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From Policy to Practice: Embedding entrepreneurial thinking through an institutional entrepreneurial toolkit

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ABSTRACT

In response to the Scottish Government's Entrepreneurial Campus Blueprint (2023), this paper presents the development and piloting of an institutional Entrepreneurial Toolkit aimed at embedding entrepreneurial mindset and practice across the tertiary education landscape. Using a critical realist methodology, we examine how change occurs through generative mechanisms, practitioner agency, and collaborative processes.

The Entrepreneurial Toolkit is an institutional mechanism and strategic framework for embedding entrepreneurial mindsets and features two components. The Playbook is a digital guide combining theory and practice, which outlines principles, pedagogy, and case-based examples; and the Playboxes are physical, sensory, and multimodal learning resources designed to activate engagement and support inclusive, experiential learning across disciplines. Together, these components serve to operationalise entrepreneurial education at both strategic and delivery levels.

Developed through iterative cycles of practitioner engagement, reflective learning, active learning practice, and strategic alignment with frameworks such as EntreComp and Advance HE guidance, the Toolkit supports the formation of entrepreneurial mindsets in both staff and students. The paper discusses the importance of agency, trust, and emergence in facilitating change, as well as the role of prior collaboration and institutional context.

This paper identifies the importance of institutional culture, staff trust, and shared ownership in supporting adoption. Our findings suggest that open, flexible tools embedded within an enabling infrastructure can serve as catalysts for curriculum and cultural transformation. The Toolkit enables curricular enhancement and innovation and contributes to wider policy objectives around graduate pathways and entrepreneurial learning. We conclude with recommendations for practice and areas for future research, particularly highlighting the need to measure longitudinal impact.

Keywords: entrepreneurial education, curriculum transformation, entrepreneurial mindset, active learning pedagogy, Scottish Entrepreneurial Campus Blueprint policy

Introduction

This paper introduces an exploratory approach to embedding entrepreneurial education across a Scottish university through an Entrepreneurial Toolkit consisting of a digital resource 'Playbook' and physical 'Playboxes'. In response to the Scottish Government's Entrepreneurial Campus policy and international initiatives, the tertiary sector is increasingly prioritising enterprise education across all disciplines. While many institutions may focus on standalone entrepreneurship modules, this initiative takes a capacity-building approach to integrate entrepreneurial thinking across disciplines. The initiative is designed

to empower staff across multiple disciplines and embed enterprise education within existing learning structures rather than start from scratch in each disciplinary area. This reflects the ethos of the Scottish Government's Developing the Entrepreneurial Campus Blueprint Report.

The Entrepreneurial Toolkit is a framework that encourages entrepreneurship through co-creation and engagement within different disciplines. The Toolkit structure aims to embed an entrepreneurial mindset and change culture within the host institution. Comprising two components, the Playbook's digital resources provide flexible teaching approaches, terminology, and adaptable resources, while the Playboxes offer interactive, hands-on learning tools to support active pedagogy.

By shifting from a singular approach to co-creation, this initiative ensures that all students are exposed to the development of core entrepreneurial competencies, enhancing their career readiness as employees, freelancers, or founders. Entrepreneurial competencies include opportunity recognition and creativity, allowing innovation and new solutions; risk-taking and resilience to navigate uncertainty and setbacks; leadership and networking for building teams and relationships; and adaptability to respond to change (QAA, 2018). Through institutional collaboration and engagement with Scotland's entrepreneurial ecosystem, a scalable model for embedding enterprise education fosters a dynamic and future-ready graduate workforce. Our approach builds a collaborative pathway that generates entrepreneurial routes and competencies as part of, and deeper into, the ecosystem.

Our pracademic team draws from expertise in policy collaboration, real-world practical development and growth of ventures, and learning & teaching including entrepreneurship education. Reflecting on our practice to create a flexible toolkit, we utilised iterative entrepreneurial methodologies such as Effectuation (Sarasvathy, 2001; Read et al., 2016) and developmental feedback loops (Ries, 2011) to strengthen the modelling, ensuring that the toolkit can be incorporated into teaching. This paper details the development and implementation of a toolbox approach, positioning it as a framework for integrating entrepreneurship education within tertiary institutions.

This paper introduces the context in which The Entrepreneurial Campus Blueprint (ECB) (Tuffee & Little, 2023) - a Scottish *economic* policy - may be implemented in a multi-disciplinary approach across the tertiary education sector. The entrepreneurial mindset (its definition and development) is then considered also as an essential part of staff and student development. The concept of Effectuation (Sarasvathy, 2001; 2008; Read et al., 2016) is explored as a means of leveraging networks and resources for change and providing a practice-led development for a framework in which strategic change may be achieved.

The paper then outlines the concept and development of The Toolkit comprising a framework connected to two components;

1. the Playbook (a digital resource) and
2. the Playbox (a physical learning object),

and how building academic capacity may support ECB being embedded in the curriculum.

Finally, the Conclusion section considers the contribution of this practice development to the sustainable embedding of the ECB economic policy within multiple disciplines.

Context

The Scottish tertiary education sector comprises 19 higher education institutions (Scottish Government, 2025) and 24 colleges (Colleges Scotland, 2024) offering higher education provision including professional

development programmes and apprenticeships. These institutions operate in an increasingly complex and uncertain environment, in part due to the number of stakeholders involved in the development, design and delivery of the curriculum to reflect government policy. Government policy for economic development across Scotland and the UK is driving tertiary education to achieve economies of scale and economies of experience (Scottish Government 2022; 2023; 2025) and encouraged through strategic (research) funding to further deliver on externally facing university-business engagement. An effective educator-business collaboration could theoretically produce the advantage of a better student experience and simultaneously, make the market for post-16 education more competitive.

Work-based and work-related learning within tertiary education has been strengthened through the focus on employability and the notions of 'graduateness', implemented via the Scottish Funding Council strategic project Learning to Work initiatives (Allford, 2017) and extra-curricula implementation was found to support graduate transitions into the workplace (Raelin, 2008; 2014). The focus of skills for economic growth was delivered through placements, internships, and growing partnerships with the business ecosystem (Universities Scotland, 2016). Students consequently sought employment as an output of tertiary education (Tomlinson, 2017) with relevant skills highlighted by employers for graduates: project management, analytical skills, problem solving, and communication. The prominence of the widening access and inclusion agenda within higher education (HESA, 2025) has re-focussed learning in the workplace initiatives to further meet the employability needs of graduates and grow 'graduate capital' (Tomlinson et al., 2022) with sustainable reach for longer term 'career readiness'.

The publication of Scotland's National Strategy for Economic Transformation (2022) marked the development of the landscape in which universities, colleges and business would work collaboratively to develop differing ecosystems within communities. The Scottish Government's Entrepreneurial Campus Blueprint (Tuffee & Little, 2023) identified the transformational change required to enact a start for change and futures planning to support tertiary sector learners, graduates and founders. The publication of multiple reports (Cumberford & Little, 2020; Withers, 2023; ECB 2023), reviewing the skills agenda and how these may be leveraged in the workplace for economic benefit also created a need to review the meaning of, and the term, 'entrepreneur'. The QAA (2018, p.14) defines entrepreneurship education as "the application of enterprise behaviours, attributes and competencies into the creation of cultural, social or economic value. This can, but does not exclusively, lead to venture creation". Hence entrepreneurial activity may include start-up or spin-out venture activity but not necessarily so and includes the value-added activities of 'intrapreneurship'. This was clearly differentiated from 'employability' from the early subject literature with Yorke and Knight (2006) positioning employability as a personal state that individuals occupy "throughout their working life" (Artess et al., 2017, p 10).

The Entrepreneurial Campus Blueprint (Tuffee & Little, 2023) brings a skills focus through the lens of an individual developing personal resilience, using storytelling to gain meaning to communications and effectively collaborating with stakeholders. This is the basis of the developing 'entrepreneurial mindset' for learners in the tertiary sector and in the work-led space.

The concept of the Toolkit is to provide and facilitate cross-institutional practical learning experiences related to entrepreneurship in terms of the student pathway and directly addresses the Entrepreneurial Campus Blueprint recommendation regarding curriculum transformation. This aligns to the expectation that all students have an opportunity to undertake credit bearing activities in addition to extra-curricular activities, the latter often delivered as a discrete intervention delivered in parallel with the academic

programme. We worked with our internal incubator support, Bright Red Triangle (BRT), to align the curricula and extra curricula activities best practice. The overall context of the ECB is illustrated in Figure 1.

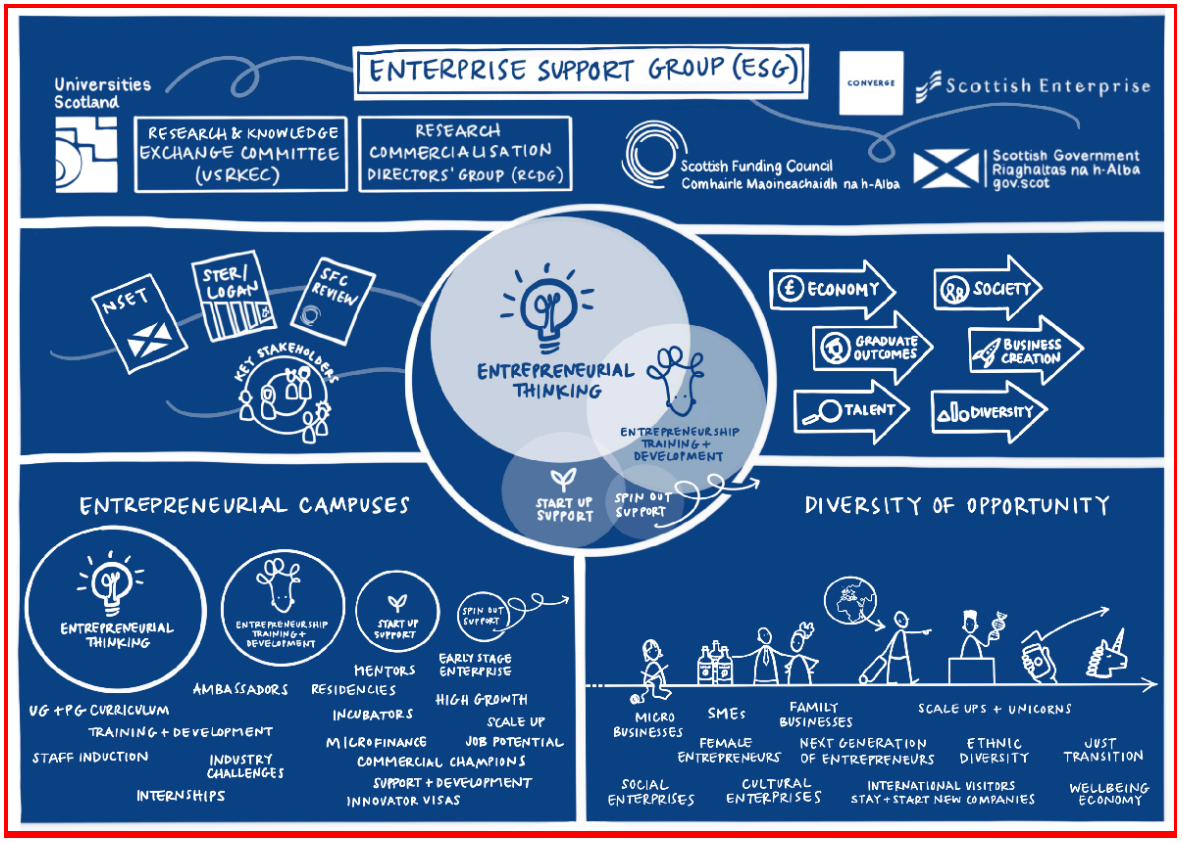


Figure 1 Enterprise Support Group (2022). Commissioned by Orla Kelly. Illustrator, Hazel White.

Developing the entrepreneurial mindset and education

The definition of entrepreneurial mindset is a difficult task. It has moved from "a way of thinking about your business that captures the benefits of uncertainty" (McGrath & MacMillan, 2000, p. 1) to incorporate cognitive, behavioural, and emotional aspects (Kuratko et al., 2020); it is no longer confined to business, but can be viewed across multiple disciplines and endeavours (Borchers & Park, 2010).

If we are looking to implement the ECB, a trait approach would require us to be seeking entrepreneurial staff and students with relevant traits, whereas developing the cognitive methods utilised by entrepreneurs reflects a more active approach and underlies much of the entrepreneurial campus policy (Naumann, 2017). The emphasis on developing cognitive capabilities also suggests a more inclusive approach directly connected to entrepreneurial orientation and wider entrepreneurial thinking (Nabi, et al., 2017).

Both Daspit et al. (2021) and Pidduck et al. (2021) note the relationship between entrepreneurial mindset and entrepreneurial orientation. Entrepreneurial orientation is important as this relates to the direction that an entrepreneurial endeavour may take, be it a start-up, social enterprise, not-for-profit, community initiative or intrapreneurial programme, depending on your background and interest. Such findings are important if we are to meet the requirements of embedding an entrepreneurial campus across all disciplines, with a focus on cognition (Duening, 2010) and action (Sarasvathy, 2021), via recognising opportunities, making decisions under uncertainty, and creating value by implementing novel solutions. The

focus on entrepreneurial mindset before the development of other entrepreneurial skills behaviours reflects the ethos within development of the Toolkit. Hence, for the Entrepreneurial Toolkit, we reflect a wider working definition of the entrepreneurial mindset as embracing critical questioning, innovation, service improvement, and continuous improvement.

Entrepreneurship education typically seeks to support the development of opportunity recognition, business planning, risk management, and innovation often with the goal of galvanising new venture creation and "seeking to create cultural, social or economic value" (QAA, 2018, p.7). We note that there is a difference between entrepreneurship and enterprise and acknowledge the QAA (2018) notion that it is possible to discuss both these related concepts simultaneously by using the umbrella term 'entrepreneurial education'. The European Commission (2021, p.8) notes institutions take three main approaches of learning 'About entrepreneurship' (theoretical knowledge and research); learning 'For Entrepreneurship' (acquiring practical skills such as opportunity spotting for venture creation and including for profit, governmental, and not for profit); and learning 'Through Entrepreneurship' (gaining experience by actively engaging in entrepreneurial mindset and processes such as low resource feedback loops to solve problem or acquire resources). This framework helps define how individuals and educational programs approach developing entrepreneurial capacity by considering the type of learning involved with enterprise skills connecting to the latter two approaches. In developing entrepreneurial mindset and entrepreneurial competencies we also acknowledge the impact of frameworks such as the European Commission's EntreComp Framework (European Commission, 2016; Bacigalupo et al.,2016) and Advance HE (2024) Framework for Enterprise and Entrepreneurship Education, and others e.g. the Inner Development Goals (IDG) framework. However, questions remain around building capacity across the tertiary sector to embed entrepreneurial mindset into teaching and learning.

To be of value, frameworks and toolkits need to be easily integrated rather than 'bolt on' including some aspects of bespoke adaptation to the local institution or disciplinary area, and specific classroom contexts (Kneale et al., 2016; Pacher & Glinik, 2024; Winter et al., 2017). Likewise, common approaches to developing entrepreneurial education across disciplines have often encountered resistance because they are too abstract ('make a swan') rather than practical or challenge focused, require more experiential and active learning than some disciplines are experienced with, were viewed as profit motive driven rather than value add or impact driven, and resisted deviation from more traditional views of disciplinary education (Hardie et al., 2022; Farny et al., 2019; Miço & Cungu, 2023; Rosenberg, 2023).

A common issue with implementation is the lack of ground-up inclusion to support implementation (Kneale et al., 2016). In our development we have attempted to avoid this via using a recursive approach with local discipline academics. Also, there will always be a concern by some academics that the policy and the toolkit would not apply to them (Winter et al., 2017). We tried to reduce this by developing users as advocates for both the toolkit and policy compliance, with the incentive of better learning & teaching and inter-disciplinary success.

To achieve a low resistance and adaptable toolkit, a collaborative, co-creation approach (Shams & Kaufmann, 2016; Karami & Reed, 2021) was identified as being important to both the methodology and implementation of any toolkit. It empowers participants to shape content based on their expertise and lived experiences, fostering shared ownership and deeper engagement. This inclusive approach enhances the Playbook's adaptability, making it a dynamic resource that evolves in response to collective feedback and changing educational needs within the discipline- led communities of practice (Cramphorn et al., 2023; Dollinger et al., 2018).

Leveraging networks and resources for change

We applied two approaches to support the organic change of introducing the principles of the ECB into academic disciplines; firstly capacity building for educators and secondly the capture of the organic growth to understand the development. The output of this collaborative approach is the Entrepreneurial Toolkit for educators: a framework, a co-created 'artefact', comprising a digital resource Playbook and a physical resource Playbox.

Effectuation (Sarasvathy, 2001, 2008; Read et al., 2016) provided a practice-led development for starting with existing means i.e. asking 'Who are we?, What do we know?, and Who do we know?'. In practical terms, this meant identifying and mobilising the resources and relationships already available within and around the university to support the Toolkit creation. Rather than beginning the study with a fixed output and needed resources, effectuation focuses on forming new connections and commitments to evolve the Toolkit and build a framework organically, extending the number of change agents and their impact on institutional structures. Likewise, new collaborators and resources create additional means to develop new content and increase reach.

The effectuation processes drew on both internal and external networks. Internally, this involved colleagues from different disciplines, and the local university incubator, Bright Red Triangle, to identify existing best practices in education and extra curricula activities. Externally, the university participates in the Start for Future programme (Start for Future, 2024), a European network of approximately thirty universities focused on entrepreneurship education (Cramphorn, et al., 2023). These connections provided a rich source of ideas and feedback, identifying examples of international practice where entrepreneurship is applied at the local educational disciplinary level (Sarasvathy, 2021). Colleagues became co-creators of resources in the Toolkit, tailoring and testing entrepreneurial learning activities in their classrooms and then feeding their experiences back into the Playbook and later the Playbox development.

Methodology

The implementation of new strategies and measures linked to the delivery of economic policy such as the Scottish Government's (2023) ECB requires learning beyond academic enrichment. In this context the learning is occurring within tertiary education structures, and these structures are populated by complex social dynamics that influence learning and performance outcomes (Bray, 2000). We engaged with entrepreneurial learning through a critical realist methodological perspective, which has core notions around both agency and structure. Agents (i.e. individuals and communities) exist within pre-existing socio-economic phenomena and the social structures of tertiary education (Ackroyd & Fleetwood, 2000; Fleetwood, 2004). The concept of stakeholder or member voice was an overarching theme and the representatives from the development work gave voice to the agency of the stakeholders.

Agents have causal influence, but they do not control all the events they are involved in. Engaging with the pre-existing world, they reproduce these worlds or transform them at the same time as the agents reproduce or transform themselves. This transformational process enables the agent and the structure or social phenomenon to evolve to a new and different phase of development i.e. emergence. For example, academic colleagues, engaging with university incubators, are impacted by engagement with external business stakeholders and the emergent social changes become embedded into core curricula. This emergence within critical realism occurs through influence on decision making within structures,

reproduction of changes through co-creation, and by creation of new artefacts that support change (Lawson, 2017; Sorrel, 2018).

The development team harnessed real world entrepreneurship experience for new venture development (including for-profit, and not-for-profit organisations), and experience with interdisciplinary incubators and public sector entrepreneurial activities. The team also included learning and teaching expertise including and beyond entrepreneurial education to create the toolkit and had experience of staff capacity building and strategic change to assist emergent development and implementation of new items in the Toolkit.

The table below identifies key stakeholders for the development; note that the Toolkit focused on capabilities development with staff and hence any student feedback was indirect via academic staff participation, and based on their judgment of what to share.

Table 1 Examples of stakeholders and their roles in creation of the toolkit.

Stakeholder	**Internal / External**	**Role**
Project Team	Internal	Development of the Toolkit
Interested Academic Staff	Internal	Academic staff who tested aspects of the Toolkit for understanding and in their own practice; gave feedback and suggestions.
Professional Services Staff	Internal	General tested professional services element understanding. Learning Technologies assisted with VLE-related issues. Assisted with learning outcome and quality-related issues. Contributed ideas to ecosystems engagement sections. Ordered Playbox components.
Bright Red Triangle (local university incubator)	Internal	Local University Incubator assisted with interested parties, some examples used, awareness raising, ecosystem development suggestions.
Start for Future Network	External	Gave examples of alternative entrepreneurial examples and practice in non-business disciplines.
Students	Internal	Little direct input to the team, except for previous feedback on activities reused from existing practice. Indirect feedback came via interested academics using activities and resources within their own areas, via reporting on developmental feedback loops for the Toolkit.

The Toolkit creation

The Toolkit comprises of a framework connected by two components;

1. The playbook is a digital resource and
2. the playboxes are physical learning objects

We adopted an iterative, low-resource development strategy that also underlies the basis of the entrepreneurial mindset approach and can be used as an example for educators. We encourage simple

feedback loops to emphasise an experimental style of development using continuous do-check-learn cycles. Each iteration of development was treated as a learning experience: even when a particular innovation, adjustment or idea failed to produce the desired result, it yielded valuable insights that were documented for future reference. By recording what worked and what did not, we built a knowledge base to understand contextual differences as to what might not succeed in one academic setting could well prove effective in another discipline. This iterative process inherently promotes reflective practice, a cornerstone of the entrepreneurial mindset to cultivate in staff and students. Every cycle of planning, action, and reflection helped model the behaviour of learning from failure and creating adaptation of what works and what did not (in what context) into the Playbook and later Playbox; and cycles of learning as more co-creators became involved.

While the iterative feedback loop approach proved powerful, early trials highlighted the need to adapt it to different disciplinary contexts. These insights reinforced the importance of flexibility and informed the development of additional strategies to engage stakeholders and leverage resources in varied academic areas.

Having discussed the methodology for the development of the toolkit, we will discuss the Toolkit and contents.

The Toolkit: The Playbox resource

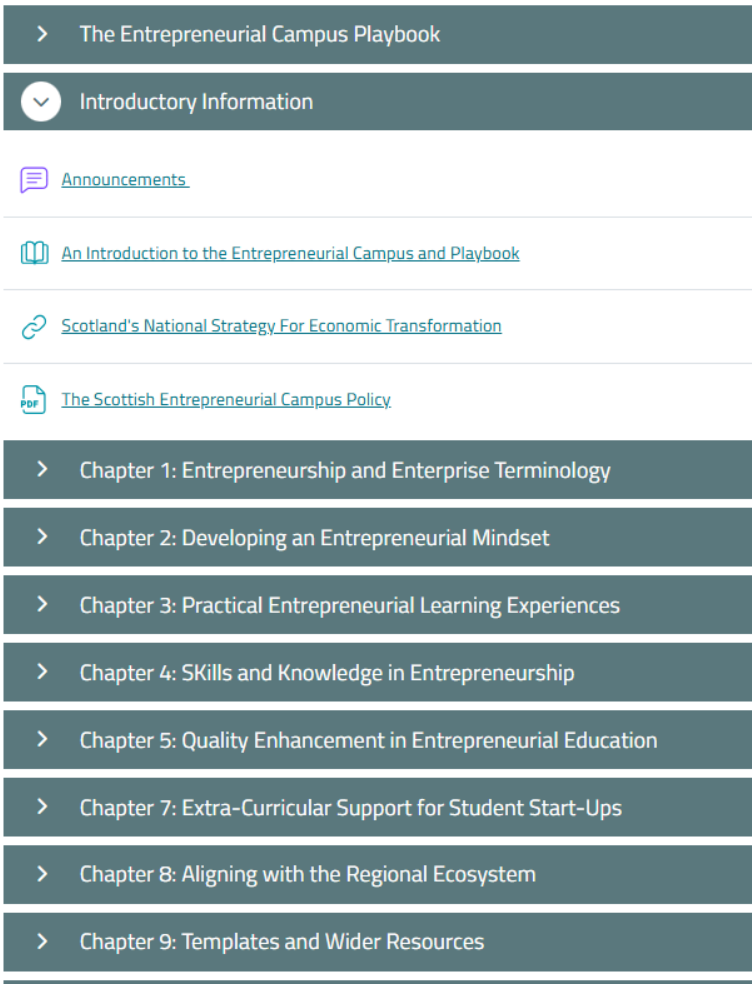
The Toolkit has two complementary formats: a digital resource hub to disseminate entrepreneurial learning across the institution (the Playbook), and later at the request of the user, a set of physical resources (Playboxes) for hands-on application (the Playbox resource is discussed in the following section). This online Playbook (see Figure 2 below) is structured to introduce core concepts of enterprise and entrepreneurship in such a way that any academic regardless of discipline can understand and apply. It covers fundamental terminology and definitions, ensuring a common baseline of understanding, but it also deliberately highlights alternative language use and examples drawn from non-business disciplines.

Many entrepreneurial activities and behaviours occur naturally in other disciplines like science, health, engineering, or the arts, although they may not be labelled as ‘entrepreneurial.’ The digital Playbook identifies these equivalent concepts and activities to allow staff in any school to recognise how entrepreneurial thinking establishes in their own context. Presenting discipline-specific equivalents for entrepreneurial terms makes the material relevant and accessible across the organisation’s diverse landscape. Finding shared concepts and interchangeable language helps foster an interdisciplinary understanding of entrepreneurship, aligning with the Scottish Government’s Entrepreneurial Campus vision of breaking down silos between disciplines (Tufee & Little, 2023). It also prompts valuable discussion about the nuances of language for example, identifying where a term in one discipline might carry a different nuance in another, sensitising staff to communicate entrepreneurial ideas in ways that resonate with their subject-matter colleagues and students. This is a developing area for the Playbook as smaller disciplinary nuances and more collaborators become involved.

In addition to terminology, the digital Playbook includes entrepreneurial mindset development and active learning strategies via a developing collection of learning activities, case studies, and exercises that educators can use to impart entrepreneurial thinking in their students. The focus is on practical, hands-on learning experiences that emphasise skills such as opportunity recognition, creative problem-solving, and iterative Playbook development. Many faculty and students are new to some of these concepts, and so

activities were tested to ensure they are straightforward to implement and do not require extensive background in business or entrepreneurship. For example, some exercises adapt familiar pedagogies (like group projects or lab experiments) to include an entrepreneurial twist, such as having students identify potential end-users for a particular discipline-specific initiative or pitching the social impact of historical research findings.

Figure 2 Key topic areas for the Playbook digital resource, example content



Underpinning many of these activities are the simple yet powerful models mentioned earlier – feedback loop cycles and effectuation principles – which were chosen precisely because they can be easily adapted to multiple disciplines. Early feedback from early users confirmed that simple feedback loop models (build–measure–learn loop or adaptable to Plan–Do–Check–Act) and effectuation questions are intuitive and approachable for both staff and students outside of business disciplines. Over time, more staff contribute and experiment with these materials, and this will grow the repository of examples. New variations and alternative approaches contributed by users will be tested and documented, steadily enriching the Playbook and offering a wider array of entrepreneurial learning opportunities. In this way, the digital resource remains dynamic, continually showcasing emerging good practices from across the University and beyond.

Embedding in the curriculum

The Entrepreneurial Campus Blueprint - see recommendation 4 (Tuffee & Little, 2023) - proposed that the development of the entrepreneurial mindset should not be confined to standalone courses or isolated training; it needs to be integrated into existing curricula throughout the university. Rather than creating a single mandatory entrepreneurship module for all students, a quality enhancement approach was developed with the aim to infuse entrepreneurial learning outcomes and activities into the modules and programs that already exist. We believe this approach to be more flexible and sustainable, adapting to each discipline's context and the avoidance of overloading the curriculum with additional requirements.

Learning outcomes are linked to teaching activities and assessment methods that bring them to life in the classroom, lab or workplace. By mapping entrepreneurial objectives onto existing courses, the project helps academic staff see where they can naturally introduce concepts like innovation, opportunity identification, or social enterprise into their teaching, without having to become entrepreneurship specialists themselves.

This curricular integration is supported by ensuring connections to extracurricular activity and local ecosystems. The incubator unit, Bright Red Triangle, is positioned within the Playbook as partners in the ecosystem, with developments now to incorporate the wider founder ecosystem locally in the city. The digital Playbook includes a small but developing section outlining how each academic discipline might engage with the local entrepreneurial ecosystem – whether through guest speakers, project collaborations with companies, community challenges, or mentorship opportunities. The aim is that an educator can find guidance on which local creative incubators or industry partners might enrich their class project, and whom to contact for partnership. Embedding entrepreneurship in the curriculum, therefore, is symbiotic with the aim of embedding the university in its broader ecosystem, creating a two-way flow of knowledge and innovation between the university and its partners. For example, development of entrepreneurial production/market ready innovations to solve real world problems would offer a more infused approach for engineering students, and would grant cross disciplinary links to other e.g. business students. Further, ecosystem players of businesses, local investment and supply networks can be embedded, and help align real-world connected curricula and teaching practices.

Accessible platform and Inclusive Design

To ensure the Playbook is widely accessible and user-friendly, the digital resource was implemented as a community site on Moodle, the university's virtual learning environment, keeping the user experience intuitive using a standard known interface. Educators can browse through sections, download resources, and even directly incorporate elements into their teaching. For example, sharing specific activities, slides, or resource files from the Playbook and importing them into their own course sites. The aim has been to enable an easier transfer of content, adapting it as needed. By making integration this convenient, the Playbook encourages adoption and experimentation, letting educators try out entrepreneurial exercises in their courses with minimal concerns.

Another critical aspect of accessibility is ensuring the content itself speaks to educators across all disciplines in an inclusive and respectful way; the language of entrepreneurship can sometimes feel alienating in those subjects where such terminology is uncommon. By the 'translation' of entrepreneurial concepts into their own academic language, staff are less likely to feel inhibited when approaching this material and more likely to gain confidence that they can maintain academic rigor in their subject while still introducing

entrepreneurial perspectives. It also reinforces the idea that entrepreneurship in academia is interdisciplinary by nature reflecting the Entrepreneurial Campus Blueprint ethos.

Alignment with educational frameworks and best practices

The Playbook's connection to multiple frameworks (Advance HE, 2024; European Commission, 2016) highlights that there is no single right way to *do entrepreneurial education,* instead there are multiple paths that share underlying principles. By being engaged with several frameworks, the Playbook remains adaptable. This versatility further helps embed the entrepreneurial mindset universally, because it validates different approaches and terminologies that might be preferred in different departments. The inclusion of these frameworks and best practices was also driven by feedback from colleagues: early consultation indicated that staff appreciate having external reference points to justify and shape their teaching innovations. Thus, aligning the Playbook with national frameworks not only aids clarity and structure but also connects with educators who see that this initiative is grounded in proven educational theory and policy, rather than being another initiative.

The Toolkit: The Playbox resource

The Playbox was requested during the second iteration of the development of the playbook and is designed with mobility and practicality in mind. The multi-media resources assist in 'storytelling' of entrepreneurial activities through active learning. With entrepreneurship education, learning is increasingly framed through the lens of storytelling, as articulated by Garud et al.(2014). Storytelling enables students to construct and communicate narratives that underpin entrepreneurial thinking, particularly in terms of envisioning future scenarios and modelling outcomes.

Fleming's VARK model (1995, 2006) informs design of the Playbox connected to four primary learning layers of the playbox: Visual, Aural, Read/Write, and Kinesthetic, each representing distinct ways individuals absorb and process information. We note limitations of learning styles/preferences in the literature (Pashler, et al., 2008; Newton & Miah, 2017) and are not using the learning styles as a preference issue. Rather we are using VARK within the contextual change of behaviours, in essence as an explanatory approach for higher order skills and requirements. The model offers more inclusive teaching by encouraging educators to present content in varied formats that align with learners' experience engaging students through doing, discussing, visualising, and reflecting, especially if we draw on learner's existing learning and kinaesthetic experience (Lethaby, 2017; eSkilled LMS, 2025). Using Vark may also benefit neurodiversity and learners where English is a second language learners (Melhem & Al-Zoubi, 2025). Figure 3 visualises the relationship. Central to the Playbox are two main components: a visual toolkit and an audio-discursive element. These are complemented by a third, more open-ended component 'the Rummage Box' designed for subject-specific customisation.

The visual toolkit includes an array of flexible, re-usable materials designed to be used in conjunction with whiteboards, AV screens, and poster displays to facilitate dynamic learning environments. The toolkit reinforces the connection between entrepreneurial learning and real-world practice. Through these materials, students can map out processes, construct visual models, and engage in collaborative problem-solving.

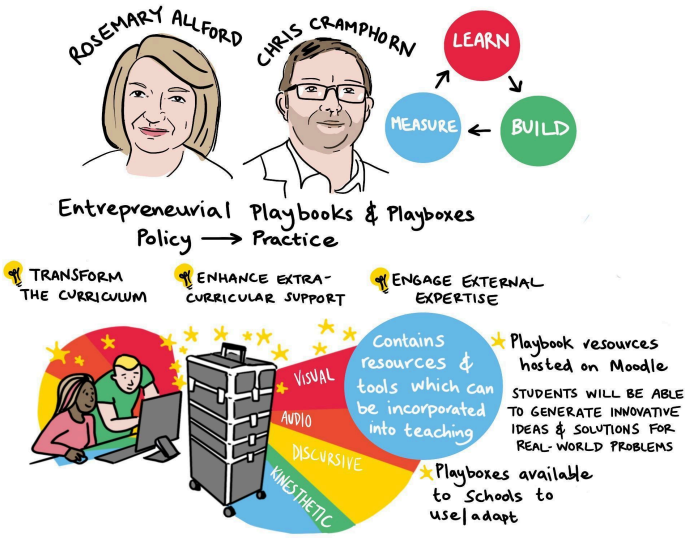


Figure 3 Edinburgh Napier University (2025). Commissioned by Bright Red Triangle. Illustrator, Katrina Swanton @Swanton Sketches

Figure 4 A Playbox

Evidence from Fleming (2006) suggests that learners are better able to process and retain information when they can build narratives using physical tools. Storytelling therefore becomes not only a method of communication but also a mode of cognitive processing and critical reflection. Model-building activities are frequently employed within Playbox sessions. These tools are adaptable to a variety of academic disciplines and support learners in visually and physically articulating complex ideas. To further support active learning (Drew & Mackie, 2011), all participants are encouraged to record their artefacts using mobile phones, capturing both the process and the outcomes of their work. These visual and video records can then be

uploaded to a 'working wall' (for example, Moodle learning platform) as part of a storyboard or learning journal. This enables students to retain ownership of their learner journey, fostering a sense of engagement and autonomy.

The intention behind the Playbox is not to replace existing practice but to enhance it. Enabling practitioners to deepen their current approaches embedding the Playbox into established teaching practices, and a natural extension of what educators already do well. For example, prompt cards, picture cards, and coaching tools can be used to initiate discussion, deepen analysis, or support structured debriefing sessions following group activity (Figure 4). It is important to acknowledge that storytelling practices and hands-on active learning (Bonwell & Eison, 1991; Brownson, 2014; Mars, 2019; Neilsen & Sarasvathy, 2011; Warren, 2004) are already present in many areas of the organisation. An example of a Playbox connected activity is included in figure 5.

Objective

This exercise helps students practice techniques for building strong relationships with stakeholders. The Playbox version integrates tools for empathy, communication, and reflection.

Duration

60–90 minutes (adaptable)

Materials Needed

- Playbox components (sticky notes in various shapes/colours, dot stickers, LEGO, conversation and coaching card decks, tripod/selfie stick, whiteboard sheets, markers)
- Standard materials: pens, templates, case examples as appropriate
- Access to digital resources where needed (e.g., videos, online tools)

Step 1: Understanding Stakeholder Needs (15 minutes)

Facilitators introduce key elements of rapport: trust, empathy, active listening, adaptability.

Playbox Tools:

- Speech bubble notes = Capture stakeholder voices
- Strengths Cards = Explore perspectives

Step 2: Stakeholder Role-Playing (30 minutes)

Students role-play stakeholder personas (investors, community leaders, partners).

Playbox Tools:

- Conversation Cards = Prompt open-ended questioning
- Tripod/selfie stick = Record and review role-plays

Step 3: Refining and Adapting Approaches (20 minutes)

Students reflect on what worked and adapt approaches for new stakeholder personas.

Playbox Tools:

- Teddy bear notes = Comfort zones
- Arrow notes = Adjusted strategies

Figure 5 Excerpt - Developing Rapport with Stakeholders activity integrating playbox resources.

The *Rummage Box* housed in the Playbox is deliberately left open-ended. It provides a space where subject-specific materials, proposed either by staff or students, can be included to enrich the class experience. This allows for customisation that reflects the unique needs of each discipline. We recommend that outputs from Playbox activities are recorded throughout the development process, enabling evaluation of effectiveness and impact.

The standardisation of the packaging and core materials also allows the resource to be accessible and ensures sustainability, and scalability. The Playbox can be used by 10-40 students simultaneously depending on group work vs individual use. However, all Playbox components are recorded within the Playbook with links to suppliers for ease of easy replicability; more Playboxes can be scaled locally or as part of a wider initiative. This reduces resource requirements directly as bulk buying can reduce the per unit cost, and additional items can be added as projects or funds are available, or adapted from general supplies.

Conclusion

This paper has detailed the development and implementation of an Entrepreneurial Toolkit, comprising a digital Playbook and physical Playboxes, as part of a wider strategy to embed entrepreneurial thinking and build capacity across disciplines. Developed through iterative cycles of experiential learning, the Toolkit equips staff with flexible pedagogical tools. Our findings suggest that tools which remain open and adaptable in form are best suited to supporting transformation in complex and evolving environments. We recommend the use of authentic development methodologies that connect practice to institutional cultural change.

Academics have discipline expertise and connecting their experience to frameworks and tools improves adoption in pedagogical practice. Emergent from our research we found that adding to existing expertise favoured further development and engagement with the Toolkit. Our findings demonstrate that using simple feedback loops for both development and staff engagement allows change to emerge organically.

Sustainability of impact depends on iterative refinement and the engagement of self-selecting academic and third space (Whitchurch, 2008) staff who lead change within their own contexts. These individuals function as critical actors in the reproduction and transformation of practice, enabling upward change. We recommend that agency and enquiry are supported through adoption of such practice, allowing contextualised development to occur.

The Entrepreneurial Toolkit provides a replicable model not only for curriculum transformation, but also for embedding institutional practices that enable entrepreneurship to flourish as a shared, interdisciplinary endeavour and encourages academic enrichment. To assess long-term outcomes of this approach, there is a need to develop robust methods that can capture the wider effects of such initiatives, particularly in relation to shifts in institutional mindset, graduate pathways, and pedagogic practice. It is a future development stage of our work. Our experience highlights the importance of pre-existing and new collaborative relationships and trust between communities. Where these foundations exist, partnership participation is deeper and more sustained.

Biographies

Chris Cramphorn is a pracademic focused on entrepreneurial education across the tertiary sector, incubators, and industry. He leads the Entrepreneurial Playbook initiative and advises on innovation, research commercialisation, and ecosystem development. His work bridges academia and practice, supporting enterprise growth, strategic education reform, and interdisciplinary approaches to entrepreneurial capability-building.

Rosemary Allford is a Principal Fellow of the HEA, and a highly experienced educational practitioner leading across Scotland's tertiary sector. She provides specialist input and collaborative strategic leadership on employability, entrepreneurship, and governance. Known for delivering strategic change, she supports impactful change across universities, colleges, and sector-wide initiatives.

Jackie Brodie is Associate Dean for Learning and Teaching in the Business School at Edinburgh Napier University. She has been active in the entrepreneurship education field for the last 20 years. She is a recipient of an Advance HE National Teaching Fellowship and co-led a successful Collaborative Award for Teaching Excellence.

References

Ackroyd, S., & Fleetwood, S. (2000). *Realist Perspectives on Organization and Management*. Routledge.

Advance HE (2024). *Framework for Enterprise and Entrepreneurship Education*, https://advance-he.ac.uk/knowledge-hub/framework-enterprise-and-entrepreneurship-education-0

Allford R. (2017). *Learning to Work Together: The Challenge of Collaborative Arrangements for strategic projects within HE in Scotland*. (Unpublished doctoral thesis).

Artess J., Hooley, T., & Mellors-Bourne R. (2017). *Employability: A Review of the literature 2012 to 2016*. Advance HE. https://www.advance-he.ac.uk/knowledge-hub/employability-review-literature-2012-2016

Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). *EntreComp: The entrepreneurship competence framework*. Publications Office of the European Union. https://doi.org/10.2791/593884

Bonwell, C. C., & Eison, J. A. (1991). Active learning: Creating excitement in the classroom. 1991 ASHE-ERIC higher education reports. ERIC Clearinghouse on Higher Education.

Borchers, A. S., & Park, S. H. (2010). Understanding entrepreneurial mindset: A study of entrepreneurial self-efficacy, locus of control and intent to start a business. *The Journal of Engineering Entrepreneurship*, *1*(1), 51–62. https://ssrn.com/abstract=3124336

Bray, J.N. (2000) *Collaborative enquiry in practice*. Sage.

Brownson, C. D. (2014). Entrepreneurship education: nurturing creative innovations via active learning. *Management and Administrative Sciences Review, 3*(6), 839-844.

Colleges Scotland. (2024). *Key Facts*. https://collegesscotland.ac.uk/key-college-facts/keyfacts/keyfactscolleges

Cramphorn, C., Brodie, J., & Fannin, N. (2023). Advance HE embedding enterprise and entrepreneurship case: The EUACCEL project at Edinburgh Napier University. In *Advance HE embedding enterprise and entrepreneurship cases*. https://www.advance-he.ac.uk/news-and-views/embedding-enterprise-and-entrepreneurship-higher-education-new-case-study-collection

Cramphorn, C., Allford, R., & Brodie, J. (2024). Developing the entrepreneurial playbook: A guide to enhancing entrepreneurial thinking in support of the Scottish Entrepreneurial Campus policy. *U15 Empowering Futures Conference*, Leipzig, September.

Cumberford, A., & Little, P. (2020). *The Cumberford-Little Report - One Tertiary System: Agile, Collaborative, Inclusive*. https://doc.edinburghcollege.ac.uk/c-l%20report.pdf

Daspit, J. J., Chrisman, J. J., Ashton, T., & Evangelopoulos, N. (2021). Family firm heterogeneity: A definition, common themes, scholarly progress, and directions forward. *Family Business Review*, *34*(3), 296–322. https://doi.org/10.1177/08944865211008350

Dollinger, M., Lodge, J., & Coates, H. (2018). Co-creation in higher education: towards a conceptual model. *Journal of Marketing for Higher Education*, *28*(2), 210–231. https://doi.org/10.1080/08841241.2018.1466756

Drew, V., & Mackie, L. (2011). Extending the constructs of active learning: Implications for teachers' pedagogy and practice. *Curriculum Journal*, *22*(4), 451–467. https://doi.org/10.1080/09585176.2011.627204

Duening, T. N. (2010). Five Minds for the Entrepreneurial Future: Cognitive Skills as the Intellectual Foundation for Next Generation Entrepreneurship Curricula. *The Journal of Entrepreneurship*, *19*(1), 1-22. https://doi.org/10.1177/097135570901900101

eSkilled LMS. (2025, August 4). *Are VARK learning styles still relevant in 2025?* https://lms.eskilled.com.au/blog/what-are-vark-learning-styles/

European Commission. (2016). *EntreComp: The entrepreneurship competence framework*. Publications Office of the European Union. https://publications.jrc.ec.europa.eu/repository/handle/JRC101581

European Commission. (2021) *A Guide to Fostering Entrepreneurship Education*, Publications Office of the European Union. https://eismea.ec.europa.eu/system/files/2022-01/A%20guide%20for%20fostering%20entrepreneurship%20education.pdf

Farny, S., Frederiksen, S. H., Hannibal, M., & Jones, S. (2019). A CULTure of entrepreneurship education. In *Institutionalization of Entrepreneurship Research* (pp. 38-59). Routledge.

Fleetwood, S. (2004) The Ontology of Organization and Management Studies. In S. Fleetwood and S. Ackroyd (Eds) *Critical Realist Applications in Organisation and Management Studies*. Routledge.

Fleming, N. D. (1995). I'm different; not dumb. modes of presentation (vark) in the tertiary classroom. In A. Zelmer (Ed.) *Research and Development in Higher Education. Proceedings of the 1995 Annual Conference of the Higher Education and Research Development Society of Australia (HERDSA)*, pp. 308-313.

Fleming, N. D. (2006). *V.A.R.K Visual, Aural/Auditory, Read/Write, Kinesthetic*. Bonwell Green Mountain Falls.

Gartner, W. B. (1989). "Who is an entrepreneur?" is the wrong question. *American Journal of Small Business*, *13*(Spring), 11–32. https://doi.org/10.1177/104225878801200401

Garud, R., Schildt, H. A., & Lant, T. K. (2014). Entrepreneurial storytelling, future expectations, and the paradox of legitimacy. *Organization science*, *25*(5), 1479-1492.

Hardie, B., Highfield, C., & Lee, K. (2022). Attitudes and values of teachers and leaders towards entrepreneurship education. *Research Papers in Education*, *38*(4), 690–714. https://doi.org/10.1080/02671522.2022.2028891

Higher Education Statistics Agency (HESA), (2025). Higher education student statistics, UK 2023/24. https://www.hesa.ac.uk/news/20-03-2025/sb271-higher-education-student-statistics

Karami, M., & Read, S. (2021). Co-creative entrepreneurship. *Journal of Business Venturing, 36*(4), 106125. https://doi.org/10.1016/j.jbusvent.2021.106125

Kneale, P., Winter, J., Spowart, L., Turner, R., & Muneer, R. (2016). *Evaluating teaching development activities in higher education: A toolkit*. Higher Education Academy. https://www.heacademy.ac.uk/system/files/evaluating_teaching_development_in_he_-_toolkit1.pdf

Kuratko, D. F., Fisher, G., & Audretsch, D. B. (2020). Unraveling the entrepreneurial mindset. *Small Business Economics*, 1–11. https://doi.org/10.1007/s11187-020-00372-6

Lawson, C. (2017). *Technology and isolation*. Cambridge University Press. https://doi.org/10.1017/9781316848319

Lethaby, C. (2017, October 18). Four reasons to avoid 'learning styles' – and one alternative. *British Council Voices*. https://www.britishcouncil.org/voices-magazine/four-reasons-avoid-learning-styles-one-alternative

McGrath, R. G., & MacMillan, I. (2000). *The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty*. Harvard Business Press.

Mars, M. M. (2019). Analogical and Metaphorical Thinking, Storytelling, and Entrepreneurial Identity and Narrative Development: A Visual Art-Based Learning Innovation. *Entrepreneurship Education and Pedagogy*, *4*(1), 64-81. https://doi.org/10.1177/2515127419890331

Melhem, D. Z., & Al-Zoubi, A. M. (2025). The Effect of Universal Design for Learning (UDL)-Based VARK Model in Students with Learning Difficulties and Various Learning Preferences. Educational Process: International Journal.
Miço, H., & Cungu, J. (2023). Entrepreneurship Education, a Challenging Learning Process towards Entrepreneurial Competence in Education. *Administrative Sciences*, *13*(1), 22. https://doi.org/10.3390/admsci13010022
Morris, M. H., & Sexton, D. L. (1996). The concept of entrepreneurial intensity: Implications for company performance. *Journal of Business Research*, *36*, 5–13.
Nabi, G., Linan, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda. *Academy of Management Learning & Education*, *16*(2), 277–299. http://www.jstor.org/stable/26400192.
Naumann, C. (2017). Entrepreneurial mindset: A synthetic literature review. *Entrepreneurial Business and Economics Review*, *5*(3), 149–172. https://doi.org/10.15678/EBER.2017.050308
Newton, P. M., & Miah, M. (2017). Evidence-based higher education—Is the learning styles "myth" important? *Frontiers in Psychology, 8,* 444. https://doi.org/10.3389/fpsyg.2017.00444
Nielsen, K., & Sarasvathy, S. D. (2011). *Passive and active learning from entrepreneurship: an empirical study of re-entry and survival*. Danish Research Unit for Industrial Dynamics.
Pacher, C., & Glinik, M. (2023). Fostering entrepreneurial mindsets in deep tech disciplines: Exemplary development of a toolkit. *Procedia Computer Science, 232*, Article 3. https://doi.org/10.1016/j.procs.2024.01.129
Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. A. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105–119. https://doi.org/10.1111/j.1539-6053.2009.01038.x
Pidduck, R. J., Clark, D. R., & Lumpkin, G. T. (2021). Entrepreneurial mindset: Dispositional beliefs, opportunity beliefs, and entrepreneurial behavior. *Journal of Small Business Management*, *61*(1), 45–79. https://doi.org/10.1080/00472778.2021.1907582.
QAA (2018). *Enterprise and Entrepreneurship Education. Guidance for UK HE Providers*. https://www.qaa.ac.uk/docs/qaa/about-us/enterprise-and-entrpreneurship-education-2018.pdf
Raelin J. A. (2008). *Work-based learning: Bridging knowledge and action in the workplace*. Jossey-Bass.
Raelin J. A. (2014). Imagine there are no leaders: Reframing leadership as collaborative agency. *Leadership*. Advance online publication.
Read, S., Sarasvathy, S. D., Dew, N., & Wiltbank, R. (2016). *Effectual Entrepreneurship* (2nd ed.). Routledge.
Ries, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. Crown Business.
Rosenberg, B. (2023) "*Whatever it is, I'm against it": Resistance to change in higher education*. Harvard Education Press.
Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review, 26*(2), 243–263.
Sarasvathy, S. D. (2008). *Effectuation: Elements of entrepreneurial expertise*. Edward Elgar Publishing Limited.
Scottish Government. (2022). *Scotland's National Strategy for Economic Transformation*. https://www.gov.scot/publications/scotlands-national-strategy-economic-transformation/
Scottish Government. (2023). *Entrepreneurial Campus: Higher Education Sector as a Driving Force for the Entrepreneurial Ecosystem*. https://www.gov.scot/publications/entrepreneurial-campus-higher-education-sector-driving-force-entrepreneurial-ecosystem/
Scottish Government. (2025). Education Policies. Retrieved from https://www.gov.scot/policies/universities/
Shams, S.M.R., & Kaufmann, H.R. (2016), "Entrepreneurial co-creation: a research vision to be materialised". *Management Decision*, *54*(6), 1250-1268. https://doi.org/10.1108/MD-11-2015-0487
Sorrell, S. (2018). Explaining sociotechnical transitions: A critical realist perspective. *Research Policy, 47*(7), 1267–1282. https://doi.org/10.1016/j.respol.2018.04.008
Swanton, K. (2025) Visualisation of Playbook and Playboxes. https://www.swantonsketches.co.uk/

Tikly, L. (2015). What works, for whom, and in what circumstances? Towards a critical realist understanding of learning in international and comparative education. *International Journal of Educational Development*, *40*, 237–249. https://doi.org/10.1016/j.ijedudev.2014.11.008

Tomlinson, M. (2017). Forms of graduate capital and their relationship to graduate employability. *Education+ Training*, *59*(4), 338-352.

Tomlinson, M., McCafferty, H., Port, A., Maguire, N., Zabelski, A. E., Butnaru, A., Charles, M., & Kirby, S. (2022). Developing graduate employability for a challenging labour market: the validation of the graduate capital scale. *Journal of Applied Research in Higher Education, 14*(3), 1193-1209. https://doi.org/10.1108/JARHE-04-2021-0151

Tuffee R., & Little J. (2023). *Entrepreneurial Campus: Higher Education Sector as a Driving Force for the Entrepreneurial Ecosystem*. Scottish Government. https://www.gov.scot/publications/entrepreneurial-campus-higher-education-sector-driving-force-entrepreneurial-ecosystem/

Universities Scotland. (2016). *Response to Scottish Government Enterprise Skills Review. Briefing Evidence*. https://www.universities-scotland.ac.uk/briefing-evidence/universities-scotland-responds-scottish-governments-enterprise-skills-review/

Warren, L. (2004). A systemic approach to entrepreneurial learning: An exploration using storytelling. *Systems Research and Behavioral Science: The Official Journal of the International Federation for Systems Research*, *21*(1), 3-16.

Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of third space professionals in UK higher education. *Higher education quarterly*, *62*(4), 377-396.

White, H., & Universities Scotland (2022), Entrepreneurial Campus Blueprint Illustrations, Universities Scotland Enterprise Support Group.

Winter, J., Turner, R., Spowart, L., Muneer, R., & Kneale, P. (2017). Evaluating academic development in the higher education sector: academic developers' reflections on using a toolkit resource. *Higher Education Research & Development*, *36*(7), 1503–1514. https://doi.org/10.1080/07294360.2017.1325351

Withers J. (2023). *Fit for the Future: developing a post-school learning system to fuel economic transformation*. Skills Delivery Landscape Review

Yorke, M., & Knight, P. (2006). *Embedding employability into the curriculum.* (Learning and employability series 1). Higher Education Academy.