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Signalling Success or Shortfall? Analysing the Online Promotion of UK Entrepreneurship Education Programmes

Matthew Draycott[1]
Birmingham City Business School, Birmingham City University, Birmingham, UK

Zeineb Djebali
Department of Strategy, International Business and Entrepreneurship, University of Liverpool, Liverpool, UK

Bethany Edwards
Department of Careers and Employability, Bangor University, Bangor, UK

Keith Phillips
Royal Northern College of Music, Manchester, UK

David Bozward
Global Banking School, Birmingham, UK

Arun Sukumar
Birmingham City Business School, Birmingham City University, Birmingham, UK

Abstract. This study investigates the alignment between the online promotional materials of Entrepreneurship Education Programmes (EEPs) offered by UK Higher Education Institutions (HEIs) and the actual content and pedagogical approaches delivered. Despite widespread claims of providing experiential, applied, and innovative learning opportunities, discrepancies often exist between these promotional promises and the programmes' practical delivery. Applying information signalling theory, we use web-scraping and thematic analysis to systematically analyse the promotional content presented on UK HEI websites. Our findings reveal a dominant promotional narrative emphasising institutional prestige and entrepreneurial success, often overshadowing clear communication of programme specifics and actual pedagogical practices. This misalignment potentially creates misleading signals for prospective students, affecting their satisfaction and the development of intended entrepreneurial competencies. Our contributions include highlighting

1. Corresponding author: Matthew Draycott, Associate Professor of Innovation Management, College of Business, Digital Transformation & Entrepreneurship, Birmingham City Business School, Birmingham City University, 4 Cardigan St, Birmingham B4 7RJ, United Kingdom. Email: matthew.draycott@gmail.com

critical information asymmetries in the online marketing of entrepreneurship education (EE) and offering recommendations to HEIs for more transparent and accurate signalling. These findings provide significant insights for educators, policymakers, and institutional marketers, with regards to the need for congruence between advertised programme objectives and their real-world implementation, both within the UK and internationally.

Keywords: entrepreneurship education programmes, entrepreneurship education, enterprise education, signalling, digital promotion.

1. Introduction

Entrepreneurship education (EE) is an established academic field, recognised for its role in fostering innovation, economic development, and job creation (Nabi et al., 2018; Rogers-Draycott et al., 2024). Its global expansion is underpinned by evidence that entrepreneurial competencies can be taught, leading to improved economic outcomes for learners (Fretschner and Weber, 2013; Nabi et al., 2010). However, research indicates that our understanding of Entrepreneurship Education Programmes (EEPs), their design, delivery, and impact on student ventures remains incomplete and warrants further investigation (Smith et al., 2022; Nabi et al., 2017).

While scholars have examined key features of EEPs and their influence on student outcomes (Tiberius et al., 2023; Jardim et al., 2021), many studies lack empirical depth, are limited in scope, and face challenges in generalisation (Nabi et al., 2017). This paper addresses these gaps by applying information signalling theory (Spence, 1973; Connelly et al., 2011) to evaluate how Higher Education Institutions (HEIs) in the UK present their EEPs online. Specifically, it assesses how HEIs signal the value and attributes of these programmes to prospective students and examines whether these signals align with established theories of enterprise and entrepreneurship education.

By leveraging web scraping to collect data on EEPs across the UK, this study provides a comprehensive national perspective on programme provision. Although similar methodologies have been employed to study entrepreneurial social networks (Wang et al., 2017) and ecosystems (Guéneau et al., 2022), this is the first to explore EEPs at a national level.

This paper examines the identified gaps by first outlining the theoretical and practical context of EEPs within UK HEIs, highlighting gaps between promotional claims and delivered educational experiences. The primary problem explored is the potential information asymmetry created by misleading or unclear promotional practices, influencing student expectations and programme satisfaction. The aim of our study is thus to investigate the alignment between the signals sent through online promotional materials and the actual pedagogical practices employed. Our contributions include a novel application of signalling theory combined with web-scraping and thematic analysis methodologies, providing empirical evidence of discrepancies and their implications.

The paper is structured as follows: we commence with a review of the extant literature on EE, followed by the theoretical framework and methodology. We then outline our findings, provide a detailed discussion, and conclude with our contributions and the future research implications.

2. Literature Review

To explore how EE is conceptualised, delivered, and promoted within UK HEIs, this literature review is structured into five subsections. Section 2.1 outlines the positioning of EE, tracing its pedagogical evolution and theoretical framing. Section 2.2 examines the pedagogical approaches adopted by EEPs, with a focus on experiential learning, lean start-up methods, and digital tools. Section 2.3 addresses the entrepreneurial skills and competencies these programmes aim to develop, while Section 2.4 explores the digital marketing strategies used by HEIs to promote these programmes online. Finally, Section 2.5 synthesises these strands to highlight the intersection between entrepreneurial universities, EE pedagogy, and online promotion, and presents the research questions that guide this study.

Table 1 presents five thematic strands within the literature, organised chronologically. These begin with early explorations of enterprise skills agendas in the 1980s, progress through an emphasis on small business support, and extend to the emergence of university-wide entrepreneurship education (including venture creation programmes). The themes then evolve towards a focus on entrepreneurial mindsets and competencies, culminating in a growing appreciation of pedagogical approaches within EE.

Table 1. Key Themes in the Literature

Theme	**References**
Enterprise Skills Agenda	Miller (1983) Gibb (1987)
Small Business Support	Lichtenstein & Lyons (2001) Arthurs & Busenitz (2006) Brentnall, Lackéus & Blenker (2023)
University wide EE	Fayolle & Gailly (2008) Nabi, Holden & Walmsley (2010) Boon, Van der Klink & Janssen (2013) QAA (2018) Bozward *et al.,* (2022) Smith, Rogers-Draycott & Bozward (2022) Rogers-Draycott *et al.,* (2024)

Enterprise Mindset and Competencies	Morris, Webb, Fu & Singhal (2013) Bacigalupo *et al.,* (2016) Ferreras-Garcia, Hernández-Lara,& Serradell-López, E. (2019). Bernadó & Bratzke (2024) Pennetta, Anglani & Mathews (2024).
Pedagogy	Jones (2019) Hägg & Gabrielsson, J. (2020) Hardie, Highfield & Lee (2020) Jardim, Bártolo & Pinho (2021) Kakouris & Liargovas (2021).

2.1 Positioning Entrepreneurship Education

In their 2021 study, Ratten and Usmanij build on Boon et al. (2013), categorising EE as interactive learning, framed by causal and effectuation approaches (Fayolle and Gailly, 2008). The causal approach focuses on economic planning and strategic management, while effectuation emphasises adaptive skills and leveraging resources amid uncertainties (Kirby, 2007; Sarasvathy, 2008).

While this dichotomy is mirrored across publications that explore EE curricula, a third narrative is gaining traction, one which blends these approaches in a more holistic curriculum (Tiberius and Weyland, 2024; Jardim *et al.,* 2021; Morris *et al.,* 2013). There is also a growing emphasis in the literature on nurturing values, resilience, and adaptability, skills that are considered essential for launching successful ventures (Hardie *et al.,* 2020), and on developing sustainable attitudes and practices, focused on the potential to transform lives and communities (Klapper and Fayolle, 2023).

In parallel, EE has increasingly adopted experiential learning as its core pedagogical strategy (Motta and Galina, 2023). This method involves integrating real-world business challenges into the academic setting, as discussed by Jones (2019) and Lackéus (2020). Evidence for this can be seen in the proliferation of Venture Creation Programmes (VCPs) and EEPs which apply elements of a VCP methodology. These EEPs require students to engage in the development of real-life ventures as an essential component of their degree (Smith *et al*., 2022). This experiential model not only aligns with the calls for active, student-controlled learning (Rasmussen and Sørheim, 2006) but also provides a structured pathway for students to develop entrepreneurial competencies through direct action, rather than purely theoretical instruction. As a result, VCPs represent a synthesis of both causal and effectuation approaches, positioning them as a distinctive form of EE that can enhance the integration of knowledge and practice (Lackéus and Williams Middleton, 2015). This combination of theoretical knowledge and practical skills appears particularly well-suited to EE, as it addresses not only the cognitive and knowledge-based dimensions of learning but also emphasises affective learning, which shapes students' attitudes and capabilities (Fayolle and Gailly, 2008).

Maritz and Brown (2013) and Maritz (2017) highlighted unexplored aspects of EEP design, a gap also noted in earlier reviews (Kirby, 2004; Mwasalwiba, 2010). Although research into EEPs has developed since 2017, it remains narrowly focused, relies primarily on small studies, or collected reviews of existing work, and suffers from a lack of empirical testing of proposed models or frameworks (Rogers-Draycott *et al.,* 2024).

Studies by Tiberius et al. (2023) and Rogers-Draycott et al. (2024) also reveal that EEPs emphasise competencies over knowledge, often with limited core entrepreneurship modules. Similarly, Jardim *et al.* (2021) had identified a range of skills and competencies commonly taught across these programmes, including: identifying opportunities, business modelling, networking, communication, problem-solving, conflict resolution, and managing risk and uncertainty. This focus on skills, and the limited range of competencies suggest that frameworks such as EntreComp (Bacigalupo *et al.,* 2016) may have not yet achieved the widespread adoption in HEI entrepreneurship curricula as represented in publications (Bernadó and Bratzke, 2024). Further, Jardim *et al.* (2021) note that a capacity to create value was central to most programmes in their sample, perhaps suggesting more focus on value creation as both content and pedagogy (Lackéus, 2020).

The analysis of the existing literature reveals that the topic has received insufficient attention, and notable gaps exist in our understanding in relation to approaches (causal or effectuation or mixed) in design and delivery of EEPs. Particularly, from a consumer perspective (students in this case) we are yet to ascertain what is the core and dominant narrative that is published in the information (via websites) that informs student choice. As such we present our initial research question (RQ 1): "*What is the dominant narrative presented to prospective students?"* By answering this question, we aim to better understand how EEPs are presented to their consumers, and what the implications of this might be.

2.2 Entrepreneurial Pedagogy

While some authors have suggested a homogenisation of EE based on the impact of international programmes such as Junior Achievers (JA) (Brentnall *et al.,* 2023), the empirical evidence for this is limited. The wider literature points to a diverse range of pedagogical approaches aimed at fostering entrepreneurial skills and mindsets among students (Jones, 2019; Lackéus, 2020). Though there is some consensus that the field has moved towards a more progressive, constructivist approach to learning (Hägg and Gabrielsson, 2020), it would appear that there is no dominant pedagogic practice universally acknowledged (Kakouris and Liargovas, 2021).

EE initially emphasised theoretical foundations like business planning and case studies but shifted as their limitations became apparent (Hägg and Gabrielsson, 2020). As the entrepreneurial landscape grew more complex, the

limitations of this approach soon became apparent. In response, educators began to incorporate experiential learning methodologies into their curricula. This shift was driven by the recognition that hands-on activities such as simulations, internships, and live case studies were essential for bridging the gap between theory and practice (Jones, 2019). These experiential components allowed students to apply theoretical concepts in real-world contexts, thereby enhancing critical thinking, problem-solving, and decision-making skills. The emergence of lean startup methodologies further influenced EE by prioritising rapid prototyping, customer feedback, and iterative design over exhaustive business planning. This approach highlighted the importance of adaptability and resilience in entrepreneurial ventures, prompting educational institutions to integrate these methodologies into their programmes (Jones, 2019).

Smith et al. (2022) further contribute to this growing body of work by emphasising the role of VCPs as a highly applied form of entrepreneurial pedagogy. VCPs integrate venture creation as a central element of the learning experience, requiring students to engage in the development of real-life businesses as part of their degree. This model, as Smith et al. (2022) argue, aligns with the progressive pedagogical shift towards experiential and action-based learning. By embedding the creation of a functioning business into the curriculum, VCPs promote not only the acquisition of entrepreneurial skills but also the development of entrepreneurial identities and mindsets, which are increasingly seen as crucial outcomes of EE (Lackéus and Williams Middleton, 2015).

Although the literature itself is limited, Hägg and Gabrielsson (2020) suggest that current EE pedagogy encompasses a range of practices which reflect its evolution. Rogers-Draycott *et al.* (2024) build on this, proposing EE's position as a nexus business discipline, requiring a blend of theoretical knowledge, practical skills, and an adaptive mindset has driven its pedagogical development. Our review suggests that there are four common features of an EEP's pedagogy:

1. Experiential Learning — emphasised by scholars such as Jones (2019) and Lackéus (2020), experiential learning integrates real-world business challenges into academic settings. This method not only addresses cognitive and knowledge-based dimensions of learning but also prioritises affective learning, shaping students' attitudes and capabilities.

2. Competency-Based Models — many EEPs adopt competency-based models that blend causal and effectual approaches in an effort to develop business capabilities and an entrepreneurial mindset (Fayolle and Gailly, 2008; Jardim *et al.,* 2021).

3. Lean Startup Methodologies — focusing on rapid development and market testing of minimum viable products (MVPs) to encourage students to experiment and iterate quickly, learning from failures and successes in real-time (Jones, 2019; Hägg and Gabrielsson, 2020).

4. Digital Tools and Simulations — improvements in digital tools and applications have led to advanced simulation tools that offer immersive learning experiences. These can replicate real-world entrepreneurial challenges, allowing students to experiment with different business strategies (Lackéus, 2020).

The presence of these features in the literature, the common narrative of diverse approaches, and the initial charge of homogenisation levelled by Brentnall *et al.* (2023) present a confusing picture with evident contradictions which, when taken together, suggest an obvious additional research question (RQ 2): "*What EE pedagogy do these courses purport to employ?"*

2.3 Entrepreneurial Skills

EE is recognised for its potential to cultivate a broad spectrum of entrepreneurial skills, abilities, competencies, and capabilities in students (Miller, 1983; Covin and Slevin, 1989; Arthurs and Busenitz, 2006; Fayolle and Gailly, 2008; Kettunen, 2013; Bacigalupo *et al.,* 2016; Gianesini *et al.,* 2018). Despite growth, EE lacks unified definitions of entrepreneurial skills, which vary based on individual characteristics and behaviours (Lichtenstein and Lyons, 2001).

The wider literature points out that 'entrepreneurial skills' often relate to specific learning abilities that can be developed through education, prior experience, and training opportunities (Cooney, 2012). This strand of research supports the notion that entrepreneurship is a discipline that can be developed both culturally and experientially (Gibb, 1987; Shabbir and Kassim, 2019). A study by Cooney (2012), for instance, suggests that these skills can be subdivided into entrepreneurial skills (risk-taking, innovativeness, persistence), technical skills (communication, design, research), and managerial skills (planning, decision-making). Nevertheless, further arguments in the literature highlight that entrepreneurial capabilities are broader than 'skills' and often involve the ability to identify and acquire necessary resources to exploit market opportunities, which includes autonomy, innovation, risk-taking, and proactiveness (Pennetta *et al.,* 2024). Competencies, on the other hand, are often perceived as combining skills, knowledge, and behaviour that go beyond skills and capabilities to include entrepreneurial abilities in real world contexts. Mugione (2013) lists these competencies to include efficiency, quality, goal setting, risk-taking, persuasion, networking, planning, information seeking, and self-confidence.

Several frameworks have also been developed to structure and classify entrepreneurial skills, competencies, and abilities. For example, EntreComp (Bacigalupo et al., 2016) identifies 15 competencies grouped into three areas: ideas and opportunities, resources, and putting ideas into action. On the other hand, the Quality Assurance Agency (QAA, 2018) distinguishes between enterprising and entrepreneurial skills. While enterprising skills refer to the process of developing enhanced capacity to generate ideas, including the behaviours, attributes, and competences that enable students to make these happen, entrepreneurial skills are broader and embrace the application of

enterprising behaviour, attributes, and competencies in the creation of social, cultural, and economic value that can be applied in new venture creation or developing or growing existing businesses.

Research has therefore highlighted the intersection and overlapping nature of these constructs, adding to the confusion in definitions (Brush *et al.,* 2008; Cacciotti and Hayton, 2015; Fayolle *et al.,* 2016). Pennetta *et al.* (2024) noted this lack of consistency, and to address this, they developed a framework based on four core entrepreneurial skills. These include core skills (risk taking and innovativeness), managerial skills (decision making, financial skills, and sales skills), technical skills (knowledge about the industry, design, research), and personal skills (creativity, communication, and cross-cultural awareness).

Hence, we can conclude that despite the continued growth of EE, the lack of consistent definitions of what skills, abilities, competencies, and capabilities can be developed in students remains a challenge. This informs our third research question (RQ 3): "*What EE skills are these courses claiming to develop?"*

2.4 Online Promotion of Higher Education Institutions

The digital transformation of higher education has significantly reshaped how HEIs engage with prospective students. Digital marketing has emerged as a pivotal tool, enabling institutions to transcend geographical boundaries and connect with a global audience. Through channels such as social media, search engine optimisation (SEO), and online advertising, HEIs can showcase their programmes, faculty, and campus life, thereby enhancing their global reach and attracting a diverse student body (Dicu and Grigore, 2023).

Recent studies have systematically reviewed the adoption of digital marketing strategies in educational institutions. Harbi and Ali (2022) analysed 28 articles focused on digital marketing in HEIs and found that institutional websites and social media marketing were the most commonly used approaches. However, other potentially valuable digital tools, such as email marketing, content marketing, search engine marketing, and marketing automation, remain underexplored within the sector.

The personalisation of communication has also been identified as a major strength of digital marketing. By using targeted advertising and data analytics, HEIs can craft customised messages tailored to the preferences and behaviours of prospective students, increasing engagement and fostering meaningful connections (Dicu and Grigore, 2023).

Furthermore, storytelling and content marketing allow institutions to share narratives that resonate with their audiences. Through blog posts, videos, and social campaigns, HEIs can communicate their identity and values, cultivating a sense of community and loyalty among students and alumni (Dicu and Grigore, 2023).

Despite these advances, challenges persist. Static digital platforms, such as institutional websites, may enhance certain signal attributes like salience and

distinctiveness, but often at the expense of clarity and credibility. This reinforces the need for HEIs to ensure that promotional strategies balance engagement with transparency, supporting informed student decision-making.

In summary, while digital marketing provides HEIs with powerful tools to reach and influence prospective students, it also requires thoughtful implementation. Future research could usefully examine the comparative effectiveness of different digital channels and their role in shaping prospective students' perceptions and choices.

2.5 Summary and Research Questions

This literature review highlights a complex and evolving landscape in which universities not only design and deliver EEPs but also compete to promote them within a globalised, digitally mediated higher education market.

Emerging from this review is the notion of the *entrepreneurial university*, an institution that not only encourages enterprise among its students but also adopts entrepreneurial practices in how it positions itself, including the strategic use of digital channels to market its educational offerings. Yet, despite the increasing importance of online promotional tools, there remains limited research on how these HEIs *signal* the value, distinctiveness, and pedagogical approach of their EEPs to prospective students. This is a notable omission given the role such signals play in student decision-making and the potential for misalignment between institutional branding and actual curriculum content.

As such, this study addresses three central research questions:

- **RQ1**: What is the dominant narrative presented to prospective students about EEPs through online promotional materials?
- **RQ2**: What pedagogical approaches do these courses purport to employ?
- **RQ3**: What EE skills are these courses claiming to develop?

By examining these questions through the lens of signalling theory, this study seeks to contribute to a more nuanced understanding of how HEIs communicate the value of EE, and whether those communications align with the pedagogical and developmental claims found in the literature.

3. Theoretical Framework

This paper applies signalling theory to explore how HEIs in the UK present EEPs to prospective students. Signalling theory, rooted in economics, has been widely used in management research to examine information asymmetry between stakeholders and how signals can bridge this gap to achieve efficiency or equity (Spence, 1973; Yasar et al., 2020; Taj, 2016). Signals influence decision-making, and their interpretability and observability are critical for understanding how stakeholders perceive them (Connelly et al., 2011). Building on this foundation, this study evaluates the clarity, distinctiveness, salience, and source of signals

(Bergh et al., 2014) conveyed by HEIs about their EEPs through their institutional websites.

Signalling theory is particularly well suited to this study as it provides a structured lens through which to understand how HEIs attempt to convey the value, distinctiveness, and credibility of their entrepreneurship education programmes (EEPs) via online platforms. Given the inherent information asymmetry between institutions (signal senders) and prospective students (signal receivers), signalling theory enables us to explore not only what is being communicated but how it is being interpreted, or misinterpreted, by external audiences. Drawing on Connelly et al. (2011) and Bergh et al. (2014), we paid close attention to core features of effective signals: clarity (how understandable the message is), salience (how visible or prominent the message is), credibility (how trustworthy the source appears), and distinctiveness (how the message sets itself apart from alternatives).

These dimensions guided both our data collection and coding. For example, references to institutional prestige were examined through the lens of credibility and salience, while references to pedagogical approach and entrepreneurial outcomes were evaluated in terms of clarity and distinctiveness. This alignment allowed for a theoretically grounded thematic analysis that not only categorised the signals but also assessed their implications. Our use of web-scraping as a data collection method further aligns with signalling theory, as institutional websites function as one of the primary digital spaces where curated signals are sent to prospective students.

4. Methodology

The growing number of EEPs offered by UK HEIs (Rogers-Draycott et al., 2024) highlights the importance of understanding how these programmes are promoted online. Institutional websites, a primary channel of communication, often simplify or misrepresent the complexities of EEPs, creating information asymmetry for prospective students. This study investigates how these signals shape perceptions of EEPs and their value.

4.1 Data Collection

To address these questions, an abductive, qualitative approach was adopted. Data collection involved using NVivo 12's NCapture feature to compile PDFs of university course webpages identified through a UCAS search conducted on December 18, 2022. The search targeted UK undergraduate programmes with "entrepreneurship" in their titles, excluding "enterprise" to maintain a narrow focus. Programmes ranged from three to four years and culminated in degrees such as BSc, BA, or BEng. The search yielded 76 files; after removing duplicates

and incompatible pages, a final sample of 70 courses was analysed, comprising 42 BA, 26 BSc, and 2 BEng programmes.

4.2 Data Analysis

Thematic analysis, following an inductive approach (Braun and Clarke, 2006; Gioia et al., 2012), was used to identify and report patterns in the dataset. This aligns with the interpretive stance of signalling theory (Braun and Clarke, 2021, 2022). After familiarising themselves with the data, three of the authors independently generated initial codes for a sample course, which were compared and refined to guide the coding of the entire dataset using NVivo 12. Codes were reviewed iteratively, aggregated into themes, and organised hierarchically. The final themes were reviewed and agreed upon through consensus.

The coding process resulted in four distinct levels of themes, which represent varying degrees of abstraction and specificity in the thematic analysis (Table 2).

Table 2. Levels of Coding and Numbers of Themes

Level	Number of Themes
1	8
2	52
3	434
4	15

These levels are hierarchical, with each subsequent level adding depth to the previous one, providing a structured understanding of the data:

• **Level 1**: These represent the broadest and most overarching themes within the dataset. They are the highest level of abstraction, capturing major categories or concepts that provide a foundational framework for understanding the data.

• **Level 2**: At this level, the themes are more specific, breaking down the broad categories from Level 1 into subcategories. These themes provide greater detail and reveal different dimensions or nuances within each overarching theme.

• **Level 3**: These themes reflect highly specific patterns or examples within the data. They offer fine-grained insights, often representing particular elements from the sites which were reviewed.

• **Level 4**: This is the most specific level of coding used to break down complex Level 3 themes into component elements. There are relatively few of these as it was only necessary to do this in a relatively small number of scenarios.

Across Level 1, a total of 8 themes were identified. Table 3 documents each of these, the number of files that received coding in that theme, and the total number of references in each theme.

Table 3. Level 1 Theme Analysis

Level 1 Theme	Number of Files	References
Educational offer	70	2439
Entrepreneurial language	69	637
Experience offer	68	396
Institutional competence	65	425
Career	63	270
Economic landscape	60	271
Money	44	58
Incubation	22	43

4.3 Analytical Focus and Theme Selection

A total of 52 Level 2 themes were identified across the 8 Level 1 themes. As part of a strategic and focused approach to addressing the research questions, three of the Level 1 themes were selected—'educational offer', 'entrepreneurial language', and 'institutional competence'. These contained 19 Level 2 themes identified by the authors as central to addressing the research questions.

The decision to focus on these three Level 1 themes was made because they directly aligned with our research questions. These themes also provided the deepest and most relevant data to examine the key issues under investigation (325 of the 434 Level 3 themes), ensuring that the analysis remained tightly connected to the study's objectives.

The remaining Level 1 themes, although insightful, were excluded as they did not contribute meaningfully to addressing the research questions. This exclusion was a conscious and active decision, aimed at maintaining analytical clarity and focus. By narrowing our attention to the three most pertinent themes, we ensured that the analysis was not diluted by less relevant data, allowing for a more robust and targeted exploration of the research questions.

5. Findings

This section presents the findings from the three Level 1 themes selected for detailed analysis: *Educational Offer*, *Entrepreneurial Language*, and *Institutional Competence*. These themes were chosen for their direct relevance to the study's research questions and their prominence across the dataset. Drawing on signalling theory (Yasar et al., 2020), the analysis explores how UK HEIs use online promotional content to communicate the structure, intent, and distinctiveness of

their EEPs. Each theme is examined in turn to identify dominant narratives and potential mismatches between the signals sent and the likely experience of students.

5.1 Theme 1: Educational Offer

This theme explored the broad offering from the HEI to the student, it encompassed a range of elements related to how the course was structured and delivered including both in-, and extra-curricular provision. Within this Level 1 theme, 8 Level 2 themes were identified, with 240 identified at Level 3 and 8 again at Level 4.

Level 2 Themes herein focused on 5 topics:

1. Skills Attributes and Competencies
2. Pedagogy
3. Learn through
4. Content
5. Delivery

In 'Skills Attributes and Competencies' the Level 3 theme of 'Develop Skills' was the most referenced. Examples highlighted in the data included discussions of specific skills, attributes, and competencies as well as the broader development of skills required for success in a professional environment. This density of coding across such a broad spread of files suggests that a focus on skills, attributes and/or competencies is common to the majority of EEPs in the sample.

Within the theme, a range of distinct skills, attributes, and competencies were noted at Level 3, any of which appeared in more than 1 file, suggesting some level of broader adoption are detailed in Table 4.

Table 4. Skills Attributes and Competencies Identified at Level 3 within the Skills Attributes and Competencies Sub-Theme

Skills, Attributes and Competencies	Number of Files	References
Creativity	37	59
Leadership	24	40
Problem Solving	21	28
Spot, Create and Act on Opportunities	18	23
Critical Thinking	12	19
Confidence and Empowerment	16	19
Presentation and Pitching	15	18
People Skills and Management	15	18
Passion and Ambition	12	17

Communication	14	15
Reflection	12	15
Resilience	9	10
Design Thinking	2	10
Self-Management	7	7
Decision Making	7	7
Autonomy	4	6
Socially Conscious	6	6
Manage Uncertainty	3	5
Risk Management	4	5
Digital Skills	3	3
Take Initiative	2	2

Common themes such as creativity, leadership, and problem-solving emerged prominently across the majority of EEPs, with creativity being the most frequently referenced. Additionally, core skills like critical thinking, communication, and resilience are featured, along with attributes like passion and ambition. Some less frequently mentioned skills include design thinking and managing uncertainty. Overall, the table reveals both commonalities and diversity across the programmes.

Within the theme, the Level 2 sub-theme of 'Pedagogy' was referenced consistently, suggesting that some discussion of pedagogical approach was central to the presentation of almost every EEP. However, an interesting observation herein was the focus of the theme; the majority of references at Level 3 were coded, as follows:

- Assessment
- Learning
- Academic Support
- Modes of Learning
- Understanding

Aside from 'Collaboration', which appeared outside of these groupings, there were limited references to active or experiential learning across the theme. 'Learning' referred mostly to learning as an action/activity with little data as to what the learning was or how it was constructed, while 'Modes of Learning' focused almost exclusively on the use of a lecture/seminar-based model for delivery. At Level 3, there were some references in 'Modes of Learning' to workshops, bootcamps, independent learning, active learning, and the interactive nature of delivery; however, these were infrequent and inconsistent in their

presentation. Taken together, this suggested that the dominant narrative in relation to pedagogy was that learning would be traditional in its format, with assessment playing a central role in the students' development.

Nevertheless, when we explored the 'Learn Through' sub-theme theme, we saw a much greater focus on application and experiential learning. With the most common references at Level 3 coded to:

- Internship
- Practical
- Real Word
- Learn by Doing
- Hands-On

Interestingly, 'Internship' was the most highly referenced. While the language describing these experiences varied, the concept of seeking work-based learning and experience to support theoretical knowledge learning was consistent.

Aside from this, it became evident that across the sub-theme, most of the references mentioned some form of experiential learning. A similar pattern was also observed in the Level 2 sub-theme 'Content' which was part of the broader Level 1 theme 'Educational Offering'. Within this theme, 'Knowledge' was the most highly referenced sub-theme at Level 3, and many of these excerpts explored the role of the student as an active participant in developing their knowledge. Given that these were coded across almost all the files, and at density only 5% less than 'Pedagogy', it would seem sensible to conclude that learning through experience plays an important role in EEPs. However, the link to this as a pedagogical approach is not as developed in this context.

Finally, it is interesting to note that in 'Content' the most referenced topics at Level 3 were business, management, and digital. A similar pattern was observed in 'Contemporary Modules', a Level 3 sub-theme of 'Course Delivery' (Part of 'Institutional Competence'). The majority of references herein referred to the currency of teaching materials and practices, often mentioning business or management.

5.2 Theme 2: Entrepreneurial Language

This theme explored how entrepreneurial language was used across the web pages, and the way the topic was represented. In this theme, 637 references emerged across 69 files. Within that structure there were 6 level 2 sub-themes, 47 at level 3, and 0 at level 4.

Table 5 highlights the Level 2 themes identified, the number of files that were coded to that theme, and the total references across the data set.

Table 5. Level 2 Theme Analysis, Entrepreneurial Language

Level 2 Theme	Number of Files	References
Entrepreneurial	68	340
New ventures	61	193
Motivational	23	31
Growth	19	33
Disruption	13	22
Value creation	12	18

The Level 2 theme 'Entrepreneurial' presented an interesting collection of files; at Level 3, 'Entrepreneurship' was highly referenced, being almost twice as prevalent as 'Innovation'. 'Entrepreneurship' mostly included references to the course itself and the development of entrepreneurship therein, these broadly divided into references that positioned this as a competence or mindset to develop, and those that characterised this as a role that an individual could employ, often suggesting a graduate career path. References coded for 'Innovation' tended to focus more on innovation as a topic of study or process for the student to engage in during the course. An interesting observation here is the lack of focus placed on 'Enterprise' and that when it is utilised, it was often in reference to a business enterprise rather than a notion of an enterprising mindset/ skillset.

Given the prevalence of 'Entrepreneurship' as a Level 3 theme, and its close links to business creation, it was unsurprising that 'New Ventures' was also heavily referenced at the same level, as was 'Startup'. Although examples varied in the intensity of their suggestion, it was clear that a focus of these EEPs was to encourage students to start their own business. This is supported by the other Level 3 codes 'New Business' and 'New Venture' across which similar trends of application are repeated.

With this focus on business creation the theme of 'Growth' was surprisingly under-represented. Coded sections from data sources highlight examples of gaining knowledge of theoretical concepts surrounding growing a business (e.g., 'learning about how to develop, sustain, and grow a business), and practical application through growing a real business (e.g., 'to start and grow your own successful business'). Perhaps suggesting a greater focus on starting vs. growing an enterprise.

Two additional sub-themes of interest were 'Disruption' and 'Value Creation', both of which were lacking in representation across the dataset. Excerpts coded for 'Disruption' tended to focus on either the creation of an unspecific change or transformation, personally or in a business context, or

challenging perceptions or practices. Data from the 'Value Creation' sub-theme were focused on creating value, although the nature of this was never made apparent, nor was the notion of value and its importance more fully substantiated.

5.3 Theme 3: Institutional Competence

This theme explored the ways in which the institutions discussed their own ability to deliver the course; it encompassed 425 references across 65 files. Within the theme, 5 level 2 sub-themes were identified, with 38 identified in level 3 and 0 in level 4. Table 6 highlights the Level 2 themes identified, the number of files that were coded to that theme, and the total references across the data set.

Table 6. Level 2 Theme Analysis, Institutional Competence

Level 2 Theme	Number of Files	References
Course delivery	64	217
Relevance	46	140
Kudos	22	31
Evidence	17	24
Competitive advantage	11	13

Within this theme, 'Course Delivery' was the most coded sub-theme, this encompassed a range of data related to the mechanics of the course, such as application, admissions, student support, and the credentials of the teaching staff. Unsurprisingly, given its presentation as a practical requirement, 'Admission Criteria' was the most frequently referenced Level 3 sub-theme. An interesting observation was that, within the theme, around 85% of references included recognition of a wider range of qualifications or life experiences that could be considered as part of the admission process. This may be suggestive of a move towards greater levels of inclusivity in student intake, either generally or specifically, or it may reflect a more targeted approach based on the notion that entrepreneurial students may not have had traditional educational experiences prior to application.

The next notable sub-theme at Level 3 was 'Taught by Experts'. Within this, examples from the data included descriptions of staff with "*industry*" experience, as well as "*qualified academics*". One feature of note was a slight preference for highlighting business or entrepreneurial experience in the teaching team. Across the references, about 33% made specific reference to tutors having this background or skills, sometimes using profiles, often through broader statements and claims. Many used more generalised phrasing, such as "*industry-experienced tutors"* or "*expert practitioners*". In addition, it should be noted that, under the Level 2 theme 'Relevance', the Level 3 sub-theme of 'Industry-Active Tutors' was referenced 3 times across 2 files.

The Level 3 sub-theme of 'Student Support' was also referenced a number of times, statements here discussed general study support, pastoral support, and careers support, with many extolling the personalised nature of these services. Only around 12% of references mentioned any form of additional business support, mentoring or coaching.

Finally, we come to 'Competitive Advantage', a Level 2 theme; it is notable that this was the least frequently referenced of the Level 2 themes. Across the dataset, many institutions made claims to being "*world leading*", "*groundbreaking*" or, as previously noted, "*innovative*" but few made specific, cogent claims as to the ways in which their course was different or unique, those that did were coded specifically to this theme. Examples herein included references to specific professional or business networks, services (such as incubation), teaching approaches, and funding (both seed and growth). This suggests that while many institutions offer an EEP, few have a clear definition as to the specific value that they offer to students versus their competitors.

6. Discussion

This study draws on information signalling (Yasar et al., 2020) as a theoretical lens to examine how HEIs communicate the benefits and features of their EEPs to prospective students. Through the lens of information signalling, we explored whether these messages align with established academic research on EE. Our findings indicate that while EEPs signal a range of attributes via their webpages, there is often a lack of clarity regarding the specific skills, attributes and/or competencies students will develop, which contributes to significant information asymmetry. This is consistent with concerns in recent research on HEI digital marketing, which suggests that while promotional platforms offer broad reach and appeal (Harbi and Ali, 2022; Dicu and Grigore, 2023), they often prioritise visibility over specificity, resulting in diluted signals regarding programme content and learning outcomes.

To answer our first research question (RQ1), what is the dominant narrative presented to prospective students? The analysis suggests that this is multifaceted, yet heavily skewed toward promoting institutional prestige rather than student outcomes (Bozward et al., 2022). A prominent signal across the dataset is the promotion of EEPs as a direct route to entrepreneurial success, often implying that mere enrolment will make someone entrepreneurial, leading to the creation of a new venture. This oversimplification reduces the clarity of the signal, potentially misleading prospective students. As Rogers-Draycott *et al*. (2024) highlight, it risks glossing over the complexities and challenges inherent in entrepreneurial action, giving students an unrealistic expectation about the ease of becoming an entrepreneur through academic study alone.

Despite the growing consensus in the literature that EE should equip students with a range of enterprising competencies to drive entrepreneurial activity across various contexts (Fayolle and Gailly, 2008; Cooney, 2012; Mugione, 2013), our findings reveal a striking absence of distinctiveness in how these competencies are structured and communicated. Instead of focusing on the development of specific skills and mindsets, many of the websites emphasise the institution's expertise and faculty credentials, which shifts the signal away from a student-centred narrative to one that prioritises institutional prestige, reducing the salience of the signals related to practical skill development. This aligns with findings by Dicu and Grigore (2023), who noted that static digital platforms such as university websites are often used to reinforce institutional prestige rather than provide granular pedagogical detail, highlighting a strategic use of brand signals at the expense of student-oriented clarity. Furthermore, emphasis on institutional prestige over student outcomes risks undermining satisfaction, retention, and preparation for entrepreneurial careers due to misaligned signals. Such misalignment raises questions about how HEIs enact their identity online. While they may present themselves as agile and student-centred institutions (Ratten and Usmanij, 2021), their promotional practices may fall short of signalling the core experiential and developmental values associated with high-impact EE (Maritz et al., 2022).

The emphasis on institutional competence is further compounded by a strong focus on competitive advantage and credentials, with many institutions claiming to be "world-leading" or "groundbreaking". While research shows a positive association between a strong brand image and student satisfaction (Panda *et al*., 2019) that may enhance the salience of the institution's brand, it also creates a critical information asymmetry, where key details about the academic and practical aspects of EEPs are not signalled via the website. This will hinder students from making informed decisions about the true value of the programmes they are considering. Furthermore, the mismatch may contribute to lower levels of student satisfaction, as observed by Rogers-Draycott et al. (2024), due to a disconnect between expectations and the actual educational experience.

While EEPs highlight experiential learning, traditional methods like lectures dominate, raising concerns about the weak signalling of pedagogical innovation and limiting distinctiveness in a global competitive market. Furthermore, the lack of integration between theory and practice is likely to limit students' ability to apply their theoretical knowledge in real-world scenarios, a critical aspect of effective EE.

Therefore, in answer to our second research question (RQ2; what pedagogical approaches do EEPs purport to employ?), our findings suggest that although many EEPs claim to embrace experiential and student-centred pedagogies, the signals presented through their online materials often lack consistency and specificity. The rhetoric of 'learning by doing' and 'real-world experience' is frequently invoked, yet this is rarely substantiated with clear

examples of how such methods are embedded into the curriculum. Instead, traditional approaches such as lectures and tutor-led workshops remain prominent. This suggests a tension between the experiential ideals promoted in the literature (Pittaway and Cope, 2007; Neck and Greene, 2011) and the actual pedagogical models signalled to prospective students. Moreover, the limited visibility of co-creation, peer learning, and iterative practice, which are hallmarks of high-impact EE, further dilutes the credibility of these pedagogical claims. This weak signalling of innovative pedagogies raises concerns about the alignment between promotional narratives and the educational realities that underpin EEPs.

The underrepresented role of student agency in the learning process is another important factor in the signals sent by HEIs. While there are some mentions of the active role of students in developing their knowledge, the salience of this signal is diluted by the prevailing pedagogical approaches that still place students in a passive role. The literature emphasises the importance of students taking an active role in their learning process, particularly in entrepreneurship (Rogers-Draycott *et al*., 2024). That being the case, the current structure of many EEPs might undermine this, potentially stifling the development of the very competencies these programmes aim to foster.

Additionally, we found that, while these courses often profess to cultivate a wide range of entrepreneurial skills, there are considerable variations in emphasis and specificity. Generic skills like leadership and problem-solving dominate EEP signals, reducing distinctiveness and raising concerns about their ability to deliver specific entrepreneurial competencies.

Frameworks like EntreComp (Bacigalupo et al., 2016) and QAA (2018) clarify entrepreneurial competencies, yet our findings reveal a persistent conflation of these terms in the presentation of EEPs. This lack of clarity, in relation to RQ3 (what EE skills are these courses claiming to develop?), may affect students' ability to understand and acquire the specific competencies necessary for entrepreneurial success. The absence of clear definitions could also impact curriculum design and assessment strategies. As Ferreras-Garcia et al. (2019) argue, the absence of well-defined competencies within current educational frameworks makes it challenging for students to translate their learning into entrepreneurial success. Without clear and distinctive signals, EEPs risk failing to equip students with the specific competencies needed in dynamic entrepreneurial environments.

Our findings underscore the need for HEIs to improve the clarity, salience, and distinctiveness of the signals they send about their EEPs. We suggest that, by refining the content and focus of their websites, HEIs can provide more accurate and student-centred signals that better align with literature.

These findings also offer a deeper lens through which to reflect on the application of signalling theory in the context of higher education marketing. While prior work has primarily explored signalling in relation to firm behaviours

or job markets (Spence, 1973; Connelly et al., 2011), our analysis highlights how HEIs signal educational value in complex and sometimes contradictory ways. The emphasis on institutional prestige, for example, can amplify the salience of a signal but dilute its clarity, particularly when details about pedagogy or skill development are obscured or inconsistently presented. Likewise, the frequent invocation of entrepreneurial success as a narrative device enhances distinctiveness but risks misalignment with the actual programme content, leading to weakened credibility.

The tension between signal strength and signal clarity is particularly pronounced in a context where websites serve as both marketing tools and proxies for programme transparency. Our findings suggest that promotional signals are often designed to promote rather than to inform, raising questions about whether they support informed student decision-making. In this sense, our study contributes a refinement to existing signalling theory by illustrating how static, curated digital platforms (e.g., institutional websites) may privilege certain signal attributes (like salience and distinctiveness) at the expense of others (like clarity and credibility), particularly in educational contexts where product experience cannot be sampled prior to enrolment.

Moreover, the source of these signals must present credible and detailed information that reflects the true value of the programmes. Enhancing the quality of these signals will not only reduce information asymmetry but also ensure that prospective students are fully informed about EEPs and how they will support their development.

7. Conclusions

This study presents the first exploratory analysis of how UK HEIs promote their EEPs through institutional websites. Applying signalling theory (Spence, 1973; Connelly et al., 2011) in a novel context, we examined how promotional materials communicate programme value, pedagogy, and intended entrepreneurial competencies to prospective students. By focusing on signal attributes, clarity, salience, distinctiveness, and credibility, we uncovered key tensions between promotional intent and informational transparency.

Our findings contribute several important theoretical and practical insights. First, we demonstrate how static, curated platforms like HEIs websites may privilege signals of prestige and entrepreneurial success (salience, distinctiveness), while neglecting detailed pedagogical information and skill development narratives (clarity, interpretability). This imbalance creates a critical information asymmetry, potentially misleading students and undermining satisfaction and retention. In doing so, our study refines signalling theory by highlighting how digital context shapes not only the strength but also the clarity of signals in education marketing.

Second, we underscore the practical implications for HEIs: misaligned promotional signals, especially those that overpromise experiential learning but underdeliver in practice, can erode student trust and hinder programme effectiveness. HEIs must work across marketing and academic teams to ensure that promotional content accurately reflects programme design, pedagogy, and expected competencies. Clearer, more honest, and more transparent signalling is required, especially in an increasingly competitive and globalised education marketplace.

Third, our analysis raises questions about the conflation of 'enterprise' and 'entrepreneurship' and the vagueness surrounding the competencies EEPs claim to develop. The lack of specificity may limit students' ability to make informed educational choices. To address this issue, more precise categorisation of intended learning outcomes and a move towards consistent use of frameworks such as EntreComp or QAA guidance is required.

While this study focused on institutional websites in the UK, it opens several avenues for future research. One promising direction involves examining how signals are interpreted or distorted through other platforms, such as social media, student review forums, or agent-led promotion. These platforms may amplify, dilute, or reframe signals in ways that compound information asymmetry or introduce new layers of meaning. There is also scope for cross-cultural comparison to explore whether these dynamics vary in different national or institutional contexts.

In conclusion, this study calls for a critical reassessment of how HEIs signal the value of their EEPs. Institutions must go beyond promotional polish to ensure that the signals they send are aligned with pedagogical practice and student expectations. Only by doing so can they support informed decision-making and enhance the credibility of entrepreneurship education in the eyes of learners globally.

7.1 Implications

This study highlights critical implications for HEIs, particularly those offering EEPs. Institutions must carefully evaluate the clarity and credibility of the signals they present through digital platforms. Promotional narratives that prioritise institutional prestige over pedagogical substance may undermine student expectations, satisfaction, and retention. By aligning marketing content more closely with the actual structure and intent of EEPs, especially in relation to pedagogy and skills development, HEIs can reduce information asymmetry and foster a more transparent and student-centred recruitment process. Marketing and programme teams should work collaboratively to ensure that online content reflects the experiential and competency-based goals commonly associated with EE.

7.2 Directions for Future Research

This paper opens several avenues for future inquiry. First, while the study offers a novel methodological contribution through the application of web-scraping and thematic analysis across a national dataset in the UK, it may not fully capture the nuances or depths of EEPs' design and delivery as experienced by students in different contexts. Future research can therefore explore international comparisons, examining whether similar mismatches between promotion and pedagogy exist in other national contexts or in specific areas such as incubation. Second, as institutional websites are updated periodically, the data reflects a specific snapshot in time, which may not account for ongoing curricular or promotional changes. This suggests that future research could benefit from triangulating promotional data with staff or student perspectives, or by incorporating alternative channels such as social media and prospectuses to further explore the signalling practices of HEIs. Studies could examine, for instance, how promotional signals vary across different digital channels, including social media, prospectuses, and student-facing video content, and how these are interpreted by different stakeholder groups. Third, deeper qualitative engagement with students, exploring how they interpret and act on digital signals, can also illuminate the real-world implications of information asymmetry. Finally, researchers can develop or adapt theoretical models of educational signalling to better capture the complex and interplaying dynamics of digital marketing in HEIs.

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