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Cognitive Skills Within the Inner Development Goals (IDG) Framework: Empowering Sustainable Careers and Sustainable Development

Yuliya Shtaltovna

International Business School, HS Fresenius, Germany

 ORCID: <https://orcid.org/0000-0003-2976-0305>

Vivianna Rodriguez Carreon

The University of Sydney, Australia

 ORCID: <https://orcid.org/0000-0003-2983-4300>

Fredrik Lindencrona

Inner Development Goals, Sweden

 ORCID: <https://orcid.org/0000-0002-8015-4821>

William E. Donald

University of Southampton, UK & Ronin Institute, USA

 ORCID: <https://orcid.org/0000-0002-3670-5374>

Abstract

Our theoretical manuscript aims to explore the role that dimension two, ‘Thinking-Cognitive Skills’ of the Inner Development Goals (IDG) framework, can play in empowering sustainable careers and sustainable development. We begin by setting the scene before introducing the theoretical framework, which combines the IDG framework and Sustainable Career Ecosystems Theory (SCET). Our attention then turns to systematically considering each of the components of dimension two of the IDG framework. These include (a) critical thinking, (b) complexity awareness, (c) perspective skills, (d) sense-making, and (e) long-term orientation and visioning. The theoretical contribution comes from integrating the IDG framework and SCET. Practical implications come from offering eight pragmatic recommendations to empower students in the context of higher education to prepare for sustainable careers and sustainable development: (i) curriculum design, (ii) interdisciplinary approach, (iii) experiential learning, (iv) faculty development, (v) assessment and evaluation, (vi) campus culture, (vii) collaboration and external partners, and (viii) research and innovation. Limitations and a future research agenda are also provided.

Keywords/key phrases: cognitive skills, Higher Education, Inner Development Goals (IDG), leadership development, strategic thinking, sustainable career, Sustainable Development Goals (SDG)

1. Introduction

The rapidly evolving, Volatile, Uncertain, Complex, and Ambiguous (VUCA) world necessitates reevaluating the cognitive skills required for future managers (Bennett & Lemoine, 2014). The New Psychological Contract (NPC; Rousseau, 1995) offers a framework for understanding employer-employee relationships and emphasises the importance of career agility and employability in the 'New World of Work'. This agility is essential for navigating the multifaceted realities of modern work environments, and it is increasingly recognised by various professional domains (e.g., Baruch & Rousseau, 2019; Donald, 2023; Gribling & Duberley, 2021). The NPC underlines the psychological aspects of employment, focusing on fairness, trust, and mutual agreement, and its violation can significantly impact job satisfaction, commitment, and performance (Baruch & Rousseau, 2019). It represents a departure from the Old Psychological Contract (Schein, 1978), where an organisation provided an employee job security in exchange for loyalty (i.e. a job for life with the opportunity for progression along a structured career ladder until one reached a plateau or retired). We argue that consciousness is needed for a genuine and responsible shift in higher educational institutions for sustainability to be met in employability, sustainable careers and a sustainable future where awareness of the educators' and students' interior conditions is fostered by sense-making.

Critical thinking and problem-solving are identified as essential higher-order skills crucial for navigating uncertainty, complexity, and change in the 21st century (Sala et al., 2020). Critical thinking involves a self-directed, skilful analysis of information, beliefs, or knowledge, with an awareness of the potential flaws in human reasoning, while problem-solving is the process of identifying solutions to complex issues, often requiring interaction and various tools and resources (OECD, 2018). These skills are closely related to other employability competencies, supporting learning, the ability to handle obstacles, and the curiosity to look for learning opportunities in various contexts (Council of the European Union, 2018).

The European Skills Panorama emphasises the importance of thinking skills and competencies relating to applying mental processes for planning activities, solving problems, and performing complex tasks (European Commission, 2019). The Be21Skilled project highlights the significance of integrating 21st-century skills into curricula, particularly for Science, Technology, Engineering and Mathematics (STEM) fields, to create competent, job-ready graduates and support female students, focusing on collaborative efforts, teacher training, and curriculum innovation (Lice et al., 2023). The approach aligns with findings in the UK by Donald et al. (2019), which found that women undergraduates had lower perceptions of their skills and employability than men – and career advice provided through a university career service was less likely to reach students who needed it the most compared to curriculum-based interventions and support.

Inner development implicates the inner self. Varela et al. (1993) said cognitive learning does not need consciousness. At the same time, the authors acknowledged that we cannot speak about the self without consciousness (p. 51). This is a problem as awareness is essential to acknowledge inner development in the human experience. For Ray Jackendoff (2007), cognition is functional and computational, and it is also phenomenological, for which the inner condition of staff is also relevant and an indicator of the educational system's relationship. Varela et al. (1993) highlight the problem between science and experience, where "cognition consists, on the one hand, of unconscious symbolic computation and, on the other hand, of

conscious experience" (p. 52). McGilchrist (2019, p. 224) explores this split further, pointing out that consciousness about ourselves, beings, and doings corresponds to the left hemisphere inspecting the right; at the same time, the right hemisphere is where we pay attention; in doing so, we are less conscious of the process. At this point, the argument is how educators can apply both a more integrative approach and the role of higher education culture in genuinely adapting the skills for sustainability to be met.

Universities play a critical role in preparing students for sustainable careers by understanding the NPC and integrating employability, career counselling, and coaching into their curricula (Donald, 2020; Jakubik, 2019, 2020; Shtaltovna & Muzzu, 2021a). They are positioned as a transitional community, guiding students from academia to the professional world and incorporating scientific research, technology, and industry experiences into digital and cognitive skills learning (Jakubik et al., 2023; Shtaltovna & Muzzu, 2021b). Developing digital collaboration, social skills, critical thinking, systemic thinking, and contemporary frameworks like Agile, Blue Ocean Strategy©, and CYNEFIN© is emphasised for producing career-ready graduates.

For cognitive skills development, focusing on social skills, communication, integrity, intercultural competence, and resilience (Donald et al., 2019; 2024; Nimmi et al., 2021, 2022) is paramount across all areas of higher education. Universities must foster these skills to ensure graduates are well-equipped to manage the complexities and dynamic challenges of future managerial roles. Partnerships with companies for internships and work-based learning opportunities further enhance this preparedness, offering students real-world experiences and insights into corporate culture and employability sustainability (Donald & Mouratidou, 2022; Jackson & Cook, 2023; Van der Heijden et al., 2015, 2020; Ybema et al., 2020). Consequently, the significance of cognitive skills extends into the realm of sustainability, where understanding and addressing the intricate web of social, environmental, and economic challenges require a deep and nuanced comprehension of complex systems (Wamsler et al., 2020, 2021; Wiek et al., 2011). Leaders and educators with advanced cognitive skills can foster sustainability by effectively negotiating and activating climate action and supporting peaceful, just, and inclusive societies (Wamsler & Restoy, 2020).

Therefore, cognitive skills development is an intricate and essential domain, underpinning a wide array of activities and disciplines ranging from higher education and teaching to responsible leadership and personal growth. In business schools within higher education, developing these skills is paramount, as it prepares students not just for academic success but for their roles as informed and responsible members of society and responsible, sustainable and ethical businesses (Jakubik, 2019, 2020; Jakubik et al., 2023). For 21st-century leaders, well-trained cognitive skills are indispensable for decision-making, strategy formulation, and driving sustainable practices.

The Inner Development Goals (IDG) initiative, endorsed by educational institutions such as the Karolinska Institute, Stockholm School of Economics, and Lund University Centre for Sustainability Studies, significantly aligns with the United Nations Sustainable Development Goal (SDG) 4 – ‘*Quality Education*’ (United Nations, 2015). SDG4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. It recognises the power of education in eradicating poverty, boosting economic growth, and creating a sustainable global society. By focusing on developing crucial skills, inner qualities, and

capabilities, the IDG initiative directly contributes to achieving SDG4's targets. It emphasises the importance of quality education, imparting knowledge and cultivating critical thinking, problem-solving, and the personal and social capabilities required to navigate and lead in a complex world. The support and insights from thought leaders like Kegan, Cook-Greuter, Senge, Scharmer, Edmondson, Garvey Berger, Einhorn, Osika, Stenström, Richter, Wamsler, and Lindencrona further underscore the initiative's commitment to fostering a more educated, skilful, and conscious society. Through this alignment with SDG4, the IDG project endeavours to enhance educational outcomes, foster lifelong learning, and ultimately contribute to the broader goals of sustainable development.

Therefore, our theoretical manuscript aims to explore the role that dimension two, 'Thinking-Cognitive Skills' of the IDG framework, can play in empowering sustainable careers and sustainable development. The manuscript is structured as follows. Section 2 sets out the theoretical framework, combining the IDG framework and Sustainable Career Ecosystem Theory (SCET). Section 3 systematically considers each component of dimension two of the IDG framework. These include (a) critical thinking, (b) complexity awareness, (c) perspective skills, (d) sense-making, and (e) long-term orientation and visioning. However, it is important to acknowledge that this focus is part of a larger structure, and additional reviews should be undertaken to comprehensively address the other four dimensions of the IDG framework, ensuring a well-rounded understanding of the interdependent spectrum of skills and competencies it embodies. Section 4 outlines the implications that come from offering eight pragmatic recommendations to empower students in the context of higher education to prepare for sustainable careers and sustainable development: (i) curriculum design, (ii) interdisciplinary approach, (iii) experiential learning, (iv) faculty development, (v) assessment and evaluation, (vi) campus culture, (vii) collaboration and external partners, and (viii) research and innovation. Section 5 presents the limitations and a future research agenda before Section 6 concludes the manuscript.

2. Theoretical Framework

In the context of the rapidly changing, so-called 'VUCA', 21st-century workplaces, developing cognitive skills for future managers is increasingly recognised as crucial. Donald and Jackson (2023) underscore the importance of understanding the NPC to foster sustainable career ecosystems. This concept emphasises career agility as a psychological necessity (Baruch & Rousseau, 2019; Coetzee et al., 2022; Donald, 2023; Donald & Jackson, 2023). Furthermore, the literature suggests that universities play a critical role in preparing students for these challenges. In response, Jakubik et al. (2023) offer a novel framework for enhancing students' capabilities for work and life, focusing on academic and operational competencies for students, particularly in business schools, suggesting a redefined role for universities in a complex and evolving world.

The evolution of learning within Higher Education Institutions (HEIs) is discussed by Grabarski et al. (2023), suggesting innovative methods such as flipped learning to bridge theory and practice for fostering critical and systemic thinking, and other cognitive skills necessary for sustainable careers (Creed, 2023). Additionally, Baruch et al. (2023) frame this discussion within the broader context of talent flow and acquisition at the interface of higher education and industry. They emphasise the importance of HEIs producing employable graduates equipped with the necessary cognitive skills to navigate the VUCA world and contribute to

organisational sustainability (for additional reading on this topic, please refer to William Donald's (2024) book, '*Strategic Opportunities for Bridging the University-Employer Divide*') for the contemporary discourse.

Finally, Donald et al. (2023) provide empirical insights into the future of work and the role of universities in preparing graduates for sustainable careers. Their research identifies key themes such as skill development, motivation, career ownership, and well-being, which are intrinsically linked to cognitive skills development. These studies highlight the necessity of a multifaceted, interdisciplinary approach to cognitive skills development in higher education, reflecting the complex, interconnected nature of the modern workplace and the diverse needs of future managers.

The theoretical underpinnings of cognitive skills development are diverse and intricate, drawing from various psychological and sociocultural perspectives. Central to this discourse is the notion that cognitive development is not just about acquiring more knowledge or better skills but involves a fundamental evolution of the self and its capacity to perceive, understand, and interact with the world. Ibrahim and Alkire's (2007) comprehensive list of definitions of empowerment includes how empowerment is insufficient unless it includes "people's abilities to act, the institutional structure, and the various non-institutional changes that are instrumental to increased agency" (p. 384). Empowerment, when conscious, is an embodied human development experience critical for social ecosystemic sustainable futures.

A cultural shift in HEIs towards an inclusive place of knowledge within the *Thinking* — a fundamental cognitive skill dimension within IDG — sustains the move from ego to ecosystem. Jane Loevinger's theory of ego development offers a foundational perspective on the progression of cognitive skills. Loevinger (1976) describes stages of ego development as the evolution from an impulsive, self-centred view to a capacity for deep understanding and inclusivity, which mirrors the development of critical cognitive skills.

Building on this, Robert Kegan (1994) presents a model of adult development, articulating successive orders of consciousness. Each stage represents a more complex organisation of experience, leading to the ability to comprehend and navigate multiple, often conflicting, systems of meaning. Susanne Cook-Greuter (1999, 2013) extends these ideas into post-autonomous ego development, describing advanced stages where individuals achieve greater self-awareness and a profound connection with the collective, indicative of the highest levels of cognitive skills development.

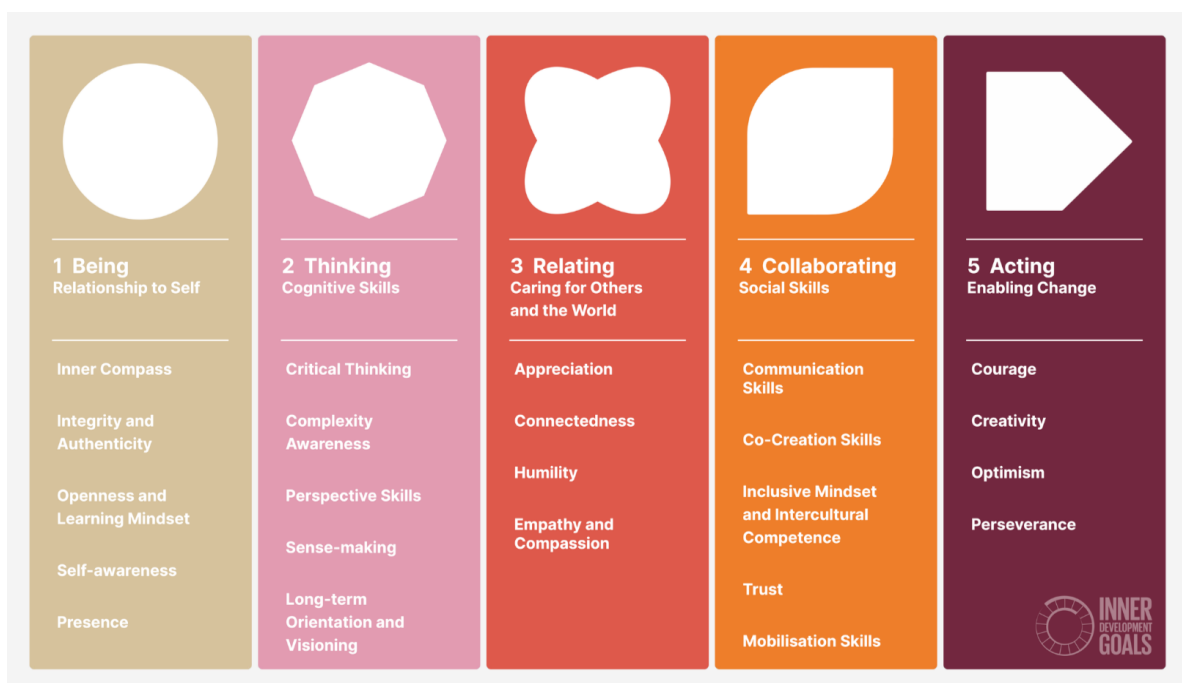
Adding a cultural perspective, Geert Hofstede's cultural dimensions theory (Hofstede et al., 2005) delineates how cultural norms and values, such as individualism versus collectivism and uncertainty avoidance, shape individual thinking, problem-solving, and perception. Similarly, Lev Vygotsky's (1978) sociocultural theory highlights the role of social interaction and cultural tools in cognitive development. Vygotsky suggests that higher-order functions initially develop through social interaction and are mediated by cultural tools, emphasising the collective and collaborative nature of cognitive skills development.

The latest research on IDGs reflects a diverse range of perspectives and methodologies in understanding and promoting inner growth and its impact on societal and environmental challenges. Wandel et al. (2022) explore how IDGs relate to leadership development in civil society organisations in developing countries, highlighting the intersection of personal growth

and organisational leadership. Ankrah et al. (2023) delve into the transformational potential of IDGs, discussing the journey from inner growth to tangible external change. Kemp and Edwards (2022) provide a foundational overview of well-being, linking it to societal challenges and potential solutions, thereby setting a broad context for IDGs. Rodriguez Carreon (2023) emphasises the concept of liminality in personal development, suggesting that change begins within the individual. Costa (2023) creatively applies IDGs in an educational setting, using them to teach research methodology to sociology students, thereby demonstrating the practical applications of IDGs in academia. Finally, Cooper and Gibson (2022) propose a novel framework for assessing sustainability that integrates both inner and outer dimensions, underlining the importance of a holistic approach to sustainability.

The IDG framework (Figure 1) is designed to address various aspects of human growth and development.

FIGURE 1. THE INNER DEVELOPMENT GOALS FRAMEWORK



Source: <https://www.innerdevelopmentgoals.org/framework>

It encompasses a wide array of skills and competencies, structured into distinct but interrelated columns, each representing a core area of focus. The IDG framework aligns with the holistic and integrative views of human development proposed by theorists like Kegan (1994) and Loevinger (1976), who emphasise the evolving nature of the self and its capacities. It also resonates with the dialectical and systems thinking proposed by Basseches (1984) and brings the consciousness of experience by Bohm (1980). In essence, the IDG framework serves as a foundational tool for educators, leaders, and individuals committed to fostering a more sustainable, responsible, and well-informed world. Consequently, integrating the IDG framework and SCET represents our theoretical framework to accelerate the SDG.

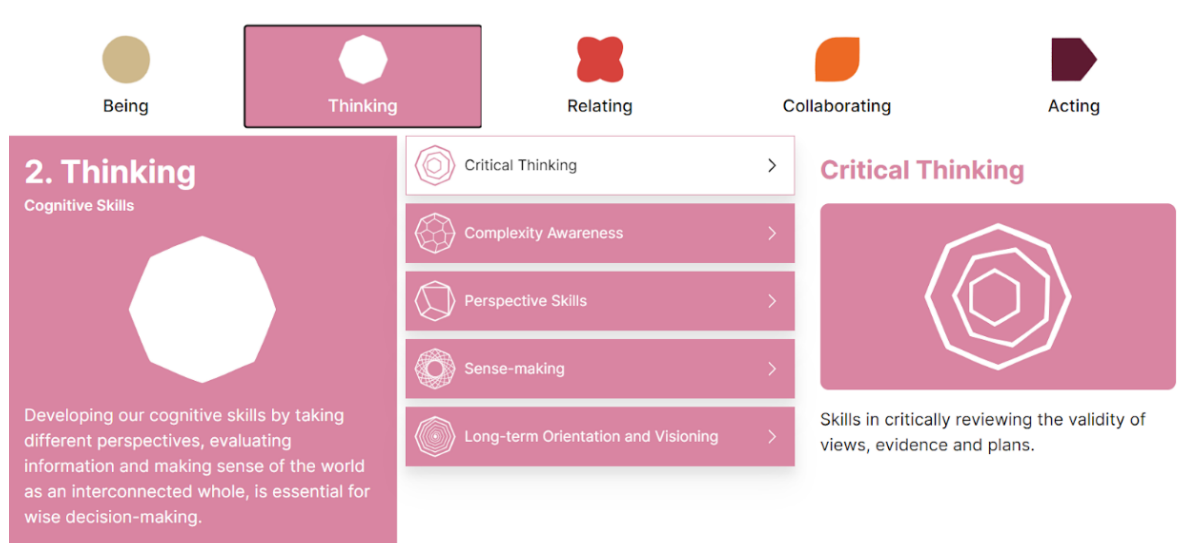
3. Dimension Two ‘Thinking Cognitive Skills’

While the IDG framework holistically considers a range of developmental facets, in this specific manuscript, we focus only on the second column: ‘Thinking - Cognitive Skills’ (Figure 2). It

encompasses ‘*Critical Thinking*’, ‘*Complexity Awareness*’, ‘*Perspective Skills*’, ‘*Sense-making*’, and ‘*Long-term Orientation and Visioning*’ processes essential for personal and professional development. The Inner Development Goals Framework communicates the dimensions highlighting and recognising the complex interdependence between the five, thus calling for arbitrary and fluid categorisation.

The pedagogical intent behind the IDG framework is to serve as a versatile and comprehensive tool for exploring and enhancing these essential cognitive skills. The framework acknowledges the layered and interconnected nature of cognitive abilities and aims to facilitate their development through targeted pedagogical strategies (Andersson, 2015). It encourages an open-ended exploration, inviting educators and learners to engage with, adapt, and expand upon it, thus fostering a lifelong learning journey.

FIGURE 2. THINKING – COGNITIVE SKILLS OF THE INNER DEVELOPMENT GOALS



Source: <https://idg.tools/framework>

We now systematically explore each of the five components of dimension two of the IDG.

3.1. Critical Thinking

Critical thinking is a cornerstone cognitive skill encompassing a wide range of mental processes to analyse information and make reasoned judgments. It is fundamentally about having an open mind to think clearly and rationally, understanding existing and creating new logical connections between ideas, suspending judgment and cynicism, critically reviewing the validity of views, evidence and plans, and systematically solving problems.

King and Kitchener's (1994) work on reflective judgment is vital to understanding the development of critical thinking. They propose a model of seven stages, detailing how individuals progress from a reliance on external authorities for truth to an ability to synthesise evidence and reconcile conflicting information. Their model underscores that critical thinking involves analysing, evaluating, and recognising knowledge's uncertainty and contextual nature.

Theo Dawson's (2004) research dives deeper into the components of critical thinking, identifying the micro-skills involved. These include recognising assumptions, evaluating arguments, making inferences, and explaining reasoning. Dawson's work highlights that critical

thinking is not a monolithic skill but a collection of interrelated capabilities that can be developed and refined.

Daniel Kahneman's (2011) seminal work on System 1 and System 2 thinking in his book *'Thinking, Fast and Slow'* provides a foundational understanding of the cognitive processes underlying critical thinking. System 1 is fast, intuitive, and emotional, while System 2 is slower, more deliberative, and more logical. Critical thinking largely involves engaging System 2 to check and supervise the automatic assumptions and impressions generated by System 1. Understanding these two systems' interactions is crucial for developing effective critical thinking skills.

Known for his 2018 book *'Factfulness: Ten Reasons We're Wrong About The World – And Why Things Are Better Than You Think'*, Hans Rosling demonstrates how our preconceived notions and biases distort our understanding of the world. From Rosling's perspective, critical thinking involves questioning our assumptions and using data and evidence to form a more accurate view of reality.

Universities serve as critical arenas for developing critical thinking, promoting intellectual growth and reflective judgment through a rich curriculum and interdisciplinary engagement. They foster an environment conducive to rigorous debate and scrutinising ideas, guided by faculty who encourage students to challenge assumptions and biases. This academic framework, emphasising analysis, evaluation, and synthesis, prepares students for informed decision-making, equipping them to navigate the complexities of contemporary life with enhanced critical thinking skills.

3.2. Complexity Awareness

Complexity awareness is a critical cognitive skill, particularly in the modern world, where business and ethical issues are often intertwined in a complex web of causes and effects. This skill involves recognising, understanding, and navigating complex systems' intricate and often unpredictable interactions and interdependencies, co-sensing, zooming in and out for a trained systemic view, feeling one's contribution in the system, turning the lens back on oneself. Understanding the underlying structures and dynamics that drive observable phenomena is about seeing beyond the superficial, working with complex and systemic conditions and causalities.

Russell Ackoff, a pioneer in systems thinking, emphasised the importance of understanding the whole system rather than just its parts (Ackoff, 1979). He argued that in complex systems, the properties and behaviours of the whole might differ entirely from those of its parts. This insight is crucial for managers who need to consider the broader organisational and environmental context in which they operate.

Alicia Juarrero's (1999) work on complexity in *'Dynamics in Action: Intentional Behavior as a Complex System'* illustrates how context-sensitive actions and events emerge from complex systems. She emphasises the non-linear nature of complex systems, where small changes can lead to significant, unpredictable effects. This perspective is well extended in her newest book *'Context Changes Everything: How Constraints Create Coherence'* (Juarrero, 2023), which helps us understand that cause and effect are often not directly proportional in complex environments and can be influenced by many interacting factors.

Donella Meadows is renowned for her work on systems thinking, particularly in environmental and sustainability contexts. In *Thinking in Systems: A Primer*, Meadows (2008) highlights the importance of identifying leverage points in a system — places where a slight shift can lead to significant changes. For future managers, understanding these points can be crucial for effective strategy development and problem-solving.

David Snowden's (1999, 2005) Cynefin framework provides a valuable framework for understanding different types of systems — from simple and complicated to complex and chaotic — and how to approach decision-making in each. Snowden's work has focused on looking at complex issues relating to strategy and organisational decision-making. Since then, Snowden's work has been extended to three major frameworks in the Cynefin ecosystem, Cynefin, Estuarine and SenseMaker, which help managers recognise the nature of the system for effectively navigating the complexities of the 21st century. Using SenseMaker as a Research Tool explores the SenseMaker tool capacities in depth in the recent Making Sense of Complexity article (Van der Merwe et al., 2019).

In her book *Learning Systems Thinking* Diana Montalion (2024) emphasises the importance of shifting to systems thinking to navigate the increasing complexity of modern systems and make impactful decisions. She advocates for developing critical self-reflection and decision-making skills to effectively lead organisational cultural change (Montalion, 2024, pre-print). According to her experience, transforming a system of thinking necessitates shifting perspectives, fostering self-awareness, replacing reactivity with thoughtful responses, encouraging collaborative reasoning, and designing feedback loops for continual adjustment and recognition of patterns.

Incorporating complexity awareness and systems thinking into the management curriculum is essential for preparing future leaders. By understanding the interconnected, dynamic nature of complex systems, future managers can better anticipate and navigate the challenges of the 21st century. They will be equipped to recognise patterns, understand interdependencies, and think systemically, critical for addressing multifaceted business and ethical issues. As the world continues to become more interconnected and complex, raising the consciousness of the ability to think in this nuanced, holistic way will be increasingly crucial for effective, responsible leadership.

3.3. Perspective Skills

Perspective skills, strategic management, and sense-making are profoundly interrelated and collectively form a crucial set of competencies for anyone looking to navigate the complexities and uncertainties of the 21st century, particularly in the business world. These might include welcoming different views and seeking diversity, going from divergent to convergent thinking, seeking and understanding, and actively making use of insights from contrasting perspectives and polarities.

Perspective skills involve considering and understanding multiple viewpoints and acknowledging that different individuals or groups may interpret the same situation differently. Theo Dawson's work on perspective-taking highlights the ability to understand and reason about one's own and others' thoughts and feelings, which is essential for effective communication, problem-solving, and conflict resolution (Dawson, 2020-2021). In business, managers with strong perspective skills are better equipped to understand customer needs,

anticipate market changes, and collaborate effectively with diverse teams. They need to navigate the complexities of global markets, cultural differences, and ethical dilemmas by considering a broader range of possibilities and outcomes.

Strategic management skills involve formulating and implementing the major goals and initiatives a company's top management takes on behalf of owners. It is based on considering resources and assessing the internal and external environments in which the organisation competes. In the face of dynamic complexity, where change is the only constant, strategic management skills are more about adaptive learning and resilience than strict planning and prediction (McMillan, 2008; Teece et al., 1997). It is about creating flexible strategies that can evolve in response to an unpredictable environment. This requires a deep understanding of one's organisation and industry and the ability to anticipate and respond to changes swiftly and effectively.

3.4. Sense-Making

Sense-making gives meaning to collective experiences (Weick, 2005) and is essential in times of uncertainty and ambiguity for seeing patterns, structuring the unknown, and being able to create stories consciously. For Hübl (2023), it includes cognition and physiological sensing (p. 127). In the context of cognitive development, it involves taking the disparate pieces of information that bombard us daily and forming a coherent narrative that guides our understanding and action. This skill is crucial for managers who must make decisions with incomplete information and in rapidly changing conditions. The relationship between perspective skills, openness, and a learning mindset is central to effective sense-making. Sense-making capability enhances our ability to be conscious about whether or not we are open to new information. Knowing our level of one's openness to perceive what is new requires, as Thomas Hübl describes, attunement. In his latest book, *Attuned*, he highlights the importance of practising it to increase our inner and outer coherence in relationality.

Awareness of our diverse perspectives and willingness to learn and adapt one's understanding continually are critical for making sense of modern business's complex, interconnected and relational world. As the world continues to change at an unprecedented rate, these skills will become increasingly vital for managers and leaders across all sectors.

3.5. Long-Term Orientation and Visioning

Long-term orientation and visioning are essential cognitive skills for navigating the intricate landscape of the 21st century, marked by its VUCA characteristics (Bennett & Lemoine, 2014). These skills are vital in addressing multifaceted global challenges, such as those encapsulated in the United Nations Sustainable Development Goals (SDGs), where short-term fixes are insufficient and often counterproductive.

3.5.1. Long-Term Orientation

Long-term orientation involves looking beyond immediate concerns and planning for the future with a sustained commitment, holding intention, welcoming emergence and convergence, formulating and sustaining commitment to visions relating to the larger context. It is about understanding that some of the most significant challenges and opportunities unfold over extended periods (also reflected in De Vos et al.'s (2020) conceptualisation of sustainable careers as consisting of person, context, and time dimensions and Akkermans et al.'s (2018) conceptualisation of career shocks). Strategic thinking involves setting objectives,

understanding available resources, anticipating potential challenges, and devising robust yet adaptable plans. The SDGs, for instance, are a clear manifestation of long-term orientation and strategic thinking at a global scale, requiring concerted and sustained effort over many years.

3.5.2. *Visioning*

Visioning is about imagining a desired future state and working backwards to understand the steps needed to achieve it. It is a powerful tool in cognitive development, helping to align short-term actions with long-term objectives and providing a source of motivation and direction. In the context of complexity, having a clear vision is vital as it serves as a guiding star amidst the turbulence and unpredictability. It helps maintain focus and coherence in strategies and decisions, even when immediate circumstances are volatile. Vision is also an integral part of Sylvester and Donald's (2023) Personal Brand V.A.L.U.E. Career Development Tool, whereby the acronym represents Vision, Ability, Love, Understanding, and Ecosystem. Operationalisation of the Personal Brand V.A.L.U.E. Career Development Tool across the university-industry divide is shown via an in-depth case study in another article within this issue of the GiLE Journal of Skills Development (Sylvester & Donald, 2024).

3.5.3. *Complexity and Strategic Frameworks*

However, while valuable in ordered and complicated domains, traditional strategic tools like Porter's Five Forces or SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis may fall short in genuinely complex environments. David Snowden's (1999) Cynefin framework and, more broadly, systems theory and Si Network (<https://www.systemsinnovation.network/>) help to understand why. In complex systems, cause and effect are only apparent in retrospect, and there are no repeatable patterns that allow for straightforward predictions. Porter's (1979) strategy framework, excellent for understanding competitive forces in relatively stable and known markets, might not capture complex systems' emergent, unpredictable nature.

Similarly, tools like Strengths, Weaknesses, Opportunities, and Threats (SWOT) and Political, Economic, Social, Technological, Legal, and Environmental (PESTLE) analyses provide snapshots based on current understanding. They are less effective in environments where these factors are non-linear and in constant flux. In a VUCA world, adapting to emerging patterns, continuously learning from the environment, and revising strategies are crucial.

Estuarine's newest framework in the Cynefin ecosystem was developed to counter traditional approaches to strategy and reflect the key principles of change and its management in a dynamic and complex environment. Combining Deleuzian epistemology and Constructor Theory from Physics and Complexity Science will hopefully provide a coherent and easy-to-understand picture of the field as they are now linked within Estuarine. Future business leaders must cultivate an ability to sense and respond, experiment, learn quickly from successes and failures, and remain agile. The most progressive and innovative Business Schools now need to ask themselves how to update the teaching of international strategic management to meet its latest complexity frameworks and tools and introduce them to the professors of Strategic Management and Business Consulting so that the latest advances of theory and practice are introduced directly into business schools classrooms through cases, sensemaking and tools.

The 'Inner Development Goals Toolkit', available via [IDG.tools](https://www.idg.tools), serves as a comprehensive library of resources to facilitate progress towards the UN Sustainable Development Goals (SDGs) through personal and organisational development. According to Stålné and Greca

(2022), the toolkit, in its public beta version, offers a variety of tools, including courses, exercises, and methods primarily rooted in adult developmental psychology. Notably for the Cognitive Skills domain, the IDG Phase 2 Research Report offers tools such as the Dialectical Thought Form Framework, Immunity to Change process, and Polarity Map are designed to help individuals comprehend complexity, challenge underlying assumptions, and navigate paradoxical problems, thereby enhancing cognitive skills essential for addressing global challenges (Stålne & Greca, 2022).

In summary, while long-term orientation, strategic thinking, and visioning remain foundational skills, their application in the 21st century requires a nuanced understanding of complexity. Future leaders must be equipped to navigate this landscape, understanding when to apply traditional strategic tools and when to adopt more emergent, adaptive approaches.

4. Implications

The role of universities in enhancing students' capabilities for work and life (Jakubik et al., 2023) directly overlaps with integrating IDGs into their curricula with the strategic aim to democratise and empower educational systems with a focus on holistic development. The overview for concept understanding of "Democratisation of Higher Education" for efficient university development was presented in 2018 (Shtaltovna, 2018). This integration can be achieved through eight specific and actionable recommendations that represent the practical implications of our manuscript.

The IDG has formed several circles in thematic areas for searching, elaborating, and spreading support for the SDG. For example, *The IDG Higher Education (HE) Circle*, led by Vivianna Rodriguez Carreon from the University of Sydney, organised monthly meetings online with academics, professionals and practitioners working within and with Higher Education. The Circle's aim was to co-sense and co-create common topics among those participating in the meetings. By the end of 2023, the HE Circle formed a growing global net of over 100 members. The main three topics identified to work within *IDG Higher Education Circle* were:

- Curriculum design to include pedagogy with transformative learning and assessment, including the IDG tools;
- Culture to include academic and professional leadership on campus and about relationships with community stakeholders; and
- Student-life aimed to work with leaders in experiential learning working within and with different Higher Education models depending on the regions of work.

In leading the IDG Higher Education Circle, Vivianna works closely with Fredrik Lindencrona, a core team member of the Inner Development Goals organisation. While the aims resulted from the conversations during the meetings, they meant to evolve to align with the organic co-creation of the growing HE Circle.

4.1. Curriculum Design

Universities might pioneer and redesign their curricula to include courses, modules, and/or learning objectives specifically focused on IDGs, ensuring that students gain exposure to cognitive, emotional, social, systems, and embodiment skills in existing courses across various disciplines in Business Schools and more broadly in Higher Education. IDG Higher Education Circle is a monthly initiative that powers this and gathers experiences from the most innovative

universities to share and disseminate. The introduction of IDGs into university curricula represents a forward-thinking approach to education, preparing students to meet the challenges of the 21st century with resilience, adaptability, and a deep sense of purpose.

4.2. Interdisciplinary Approach

Implementing an interdisciplinary approach to teaching IDGs in standalone courses, schools, corporate business networks, or via Ministries of Education and Science can demonstrate the applicability and relevance of cognitive thinking skills and broader inner development across different fields of study. This approach can foster a local-national-global understanding of how these various cognitive skills intersect with professional and personal life.

4.3. Experiential Learning

Universities can adopt experiential learning methods like project-based learning, internships, and service-learning opportunities, allowing students to apply IDG principles in real-world contexts. This hands-on approach can enhance the practical understanding and application of inner development skills, inviting the certified coaches and method representatives as visiting lecturers and/or into ideathons, hackathons and summer schools might ignite the process.

4.4. Faculty Development

Investing in faculty development programs to train educators in the principles and teaching methods of IDGs and specifically cognitive skills is crucial not only for Business Schools. Educators need to be equipped with the knowledge and skills to effectively incorporate IDGs into their teaching practices through financing CPD - Continuous Professional Development and therefore praised and financially motivated upon successfully integrating the received competence into classrooms.

4.5. Assessment and Evaluation

Developing assessment and evaluation methods that capture the growth and development in IDG-related competencies, including cognitive skills, is essential. This might include reflective assignments, journaling, 3-D mapping, collaborative projects, personal development plans, portfolio assessments, open feedback mechanisms focusing on personal and professional growth, inner and sustainable development.

4.6. Assessment and Evaluation

Cultivating a campus culture that values and promotes inner development can reinforce the importance of IDGs. This involves creating a supportive environment that encourages self-exploration, mindfulness, community engagement, volunteering, and habitually using mentoring, sponsoring, dialogue circles, and case clinics among students and staff. Small steps changes such as microactions instead of macrostrategies are proven to be more influential.

4.7. Collaboration with External Partners

Universities can collaborate with external partners, such as sustainable businesses, non-profits, and other educational institutions, to provide students with additional resources and opportunities to explore and apply IDG principles beyond the university setting. Cross-governmental funding requirements (Erasmus+, Horizon, Key Actions 2, etc.) and cross-cultural collaboration might fuel such integrations for sustainable careers and development.

4.8. Research and Innovation

Encouraging research and innovation in the field of inner development can contribute to the ongoing refinement and adaptation of IDG integration into higher education. The IDG Research Circle, led by Fredrik Lindencrona, IDG Head of Research Co-Creation, is igniting, supporting and spreading such studies. The Inner Development Goals initiative recognises explicitly that the current framework was developed with a predominantly "Western"-bias. Thus, currently, it coordinates the Global Framework 2.0 process to allow researchers, educators, students and others in educational systems and wider societies in more than 100 countries across the globe to bring their wisdom about key transformational skills for sustainable development to create the first framework truly inclusive of views from around the world.

5. Limitations and Future Research Agenda

Further research is obviously warranted to explore the implementation of the IDG framework across different educational levels and settings, including colleges, middle schools, K-12 education, and primary schools. Each educational stage presents unique challenges and opportunities for integrating IDGs, necessitating tailored approaches to curriculum design, teaching methodologies, and assessment strategies. Investigating these adaptations will provide valuable insights into how IDGs can be most effectively incorporated into the education system to foster lifelong learning and personal growth neighbourhood-wide, city-wide, nation-wide and globally.

Incorporating the remaining four dimensions of the IDG framework (*Being, Relating, Collaborating, and Acting*) into higher education and, more specifically, business school curricula represents a significant opportunity to enhance the relevance and impact of educational programs. This approach complements cognitive skills and provides a holistic development platform for students, preparing them for the complexities of modern careers and societal challenges. Integrating IDG tools into curricula could foster a well-rounded, adaptable, and resilient workforce equipped with the necessary skills to navigate and contribute positively to the VUCA world of the disrupted 21st century.

The application of the IDG framework in adult development and education for the elderly (third age) through various channels, such as international *Bildung* movements, *U-theory* movement, *Integral/Spiral Dynamics* movement, education and sustainability-focused NGOs, training centres, and holistic education centres, opens up multiple new avenues for research and the evolving needs of an ageing population promoting lifelong learning, enhancing quality of life, and leveraging the contributions of older adults to society. By systematically exploring these areas, scholars can contribute to the body of knowledge on systemic and adaptive personal and professional development, ensuring that education systems are better equipped to meet the needs of individuals and societies in the 21st century.

In addition to the education sector, research and innovation based on IDG skills are underway in many societal sectors relevant to transformation for sustainable development, such as leadership and management and urban and rural planning. The capacity of the educational sector to help facilitate IDG development across these sectors needs to be better understood and explored. The call for further research on the IDG framework across the educational spectrum reflects expanding the scope of IDG research to include all dimensions (not only Cognitive Skills) and their application in various educational settings; the academic community can drive

forward the conversation on how to best prepare individuals for the challenges and opportunities of the future.

For future research and practice, several directions are recommended. Firstly, there is a need for further exploration of how these cognitive skills can be effectively cultivated at various stages of education and professional development. Secondly, examining the application of other skills within the IDG Framework in diverse cultural and organisational contexts can provide insights into their universality and adaptability to empower sustainable career development. Thirdly, research could focus on developing metrics and assessment tools to measure the growth and impact of these skills over time. The 6-Level Skills Development Approach to Skill Assessment was already proposed by Shtaltovna (2021). Aligning this 6-level chart of skill development based on the "can-do descriptors" approach by CEFR, also known as the ability assessment approach, for further discussion, development, and application can be a promising tool for the soft skills, 21-st century skills and the competences for IDGs. Finally, as the world continues to evolve rapidly, ongoing research into how these cognitive skills can best support adaptive and ethical decision-making in new and unforeseen contexts is crucial.

6. Conclusion

The literature on cognitive skills development underscores the intricate, interconnected nature of these skills and their pivotal role in navigating the complexities of the modern world of the multifaceted nature of critical analysis, evaluation, and synthesis. Complex problem-solving and strategic thinking are discussed in light of dynamic complexities and the VUCA world, advocating for a nuanced understanding of traditional tools like Porter's strategies and the need for adaptive, responsive approaches.

The IDG framework emerges as a critical tool, promoting an open-ended exploration of cognitive skills. It suggests an adaptive, holistic, and integrative pedagogical approach, reflecting these skills' multifaceted and dynamic nature (as also captured by Cole and Donald's (2023) holistic approach to encompassing life-wide and lifelong learning). The importance of perspective skills, long-term orientation, and visioning are also underscored, pointing towards the necessity of understanding multiple viewpoints, strategic foresight, and a clear, adaptable vision in managing the challenges of the 21st century.

Universities have increasingly been tasked with teaching personal skills essential for the modern workforce, such as critical thinking, creativity, problem-solving, and digital literacy, among others. Jakubik et al. (2023) emphasise that while this concept of the ideal intellectual is not new, the contemporary version extends beyond traditional academic knowledge to include a moral attitude and people-centred thinking, highlighting the need for graduates to be philanthropist-postmodern-humanists equipped with a well-rounded education that values empathy and ethical conduct.

In summary, the literature paints a picture of cognitive skills development as a lifewide, lifelong and dynamic process crucial for personal growth, sustainable career development, sustainable growth and effective leadership. As suggested by the IDG framework, an open, adaptable approach is essential for nurturing all the IDG skills in a world characterised by complexity and constant change.

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Conflict of Interest

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No dataset is associated with this article.

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Corresponding Author

The corresponding author for this manuscript is Yuliya Shtaltovna who can be contacted by email via y.shtaltovna@gmail.com.