulusoy, I. & Öztekin, E., E. (2019). Design for sustainability transitions: Origins, attitudes and future directions.The Future of Design for Sustainability, *Sustainability,* 11(13), 3601. https://doi.org/10.3390/su11133601

Gaziuliosoy, I. (2022). Presenting in: design & systematic change symposium, Royal College of Art – Design Products Programme, Monday 12th December 2022, 13:30-17:00

Gilbert, P., & Lennon, K. (2005). *Imagination and the imaginary, the world, the flesh and the subject: Continental themes in philosophy of mind and body*. Edinburgh University Press.

Gidley, J. M. (2017). *The future: A very short introduction*. Oxford: Oxford University Press.

Glenn, J. (1972). Futurizing teaching vs. futures courses. *Social Science Record*, *9* (3), 26-29, Spr 72.

Goldschmidt, W. (1977). Anthropology and the coming crisis: An autoethnographic appraisal. *American Anthropologist*, 79 (2), 293-308. https://www.jstor.org/stable/673841.

Hayano, D. M. (1979). Auto-ethnography: Paradigms, problems, and prospects. *Human Organization,* 38 (1): 99-104. https://www.tandfonline.com/doi/pdf/10.17730/humo.38.1.u761n5601t4g318v

Haraway, D. (1992), *The promises of monsters: A regenerative politics for inappropriate/d others*. Routledge.

hooks, b. (1994). *Teaching to transgress – Education as the practice of freedom.* Routledge.

Inayatullah, S. (2002). Reductionism or layered complexity? The futures of futures studies. *Futures*, Volume 34 (3-4). https://doi.org/10.1016/S0016-3287(01)00045-3

Jackson, N. (2011). *Learning for a complex world: A lifewide concept of learning, education and personal development*. Authorhouse.

Johar, I. & Raworth, K. (2021). The Big Picture panel discussion, in Design for Planet Festival, Design Council UK, V&A Dundee. Accessible at: https://vimeo.com/657489496

Kaiser, B., M., & Theile, K (2014). Diffraction: Onto-epistemology, quantum physics and the critical humanities. *Parallex*, Vol. 20, No.3. Routledge.

Karasti, H. (2014). Infrastructuring in participatory design. *Proceedings of the 13th Participatory Design Conference: Research Papers - Volume* 1, 141-150. https://doi.org/10.1145/2661435.2661450

Kavanagh, S. (2019). *Learning Arch Design: Users Manual*. Kaospilot.

Koschmann, T., D. (1984). Using technology to assist in realising effective learning and instruction: A principled approach to the use of computers in collaborative learning and instruction. *Journal of the Learning*

Sciences, 3 (3), 227-264. https://doi.org/10.1207/s15327809jls0303_2

Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J. & Wensveen, S. (2011). *Design research through practice: From the lab, field, and showroom*. Elsevier.

Kvan, T. (2001). The problem in studio teaching – revisiting the pedagogy of studio teaching. In *Proceedings of the 1st ACAE Conference on Architecture Education, Centre for Advanced Studies in Architecture,* National University of Singapore.

Lawson, B., & Dorst, K. (2009). *Design expertise*. Architectural Press.

Manzini, E. (2021). Small, Local, Open and Connected in *Designs for different futures*, Philadephia Museum of Modern Art Centre, Walker Art Centre and the Art Institute of Chicago, Yale University Press.

Manzini, E. (2015). *Design when everybody designs: An introduction to social innovation*. MIT Press.

Manzini, E. (2007). Design Research for Sustainable Social Innovation in *Design Research Now: Essays and Selected Projects*, edited by Ralf Michel, Berlin, Boston: Birkhäuser.

Martin, S. E.   (2023). Imagining the Future as Different: Introducing a System for Participatory Evaluation. In *International Journal of Management and Applied Research, Special Issue: Exploring people centred design in the context of curriculum and learning design in higher education*, 10 (2), 339-365. https://www.ceeol.com/search/article-detail?id=1197622

Martin, S. E. (2024). Making Meaning: Discussing Futures of Measurement, Value and Impact in Design Higher Education. In proceedings of *Design Commit '24 – 1st International Conference on Design and Industry* (pp 1091-1104). Universidade de Aveiro. https://doi.org/10.48528/pvy2-ww14-101

Martin, S. E. (2025). Tall Tales: Reflecting on the Role of Dialogue in Design Studio Learning, *in Which Proximity In Design Education?: A Contemporary Curriculum,* R. EA. Almendra (Ed.), (pp 197-209). Routledge.

Meadows, D. (1999). *Leverage points: Places to intervene in a system*. Sustainability Institute.

Mitrovic, I. (2015). *Introduction to speculative design practice.* https://www.researchgate.net/publication/276917770_Introduction_to_Speculative_Design_Practice_-_Eutropia_a_Case_Study.

Mitrovic, I., Auger, J., Hanna, J., and Helgasson, I. (Eds.) (2020). *Beyond speculative design: Past -   Present – Future.* SpeculativeEdu, Arts Academy, University of Split.

Ollenburg, S. (2018). Beyond Futures: Designing futures by educating future designers. *World Futures Review*, *10* (4), 279–293.

Popp, R. (2013). Participatory futures research. Research or practice consulting? *European Journal of Futures Research*, 1(1), 16. https://link.springer.com/article/10.1007/s40309-013-0016-3

Ramos, J. M. (2013). Forging the synergy between anticipation and innovation: The futures action model. *Journal of Futures Studies*, 18 (1), 85-106. Accessible at: https://actionforesight.net/wp-content/uploads/2015/10/FAM-article.pdf.

Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st century economist*. Penguin, Random House.

Rodgers, P. & Bremner, C. (Eds.). (2019). Design school: *After boundaries and disciplines.* Vernon Press.

Sanoff, H. (1990). *Participatory design: Theory & techniques*. Henry Sanoff.

Schön, D. (1991*). The reflective practicioner*. Ashgate.

Schuler, D., & Namioka, A. (Eds.). (1993). *Participatory design: Principles and practices*. CRC press

Scupelli, P., Wasserman, A., & Brooks, J. (2016). Dexign Futures: A pedagogy for long-horizon design scenarios. In proceedings of *DRS 2016, Design Research Society 50th Anniversary Conference.*

Schultz, W. L. (2015). A brief history of futures. World Futures Review, 7(4), 324-331. https://doi.org/10.1177/1946756715627646.

Seimens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2 (1).

Sen, A. (1992). *Inequality re-examined*. Russell Sage Foundation, Harvard University Press.

Shulman, L.S. (2005). *Signature pedagogies in the professions*. Daedalus, 134 (3), 52-59.
        https://www.jstor.org/stable/20027998.

Simonsen, J., Svabo, C., Strandvad, S.M., Samson, K.,Hertzum, M., Hansen, O.,E., (Eds.). (2014). *Situated design methods*. MIT Press.

Slaughter, R. (2008). Futures education: Catalyst for our times. *Journal of Futures Studies*, *12* (3),15-30.
        Accessible at: https://jfsdigital.org/wp-content/uploads/2014/01/123-A02.pdf.

Staron, M. (2011). Connecting and integrating life based and life wide learning. In *Learning for a complex world,* N. Jackson (Ed.). Authorhouse.

Sterling, B. (2009). Design fiction, *Interactions* 16 (3), 20-24. https://doi.org/10.1145/1516016.1516021.

Taylor, D. (2019). Design Futures. In *A Companion to Contemporary Design since 1945*, A. Massey (Ed.). Wiley.

Thackara, J. (2015). *How to thrive in the next economy*. Thames & Hudson.

Tharp, B. and Tharp, S. (2018), *Discursive design: Critical, speculative, and alternative things*. MIT Press.

Tonkinwise, C. (2015). Design for transitions – from and to what? *Design Philosophy Papers*, Transition Design 13 (1), 85-92. https://doi.org/10.1080/14487136.2015.1085686.

Tovey, M. (2015). *Design pedagogy: developments in art and design education*. Gower Publishing Company.

Tovey, M. (1984). Designing with both halves of the brain, *Design Studies* 5 (4), 219-228.
        https://doi.org/10.1016/0142-694X(84)90057-7.

Voros, J. (2003). A generic foresight process framework. *Foresight*, 5 (3), 10-21.
        https://doi.org/10.1108/14636680310698379.

Walker, M. (2006). *Higher education pedagogies*. SRHE and Open University Press.

Willis, A. (2019). Ontological design and criticality. In *Modes of criticism 4: Radical Pedagogy.* Onomatopee.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P.R. Pintrich, and M. Zeidner (eds.), *Handbook of Self-regulation*. Academic Press.