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Reflecting on the Competence of Entrepreneurs using Entrecomp, AI and Narratives People Know and Love

--Manuscript Draft--

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Abstract:	<p>The significance of entrepreneurship as a driver of economic sustainability is globally recognised, leading to increased political engagement to foster entrepreneurial skills in higher education. This paper endeavours to mirror the contemporary landscape of entrepreneurial education amidst the rising prominence of generative AI and explores the integration of entrepreneurship education, storytelling, and AI, proposing a conceptual framework that leverages the rising prominence of generative AI. Two premises guide this study: first, that Case Method Teaching (CMT), which uses storytelling for student reflection on diverse challenges, can be enhanced with AI-Generated Entrepreneurial Narratives; second, that the demanding nature of curating complex entrepreneurial cases can be alleviated with AI. By analysing narratives from celebrated texts, AI can enhance entrepreneurial competencies outlined by the European Commission's EntreComp framework. This approach enables educators to create engaging lessons aligned with developing key competencies, enhancing reflective learning environments and educators' and learners understanding of generative AI.</p>
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Abstract

The significance of entrepreneurship as a driver of economic sustainability is globally recognised. The paper proposes a conceptual framework that leverages the rising prominence of AI by exploring the integration of entrepreneurship education with storytelling. Three premises guide the study: The first, that Case Method Teaching (CMT), a technique that uses storytelling for student reflection on diverse challenges, can be enhanced by using AI to generate narratives. The second, that the demanding nature of curating complex entrepreneurial cases can be alleviated by using AI. The third, that students analysing narratives generated from celebrated texts, can enhance entrepreneurial competencies as outlined by the European Commission's EntreComp framework. This approach enables educators to create engaging lessons aligned with developing key competencies that enhance reflective learning environments as well as developing educators' and learners' understanding of AI.

Keywords

Entrepreneurship Education | Artificial Intelligence | Case Method Teaching| EntreComp Framework

1. Introduction

According to the World Economic Forum (WEF) (2023) we are accelerating into a period of 'polycrisis', an era impacted by multifaceted challenges (Homer-Dixon et al., 2021). In a polycrisis the generic tools of entrepreneurship used in stable times may be inappropriate to apply because the relationship between cause and effect is not always evident (Audretsch & Moog, 2022; Zenk et al., 2024). This is because one cannot rely on predetermined models as the understanding emerges in real time (Kurtz & Snowden, 2003). In such environments new competencies are required to respond to the resulting uncertainties (Risopoulos-Pichler et al., 2020).

For millennia, traditional fairy stories like Little Red Riding Hood have played a pivotal role in learning about the unpredictable and complex. People instinctively make sense of an uncertain

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4 world by using stories, often finding themselves emotionally connected to the narrative by walking in a
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6 character's shoes (Moon, 2010). Storytelling is considered an intrinsic part of human culture, passing
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8 knowledge across generations (Bruner, 1992; Miller & Pennycuff, 2008). In education, stories emphasise
9
10 the practical application of skills and real-world performance over theoretical knowledge (Bridges, 1996;
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12 Bruner, 1992; Miller & Pennycuff, 2008; Mulder, 2012; Vitello et al., 2021).
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14
15 Harvard Business School (HBS) has employed an approach called Case Method Teaching
16
17 (CMT), which uses the study of business narratives to promote learning (Nohria, 2021). These "cases"
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19 include characters, conflicts, and solutions that simulate difficult business situations. Through group
20
21 analysis and discussions, students gain a deeper understanding of these scenarios. This strategy enables
22
23 them to collectively examine scenarios, make decisions, and evaluate outcomes and in doing so develop
24
25 valuable experience. HBS believes that placing students in simulated business environments fosters
26
27 critical thinking, and the use of theoretical knowledge to solve real-world problems.
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30 However, cases may not cover all the competencies required for entrepreneurship. The
31
32 nuances of building and sustaining a company culture or the emotional resilience needed to handle
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34 entrepreneurial stress, might be underrepresented in "real" case studies. CMT is also accused of being
35
36 expensive and time-consuming to implement (Chen et al., 2006; Radi Afsouran et al., 2018).
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38

39 40 **2. Rationale**

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42 In this paper we investigate techniques to augment CMT to include narratives based on
43
44 contextual contemporary fiction. This approach is compelling and captivating because it can delve into
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46 subjects that the audience are likely to be already familiar with, creating a sense of intimacy and
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48 familiarity that enhances engagement.
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51 To address the issues of entrepreneurship nuance, we introduce the 'EntreComp'
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53 framework. EntreComp is a comprehensive guide to fostering entrepreneurial skills essential for
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55 entrepreneurship and employability. These skills are applicable across all educational, professional, and
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57 personal development contexts (Bacigalupo et al., 2016). (See Appendix: EntreComp Outline).
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4 To address the issues of case study development expense, we propose the use of AI.
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6 Generative AI is designed to produce human-like text in response to questions called “prompts”. The
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8 human-like responses given to these prompts are based on a vast amount of training data mostly acquired
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10 from the world wide web (Holmes et al., 2023). AI has been built to analyse patterns in this data to
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12 generate coherent and contextually appropriate content and this makes them highly effective for creating
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14 educational scenarios. This capability is especially valuable because its grounding data is familiar with
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16 virtually all contemporary fiction.
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19
20 Such an approach enables educators to bridge the narrative-based pedagogy in CMT with
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22 that of enhancing learner’s entrepreneurial competencies, and potentially their propensity for
23
24 entrepreneurship (Liu et al., 2019). Moreover, integrating AI responds to the calls to create more AI-
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26 literate employees across the world (Deloitte, 2020) and learning experiences of high quality (Maxwell et
27
28 al., 2021).
29

30 31 **3. Method**

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33 This is a conceptual research paper, theorising, and theory building (Corley & Gioia,
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35 2011; Cornelissen, 2017; Shepherd & Suddaby, 2017). It is therefore unrestricted by the demands of
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37 empirical generalization (Vargo & Lusch, 2004). The paper is authored by two academics engaged in
38
39 entrepreneurship education in UK universities. Both are entrepreneurs, one in digital services and the
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41 other in finance and management services. Thus, a cogent argument and supporting theoretical
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43 explanation is developed from their tacit knowledge (Jaakkola, 2020; Polanyi, 1966).
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46 This paper aims to justify, elaborate, and elucidate the concepts of the CMT and AI
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48 generated entrepreneurial narratives. It also aims to explore how they are intertwined for contemporary
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50 entrepreneurship education. By deconstructing the concepts, the authors respond to the call to strengthen
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52 the theoretical and philosophical understanding in entrepreneurship education (Hägg & Kurczewska,
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54 2016). Moreover, it addresses the need for “other models and approaches to understand entrepreneurship,
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56 learning and education” (Verduijn & Berglund, 2020, p.1).
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4 Following a literature review that explores the distinction between teaching and learning,
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6 the paper explores how CMT can be enhanced by integrating storytelling and entrepreneurial
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8 competences using AI. To facilitate this, educators are given insight into how they can generate engaging
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10 narratives, saving time using a technique called prompt engineering. Practical examples of how to use AI
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12 with suggested prompts are also demonstrated.
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14 **4. Literature Review**

15 ***4.1 The Complexity of Entrepreneurship Education***

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18 Entrepreneurship often takes place in an unpredictable environment where the
19
20 relationship between cause and effect is not always evident, where learning is emergent and not
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22 predetermined (Snowden & Boone, 2007). Snowden's (2002) assertion that when a situation is complex
23
24 or chaotic, the structured teachable aspects of business, like models and cash flows taught at business
25
26 schools across the world, are insufficient. This is reinforced during periods of 'polycrisis' (Audretsch &
27
28 Moog, 2022). When learning about a complex activity such as entrepreneurship, students need to learn
29
30 about the appreciation of emergent situations. This requires the development of intuition, creativity,
31
32 adaptability, and resilience, rather than acquiring predefined knowledge (Baldacchino et al., 2023;
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34 Baroncelli et al., 2024; Sasseti et al., 2022; Shepherd et al., 2015). Understanding the differentiation
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36 between what is teachable and the learnable therefore has significant implications for entrepreneurship
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38 education.
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43 ***4.2 The Scholarship of Teaching and Learning***

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45
46 There is a clear distinction between what is teachable and what is learnable, particularly
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48 in the context of complex environments (Kurtz & Snowden, 2003; Snowden, 2002; Zenk et al., 2024).
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50 Teachable knowledge refers to information and skills that can be effectively transferred from one person
51
52 to another through structured and prescriptive methods. Learnable knowledge on the other hand, pertains
53
54 to insights and skills that individuals must acquire through personal experience and reflection. When a
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56 situation is complex or chaotic, traditional teaching methods are insufficient (Audretsch & Moog, 2022;
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58 Zenk et al., 2024). Instead, individuals must be placed in situations where they can explore, experiment,
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4 and reflect on their experiences. This type of learning is more about developing intuition, adaptability,
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6 and resilience than acquiring predefined knowledge (Bacigalupo et al., 2016).

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9 This approach chimes with the description of the academagogical journey described by
10
11 Jones et al. (2019). Their paper illuminates a Mezirowian approach to the operationalisation of heutagogy
12
13 by the provision of “transformative moments”. A transformative moment involves deliberately presenting
14
15 a perplexing experience that distances the learner from their normative role. This is done to reshape the
16
17 perception of reality from a novel point of view. The process concludes with the learner reintegrating
18
19 their understanding into their personal appreciation of reality (Jones et al., 2019; Mezirow, 1997).

21 22 ***4.3 The Art and The Science: Distinctions***

23
24 Understanding the differentiation between the teachable and the learnable has significant
25
26 implications for education, particularly in the field of entrepreneurship. For example, teachable aspects of
27
28 entrepreneurship are what Penaluna et al. (2014), call the science of business. They argue business
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30 planning and financial analysis, can be addressed through the structured teaching methods recognisable in
31
32 business schools across the world. However, the learnable aspects, such as navigating uncertainty,
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34 innovating in response to emergent challenges, and developing leadership skills, are referred to as the
35
36 “art” of business and as such requires experiential learning (Penaluna et al., 2014).

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39 The art of business understands the notion of "tacit knowledge" (Polanyi, 1966). This
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41 form of knowledge is characterised by its intuitive nature, yet its articulation and transfer are elusive.
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43 Such knowledge is deeply ingrained and often enacted without conscious thought that resists facile
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45 dissemination. Eraut (1994) further nuances this discussion by differentiating between practical and
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47 theoretical knowledge. He contends that while practical knowledge is inextricably tethered to its context,
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49 theoretical knowledge ostensibly transcends contextual boundaries. Moreover, Eraut (1994) suggests that
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51 for theoretical knowledge to attain profound significance, it necessitates active engagement and
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53 reinterpretation by the learner.

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58 There is also conceptual distinction between "espoused theory": A practitioner's
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60 articulated beliefs about their competence, and "theories in use": The actual practices manifested in real-

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4 world scenarios (Argyris & Schön, 1977). This disparity, often latent, underscores the complexities
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6 inherent in competency-based education and practice. The Reflective Practitioner, advocates reflection as
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8 a potent tool to bridge this chasm by using reflection to transmute "knowing-in-action" into "knowledge-
9
10 in-action" (Schon, 1992). By discerning and addressing the incongruences between "theories in use" and
11
12 "espoused theories," reflective practices can foster a more authentic and integrated understanding of
13
14 entrepreneurial competencies.
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17 While the literature offers limited explicit definitions of reflection, the perspective of
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19 Boud et al. (2013, p.19) resonates profoundly. They define reflection within the learning paradigm as "a
20
21 generic term for those intellectual and affective activities in which individuals engage to explore their
22
23 experiences, leading to novel understandings and appreciations." This appears to be the pedagogical
24
25 mechanism at play with CMT. Reflecting on stories, and real-world dilemmas align well with the need for
26
27 students to learn through doing. Reflective engagements appear to be catalysed by analysing narratives,
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29 especially those already embedded within the students' knowledge.
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32 33 ***4.4 Storytelling***

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35 By dissecting stories, it is possible for the learner to learn the art of leadership, decision-
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37 making, resource allocation, and team dynamics, that are at play in complex situations. Such an approach
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39 not only makes the learning process more engaging but also provides context, making abstract
40
41 entrepreneurial concepts more tangible. Moon (2010, p. 27) observes that the purpose of a story may be to
42
43 make "personal sense of something".
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45
46 Storytelling has been an intrinsic part of human culture, serving as a powerful tool for
47
48 transmitting knowledge, values, and cultural norms across generations. Bruner (1992) and Miller and
49
50 Pennycuff (2008) observe that storytelling is synonymous with the social construct of learning,
51
52 facilitating the communication of ideas and experiences in a manner that is both engaging and
53
54 memorable. It is also felt that the significance of storytelling in the development of human knowledge and
55
56 understanding, is deeply intertwined with learning processes (Jarrett, 2019).
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4 While there is some debate surrounding the definition of a 'story' and its interplay with
5
6 'storytelling', in the context of learning, Moon's (2010) definition, portraying story as a representation of
7
8 human functioning, with or without an audience, offers a profound basis for understanding. It suggests
9
10 that stories serve to make personal sense of experiences, transcending conventional structural confines.
11
12 This perspective aligns with the broader view that story and storytelling are mutually dependent, each
13
14 shaping the understanding and expression of human experiences.
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16
17 Storytelling appears to be an interactive process involving both the teller and the listener,
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19 where roles and dynamics shift based on context (McDrury & Alterio, 2003). The teller, presenting from
20
21 their perspective, shapes the narrative through choices of content, style, and emotional engagement. They
22
23 control the story's flow, deciding on elements to include or omit and setting the tone as comedic or
24
25 dramatic. However, listeners also play a crucial role. Through dialogue, they contribute insights,
26
27 challenge interpretations, and engage in a critical exploration of the story. It is this interaction that
28
29 deepens the understanding of the narrative's significance and its contextual interrelationships, often
30
31 bringing to light forgotten elements and associated stories.
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34 35 ***4.5 Storytelling in Education*** 36

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38 In educational settings, particularly tertiary education, storytelling often faces challenges.
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40 Educators may perceive a lack of personal creativity or struggle to find suitable stories. With some there
41
42 may even be reluctance on pedagogical grounds (Jarrett, 2019). However, such hurdles should be
43
44 overcome because storytelling can engage and motivate even the most reluctant learners (Miller &
45
46 Pennycuff, 2008). Stories provide a more engaging way to comprehend complex concepts (Moon, 2010).
47
48 The instructional value of humour should also not be overlooked, as laughter eliminates the fears that
49
50 prohibits a student learning (Banas et al., 2011) opening them up to positive engagement (Maxwell et al.,
51
52 2021).
53

54
55 CMT is an approach initially introduced at Harvard Business School (HBS) and French
56
57 institutions around the turn of the 20th century (Radi Afsouran et al., 2018; Shugan, 2006; Tripathy,
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59 2009). It involves an active discussion of complex, real-world stories called "cases" in a reflective class
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4 setting (Radi Afsouran et al., 2018; Razali & Zainal, 2013). Each scenario presents a protagonist faced
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6 with a significant decision and describes the competencies they executed. It is through reflection on these
7
8 decisions and competencies that the “learning” occurs. While CMT is predominant at HBS, it also
9
10 integrates traditional teaching methods where appropriate. Such alternative methods appear in
11
12 foundational courses that require a strong theoretical base (HBS, 2019).
13

14
15 The advantages and disadvantages of CMT are discussed by Radi Afsouran (2018), who
16
17 observed that by allowing participants to practise decision-making in complex chaotic and ambiguous
18
19 situations, there was an enhancement in the quality of decision-making skills. They conclude that the
20
21 method is associated with improvements in several areas, including long-term memory, critical thinking,
22
23 motivation to participate, self-efficacy, and communication skills (Radi Afsouran et al., 2018). However,
24
25 implementation is considered time-consuming and costly, demanding substantial financial and personnel
26
27 resources to develop and conduct case studies that reflect the complexity (Chen et al., 2006; Radi
28
29 Afsouran et al., 2018). CMT is also criticised because it relies on context and may not address issues with
30
31 a degree of generality (Tripathy, 2009).
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34 35 ***4.6 Entrepreneurial Competencies***

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37 Part of the reflective process of CMT is to consider the competencies engaged in the
38
39 story. The European Union (EU) has invested heavily in the development of competency-based education
40
41 listing eight competency frameworks as objectives for the EU and its member states (JRC, 2020). Our
42
43 discussion explores one of these, the EntreComp framework. Entrecomp is a comprehensive tool designed
44
45 to foster the entrepreneurial competencies that are required for personal development, being
46
47 intrapreneurial within employment and for entrepreneurship.
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50
51 EntreComp encompasses fifteen competencies grouped into three areas: Ideas and
52
53 Opportunities, Resources, and Into Action, that can enhance an individual’s capability to be
54
55 entrepreneurial (Bacigalupo et al., 2016). (See Appendix: EntreComp Outline). These competencies are
56
57 designed to provide a holistic approach to developing entrepreneurial skills and emphasise practical skills
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59 and real-world application. In doing so this affords a potential to build upon the CMT approach.
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5. A Technical Solution

For the context of this paper, our definitional stance for AI is “a technology that leverages deep learning models to generate human-like content (e.g., images, words) in response to complex and varied prompts (e.g., Languages, instructions, questions)” (Lim et al., 2023, p.2). This paper posits that in the context of entrepreneurship education, the fusion of storytelling used in CMT could be enhanced with AI that is focused on delivering competency-based narratives aligned to Entrecomp. Whilst traditional methods of weaving storytelling into education often demand intensive manual effort, with educators meticulously crafting exercises and narratives, using AI presents a paradigm shift, or a "force multiplier", offering scalability and the ability to generate content rapidly (Mollick, 2023, p.1). AI could be harnessed to implement evidence-based teaching strategies that might otherwise be challenging, due to time and resource constraints. Furthermore, the ability to synthesise literature is one area AI can significantly contribute to academic writing (Khalifa & Albadawy, 2024).

The latest AI chatbots are trained on vast datasets that encompass diverse genres and styles of stories and as such can generate compelling narratives when aptly prompted. Their training enables them to understand the nuances of information structuring, narrative development, and thematic execution. While they operate within their training boundaries, their potential for creative thought is noteworthy. They can draw connections between disparate ideas, suggest analogies, and even craft fictional scenarios. This greatly assists researchers in comprehending and conveying intricate information both quickly and cheaply (Khalifa & Albadawy, 2024).

6. Using AI

Popular narratives, such as those seen in movies, books, and television, provide a tapestry of characters, events, and moral dilemmas that could be a rich source of transformational moments, particularly those that can be mapped onto the entrepreneurial journey described in the Entrecomp Framework (Bacigalupo et al., 2016; Scott et al., 2016). Such transformational moments could provide the opportunity for reflection on tacit knowledge (Mezirow, 1997; Polanyi, 1966). However, when

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4 developing this sort of content, it is not enough to simply ask AI to produce narratives. Educators need to
5
6 be taught how to communicate with AI in ways that can create content that engages the student audience.

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9 The effectiveness of AI language models like ChatGPT hinges not only on the underlying
10 algorithms and training data but also on the quality of the prompts they encounter. A meticulously crafted
11 prompt can evoke a substantial and informative response, while a poorly constructed one can yield
12 irrelevant or nonsensical outputs. Therefore, the efficacy of the prompts plays a pivotal role in
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18 determining the quality of the responses generated by AI language models (Lo, 2023).

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20 For educators looking to leverage these ideas, “prompt engineering” is a crucial skill that
21 helps them harness the full potential of AI language models for information literacy education. By
22 comprehending the underlying principles of prompt engineering and becoming proficient in crafting
23 effective queries, educators can ensure that AI-generated content not only exhibits accuracy and
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26
27 coherence but also aligns precisely with their students' specific needs and educational objectives (Lo,
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29
30
31 2023).

32 33 **7. Prompt Patterns**

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35 As a practical shortcut into prompt engineering, we recommend research be directed into
36
37 Prompt Patterns. Prompt Patterns are structured frameworks or templates used to design and optimise the
38 instructions given to AI like ChatGPT (White et al., 2023). These patterns serve as reusable solutions to
39 common problems encountered when attempting to develop materials, such as case studies.
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43
44 For educators, prompt patterns can be particularly useful in developing case studies that
45 are relevant, engaging, and structured. White et al. (2023) conveniently describes several useful patterns
46 that can be applied to the development of cases. Note that in all the examples given below “XXXX” are
47 replaced by the educator’s intention.
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51

52 53 ***7.1 The Flipped Interaction Pattern***

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55 In this pattern we get the AI to ask the educator questions to gather necessary information
56
57 about a case study it will generate.
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59 60 **Prompt Example**

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4 Ask me questions one at a time to gather information about the elements of Entrecomp
5 competency defined as XXXX. Remember that you will synthesise this competency with scenes from the
6
7 story we have already nominated in order to generate a case study that can be used to teach using case
8
9 method teaching. When you have enough information, create a case study.
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11

12 ***7.2 Meta Language Creation Pattern***

13
14 With this pattern the AI is instructed to define a specific language or notation for
15
16 describing business scenarios or competencies.
17
18

19 **Prompt Example**

20 We are about to create a case study that can be used in the Harvard Business School Case
21
22 Method teaching. The case should be used to allow discussion on the EntreComp competency of XXXX.
23
24 Whenever I mention a competency like this, I need you to describe scenes from the XXXX movies that
25
26 illustrate this competency. Use the format 'SCENE: Description' to highlight the specific moments.
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29 ***7.3 Output Automator Pattern***

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31 With this pattern we direct the way that the AI generates the structure to a case study. We
32
33 use this to prime the AI output into something that the educator considers organised to their standard.
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36 **Prompt Example**

37
38 Whenever you get to generate the case study, output it in the following format: 1. Title of
39
40 the Case Study, 2. Description of the Scene, 3. Analysis of the Entrecomp Competency being used, 4.
41
42 Conclusion.
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44

45 ***7.4 Question Refinement Pattern***

46
47 With this pattern we direct the AI to refine user questions to improve the generated case
48
49 study.
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52 **Prompt Example**

53
54 Whenever I ask a question about a competency in business stories, suggest a better
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56 version of the question to use that incorporates more detail.
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4 **7.5 Alternative Approaches Pattern**

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6 This pattern ensures the AI provides multiple ways to highlight the competency.

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8 **Prompt Example**

9
10 If there are alternative scenes from the story that demonstrate the same competency, list
11 the best approaches and compare their effectiveness.
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14 **7.6 Cognitive Verifier Pattern**

15
16 This pattern subdivides the questions to enhance response accuracy.

17
18 **Prompt Example**

19
20 When I ask about a competency in business stories, generate additional questions that
21 would help more accurately answer the original question.
22

23
24 **7.7 Persona Pattern**

25
26 With this pattern it is possible to assign a specific role to the AI, such as a business
27 analyst, case method teaching expert or leadership coach and the AI can review the work using this
28 persona.
29

30
31 **Prompt Example**

32
33 Act as a CASE METHOD TEACHING EXPERT and provide outputs that highlight
34 scenes from the business stories that demonstrate the competency we are investigating.
35

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37 **7.8 Fact Check List Pattern**

38
39 Finally, it is possible to ask the AI to generate a list of critical facts included in the output
40 that may need human verification before commissioning.
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43 **Prompt Example**

44
45 When you generate a case study, create a list of facts that the study depends on that
46 should be fact-checked and list this set of facts at the end of your output.
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8. Super Prompts

A further development in this concept is for educators to embrace the idea of super prompts. That is informally defined as taking these prompt patterns and building a multi-dimensional set of instructions and presenting them in one query (Tzu, 2023).

In a meta way, we asked the AI to illuminate how a super prompt works. It revealed the following response:

A "super prompt" in the context of AI and natural language processing is a detailed and structured input provided to an AI model to generate more specific, accurate, and useful responses. It typically includes:

1. **Concise Instructions:** Clear and specific guidance on what the output should be.
2. **Logical Structure:** A well-organised flow to improve understanding.
3. **Explicit Details:** **Specifics** about the desired format or content.
4. **Context and Examples:** Background information or examples to guide the AI.
5. **Constraints and Preferences:** Any limitations or preferences to tailor the response.

Super prompts are designed to maximise the AI's performance by reducing ambiguity and focusing its capabilities on the task.

What follows is a super prompt for educators to use. By taking this prompt and directly pasting it into an AI agent such as GPT-4o will initiate a dialog between the educator and the AI. An example dialog between the authors and the AI is included. (See Appendix: A Conversation Using ChatGPT)

A Super Prompt test on GPT-4o to initiate a dialog to create CMT case
Ask me questions one at a time to gather information about the elements of Entrecomp competency. Ask me what competency I want to cover. Then ask me what narrative I want to base the case study on. Give examples that are based on narratives that people know and love. Remember that you

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5 will synthesise this competency with scenes from the stories I answer with. Please assume that I do not
6 know the story, do not ask me any details about the story. I want you to be as creative as you can to
7 produce narratives based on the story. You will be working to generate a case study that can be used to
8 teach using case method teaching as defined by Harvard Business School synthesised using the
9 competence.

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16 When I ask about an Entrecomp competency in a story, generate additional questions
17 that would help more accurately answer the original question.

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19
20 When I ask a question about a competency in business stories, suggest a better version of
21 the question to use that incorporates more detail.

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24
25 If there are alternative scenes from the story that demonstrate the same competency, list
26 the best approaches and compare their effectiveness.

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29 Whenever you get to generate the case study, output it in the following format: 1. Title of
30 the Case Study, 2. Description of the Scene, 3. Analysis of the Entrecomp Competency being used, 4.
31 Conclusion.

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36 When you write the case study I want you to act as a CASE METHOD TEACHING
37 EXPERT and provide outputs that highlight scenes from the business stories that demonstrate the
38 competency we are investigating.

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42
43 When you generate a case study, create a list of facts that the study depends on that
44 should be fact-checked and list this set of facts at the end of your output.

45
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49 When you generate a case study, offer a number of questions that you think could be
used to prompt you to elaborate it.

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51
52 When you have enough information, create a case study.

53 54 **9. Framework for Creating Competency Base Cases**

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56
57 This paper does not seek to provide a rigid set of instructions for case generation. As a
58 conceptual paper the aims are to serve as a discussion guide for practitioners interested in exploring the
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4 concept of case development for their CMT practice. The following is a proposal that educators could
5
6 consider as a mechanism to develop stories based on the intersection of Entrecomp Competencies and
7
8 narratives that people know and love.
9

10 **1. Identifying Resonant Narratives**

11
12 Select stories that are widely recognised and resonate with the student cohort. This
13
14 ensures that the narratives are engaging and relatable.
15

16 **2. Generating Narrative Summaries with AI**

17
18 Use AI tools like GPT-40 to generate concise summaries of the selected narratives,
19
20 ensuring all students have a shared understanding of the key events and themes.
21
22

23 **3. Mapping Competencies to Narratives**

24
25 Identify which EntreComp competencies are naturally illustrated by the narratives. For
26
27 instance, Frodo's journey in "The Lord of the Rings" can illustrate "Mobilising Resources."
28
29

30 **4. Creating Analogies and Reflective Prompts**

31
32 Use the AI super prompt to generate analogies and reflections that link the narrative to the
33
34 competency.
35
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37 **5. Developing Interactive Exercises**

38
39 Using human creativity, adapt and elaborate on the cases, potentially using the original
40
41 narrative in context to add production value to the lesson.
42
43

44 **6. Oversee the Content**

45
46 AI is notorious for creating content that is either wrong, biased or misguided. Take time
47
48 to validate the content created and take responsibility for what has been created.
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51 **7. Deliver the Material.**

52
53 Implement the activities in the classroom using the CMT approach, to deliver an
54
55 interactive experience.
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58 **8. Evaluating Outcomes**

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4 Gather feedback from students and use it to refine the approach and ensure that the
5
6 integration of storytelling and AI effectively enhances entrepreneurial competencies.

7 8 9 **10. Ethics and Academic Integrity**

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11 At the time of writing this paper, most institutions, having identified the threat of AI, are
12
13 in the process of adapting their institutions to accommodate academic integrity and pedagogical strategies
14
15 are evolving (Kumar et al., 2024). Whilst some see AI as a revolution, where responsible and informed
16
17 adoption has the potential to ensure equitable access to education for all (Miller, 2024), some see
18
19 significant challenges, with warnings of misuse, and moreover, requests for educational reform (Huang,
20
21 Jiahui et al., 2021; Huang, Jingshan & Tan, 2023). Others see academic integrity at risk arguing that the
22
23 inappropriate use of AI content lacks depth and accuracy (Currie et al., 2023; Dergaa et al., 2023; Khalifa
24
25 & Albadawy, 2024).
26
27

28 29 **11. Discussion**

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31 CMT appears to be an approach for students to acquire some of the art of business
32
33 referred to by Penaluna et al. (2014). The intervention of AI seeks to further augment this art in a way that
34
35 further complements traditional methods of teaching. There will always be a place for the traditional
36
37 teaching, particularly of the theoretical understanding of business. However, using narratives that resonate
38
39 with students provides an interactive learning experience that can be used by them to learn how the
40
41 theories integrate into practice and in doing so develop entrepreneurial competencies. We believe that this
42
43 intervention can enhance learner engagement and understanding. By giving educators a tool to create
44
45 more engaging and effective learning experiences where students can better understand how
46
47 entrepreneurial competencies are embedded around them.
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50
51 Clearly educators need to remain vigilant about the ethical implications of using AI in the
52
53 classroom. This approach is to use AI as a tool to complement, rather than replace, human interaction.
54
55 Human intelligence needs to also be leveraged to make educational content that meets individual student
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57 needs. The integration of AI in education must be managed carefully to mitigate biases and ensure the
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59 authenticity of AI-generated content.
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4 Key to this approach is the idea of the prepositions “with” and “for”. Educators need to
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6 work “with” the AI and not have it work “for” them. For educators to make the most of working “with”,
7
8 they must learn the art of "prompt engineering," which involves crafting carefully worded prompts that
9
10 help guide the AI's responses and results. Proper training and understanding of how to communicate with
11
12 AI are crucial to generating high-quality educational content.
13

14 **12. Future Research**

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16
17 Recommendation for research includes empirically validating the effectiveness of AI-
18
19 enhanced CMT compared to traditional methods. Comparative studies should assess impact in terms of
20
21 student engagement, competency development, and attainment of learning outcomes. Moreover, in terms
22
23 of entrepreneurship education, to add to the body of literature investigating effective role models used in
24
25 storytelling on individual’s entrepreneurial intention (Liu et al., 2019).
26
27

28 **13. Conclusion**

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31 The integration of CMT, the EntreComp Framework, and AI in entrepreneurship
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33 education presents a novel approach to enhancing student engagement and learning outcomes. This paper
34
35 underscores the potential benefits and challenges of this innovative educational model. AI can address the
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37 time and resource constraints traditionally associated with developing CMT scenarios. AI-generated
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39 content can rapidly produce diverse and contextually relevant case studies, making the process more
40
41 scalable and efficient.
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44 The use of generative AI in education can facilitate personalised learning experiences,
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46 providing tailored feedback and outputs that cater to individual student needs (Bell & Bell, 2023). AI
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48 tools like GPT-4 can tailor educational content, generate reflective prompts that individual cohorts need,
49
50 and in doing so offer a more personalised learning experience. This customisation supports the
51
52 development of content that fosters a more inclusive educational environment. By leveraging well-known
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54 stories and cultural narratives, educators could create engaging and relatable case studies that illustrate
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56 complex entrepreneurial competencies. This method helps make abstract concepts more concrete and
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58 understandable, enhancing student comprehension and retention.
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Appendix: EntreComp Outline

There follows a brief description of the entrepreneurial competencies proposed by the Entrecomp Framework (Bacigalupo et al., 2016).

Category	Competency	Description
Ideas and Opportunities	Spotting opportunities	Identifying and seizing opportunities to create value, being aware of changes in the environment.
	Creativity	Developing creative and purposeful ideas, exploring, and experimenting with innovative approaches.
	Vision	Imagining the future and develop a clear vision to turn ideas into action.
	Valuing ideas	Making the most of ideas and opportunities, valuing their potential for value creation.
	Ethical and sustainable thinking	Assessing the consequences and impact of ideas and opportunities in an ethical and sustainable way.
Resources	Self-awareness and self-efficacy	Reflecting on personal needs, aspirations, and the

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		impact of actions as well as building confidence in one's own abilities.
	Motivation and perseverance	Staying focused and motivated despite challenges, showing resilience in pursuing goals.
	Mobilizing resources	Finding and managing resources effectively, leveraging personal, financial, and material assets.
	Financial and economic literacy	Understanding financial concepts and managing resources efficiently to support value creation.
	Mobilizing others	Inspiring, leading, and mobilizing others to achieve common goals, building networks and teams.
Into Action	Taking the initiative	Taking initiative and act independently to achieve goals and seizing opportunities.

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	Planning and management	Organizing and managing activities, resources, and time to reach objectives efficiently.
	Coping with uncertainty, ambiguity, and risk	Handling uncertainty, ambiguity, and risk, adapting and responding to changes.
	Working with others	Collaborating and working well with others, valuing teamwork, and building strong relationships.
	Learning through experience	Learning from experiences, reflecting on successes and failures to improve future actions.

Appendix: A Conversation Using ChatGPT

There follows a dialog made with GPT-4o on 2nd June 2024 using the Super Prompt described in the paper. It can be viewed live using the following link <https://chatgpt.com/share/05141f76-41b1-4700-b1cd-5d882248d159>

Note that all spelling is American and typing mistakes made by the researcher are genuine and left in for authenticity. Also, text highlighted in bold indicates who was communicating: Educator or ChatGPT-4o.

Educator:

Ask me questions one at a time to gather information about the elements of Entrecomp competency. Ask me what competency I want to cover. Then ask me what narrative I want to base the case study on. Give examples that are based on narratives that people know and love. Remember that you will synthesise this competency with scenes from the stories I answer with. Please assume that I do not know the story, do not ask me any details about the story. I want you to be as creative as you can to produce narratives based on the story. You will be working to generate a case study that can be used to teach using case method teaching as defined by Harvard Business School synthesised using the competence. When I ask about an Entrecomp competency in a story, generate additional questions that would help more accurately answer the original question. When I ask a question about a competency in business stories, suggest a better version of the question to use that incorporates more detail. If there are alternative scenes from the story that demonstrate the same competency, list the best approaches and compare their effectiveness.

Whenever you get to generate the case study, output it in the following format: 1. Title of the Case Study, 2. Description of the Scene, 3. Analysis of the Entrecomp Competency being used, 4. Conclusion. When you write the case study I want you to act as a CASE METHOD TEACHING EXPERT and provide outputs that highlight scenes from the business stories that demonstrate the competency we are

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4 investigating. When you generate a case study, create a list of facts that the study depends on that should
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6 be fact-checked and list this set of facts at the end of your output. When you generate a case study, offer a
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8 number of questions that you think could be used to prompt you to elaborate it. When you have enough
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10 information, create a case study.
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14 **ChatGPT - 4o:** 15

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17 Great! Let's start by identifying which Entrecomp competency you want to cover. Entrecomp
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19 competencies are divided into three areas: Ideas and Opportunities, Resources, and Into Action. Here are
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21 some examples:
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27 1. Ideas and Opportunities:

- 28 • Spotting opportunities
- 29 • Creativity
- 30 • Vision
- 31 • Valuing ideas
- 32 • Ethical and sustainable thinking

33 2. Resources:

- 34 • Self-awareness and self-efficacy
- 35 • Motivation and perseverance
- 36 • Mobilizing resources
- 37 • Financial and economic literacy
- 38 • Mobilizing others

39 3. Into Action:

- 40 • Taking the initiative
 - 41 • Planning and management
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- Coping with uncertainty, ambiguity, and risk
- Working with others
- Learning through experience

Which Entrecomp competency would you like to focus on?

Educator:

Mobilising others

ChatGPT - 4o:

Great choice! "Mobilising others" is a key competency in entrepreneurship. It involves inspiring and engaging others, leveraging networks, and leading teams towards common goals.

Next, we need to choose a narrative to base the case study on. Here are some popular stories that people know and love, which can provide rich examples for demonstrating the competency of mobilising others:

- 1. Harry Potter** (e.g., Harry leading Dumbledore's Army)
- 2. The Lord of the Rings** (e.g., Aragorn leading the Fellowship or the armies of Middle-earth)
- 3. Star Wars** (e.g., Luke Skywalker rallying the Rebel Alliance)
- 4. The Avengers** (e.g., Nick Fury assembling the Avengers or Captain America leading the team)
- 5. The Lion King** (e.g., Simba rallying the animals of Pride Rock)
- 6. Mulan** (e.g., Mulan leading the army against the Huns)

Which narrative would you like to use for the case study?

Educator:

Lets use the Lion King as an example

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7 **ChatGPT - 4o:**

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9 Excellent choice! "The Lion King" provides several powerful scenes that demonstrate mobilising others.
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11 Now, let's narrow it down to a specific scene from "The Lion King" that best illustrates the competency
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13 of mobilising others.

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17 Here are a few scenes to consider:

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22 **1. Simba's Return to Pride Rock:** Simba rallies Nala, Timon, Pumbaa, and the lionesses to take
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24 back Pride Rock from Scar.

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26 **2. Mufasa's Leadership in the Circle of Life:** Mufasa explaining the Circle of Life to Simba
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28 and how all the animals are interconnected, inspiring respect and unity.

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31 **3. Rafiki's Guidance:** Rafiki mobilises Simba by helping him realize his true identity and
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33 encouraging him to return to Pride Rock.

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35 Which scene do you think would be the most effective for illustrating the competency of
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37 mobilising others?
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42 **Educator:**

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44 I think that Mufasa's leadership is the scene I would like to explore
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49 **ChatGPT - 4o:**

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51 Great! Mufasa's leadership in the "Circle of Life" scene is a powerful example. To create a thorough case
52
53 study, I need to ask a few more questions to gather detailed information about the key aspects you want to
54
55 focus on.
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58 **Specific Focus:** What specific elements of Mufasa's leadership do you want to highlight in the case
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60 study? (e.g., his ability to inspire, his communication skills, his approach to teaching and guiding others)
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4 **Target Audience:** Who is the target audience for this case study? (e.g., business students, emerging
5
6 leaders, corporate teams)

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9 **Learning Objectives:** What are the main learning objectives you want to achieve through this case
10
11 study? (e.g., understanding effective leadership practices, learning how to inspire and mobilize teams,
12
13 recognizing the importance of ethical leadership)

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15 **Additional Context:** Is there any additional context or background information you want to include to
16
17 enhance the narrative? (e.g., details about the environment of Pride Rock, the challenges Mufasa faces as
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19 a leader)

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22 Once I have this information, I can create a detailed case study.

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26 **Educator:**

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29 The focus should be on teaching and guiding others. I am aiming for business students on an MBA course
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33 **ChatGPT - 4o:**

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35 Thank you for the information! Here's a case study that focuses on Mufasa's teaching and guiding of
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37 others, aimed at business students in an MBA course:
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42 **Case Study: Mufasa's Leadership in "The Lion King"**

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46 **1. Title of the Case Study:**

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49 Mufasa's Leadership: Teaching and Guiding Others in "The Lion King"

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51 **2. Description of the Scene:**

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53 In the iconic "Circle of Life" scene, Mufasa, the wise and benevolent king of Pride Rock, takes his young
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55 son Simba to the top of Pride Rock to explain the responsibilities of leadership and the importance of the
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57 Circle of Life. Mufasa teaches Simba about the delicate balance of the ecosystem, emphasizing respect
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4 for all creatures, from the antelope to the lions. This moment is crucial in shaping Simba's understanding
5
6 of his future role and responsibilities.

7 8 9 10 11 **3. Analysis of the Entrecomp Competency Being Used:**

12 13 Mobilising Others: Teaching and Guiding

14
15 Mufasa demonstrates several key aspects of the competency of mobilising others, particularly in his role
16
17 as a teacher and guide:

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20 ● **Vision and Inspiration:** Mufasa shares his vision of the Circle of Life, inspiring Simba with a
21
22 sense of purpose and responsibility. He makes Simba feel valued and integral to the larger
23
24 ecosystem, instilling a sense of duty and respect.
 - 25
26 ● **Effective Communication:** Mufasa uses clear and relatable language to convey complex ideas.
27
28 He explains the interconnectedness of all life in a way that is easy for Simba to understand,
29
30 making abstract concepts concrete and meaningful.
 - 31
32 ● **Mentorship and Guidance:** Mufasa leads by example, showing patience and wisdom. He uses
33
34 storytelling to impart lessons, creating a lasting impact on Simba. This mentorship is not just
35
36 about imparting knowledge but also about nurturing Simba's growth and development as a future
37
38 leader.
 - 39
40 ● **Ethical Leadership:** Mufasa emphasizes the importance of respect and balance, teaching Simba
41
42 that a true leader respects all creatures and maintains harmony in the kingdom. This ethical
43
44 approach to leadership highlights the importance of integrity and responsibility.
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52 53 **4. Conclusion:**

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55 Mufasa's leadership style in "The Lion King" is a profound example of how effective leaders can teach
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57 and guide others. By sharing his vision, communicating effectively, mentoring with patience, and
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59 upholding ethical standards, Mufasa mobilizes Simba towards a greater understanding of his future role.

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4 This case study illustrates the importance of these leadership qualities for business students, emphasizing
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6 that successful leaders inspire and guide their teams towards shared goals and ethical practices.
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11 **5. Facts to be Fact-Checked:**
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- 14 ● The specific dialogue and actions of Mufasa in the "Circle of Life" scene.
- 15
- 16 ● The context and environment of Pride Rock as depicted in "The Lion King."
- 17
- 18 ● The overall narrative and character development of Mufasa and Simba in the film.
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23 **6. Discussion Questions:**
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- 25 1. How does Mufasa's approach to teaching Simba compare to modern leadership theories in
26 business?
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- 28 2. What are the key communication strategies Mufasa uses, and how can they be applied in a
29 business context?
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- 31 3. How does Mufasa balance authority and empathy in his leadership style?
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- 33 4. What lessons can be drawn from Mufasa's ethical approach to leadership, and how can they be
34 applied in corporate settings?
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- 36 5. How can business leaders use storytelling as a tool for mobilising and inspiring their teams?
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40 Feel free to ask any more questions or request additional details for the case study!
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