# “Oh yeah, we’re really in deep s***”
# The Anthropocene Epiphany: An Intimate Encounters for Management and Business Students

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**Abstract:**

While numerous studies examine environmental, ecological, or sustainability awareness (or consciousness), a comprehensive understanding of the ongoing cognitive process is still missing. Therefore, we investigate how business and management students perceive, position themselves, and react in response. This study relies on the written production of 447 reflective and retrospective micro-narratives centered around a personal and intimate epiphany in response to the new climate regime. The analysis of this discursive material leads us to conceptualize the notion of ‘Anthropocene Epiphany,’ considering it as a complex cognitive process that deeply engages individuals’ lived experiences. (i) a cognitive phenomenon triggered by a positive feedback loop of encounters with intimate climate change phenomena, (ii) fostering a progressive accumulation of realizations that make the climate imperative meaningful and heighten awareness, and (iii) culminating in a rupture with one’s former reality. Finally, we propose teaching implications for effectively integrating climate change and the Anthropocene into business school curricula.

**Key Words:** Anthropocene; Climate Change; Management Education; Business School; Cognitive Process

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Every region on Earth is now feeling the effects of human-induced climate change, making a return to “normal” seem almost unattainable (Reisinger et al., 2025). We are entering a phase of “global and irreversible disruption” (see Waters et al., 2016), the Anthropocene—a proposed geological epoch marked by the significant and lasting impact of human activities on Earth's systems (e.g., Steffen et al., 2007). This state of global and irreversible disruption (Waters et al., 2016) is empirically evident in the near transgression of seven planetary boundaries (Caesar et al., 2024), with disastrous consequences for humanity (Kunnas, 2017). Embracing the Anthropocene concept brings about unlimited, incalculable, and unthinkable consequences (Campbell et al., 2019) and introduces extreme volatility and uncertainty about the future (Heyd, 2021). It has emerged as both a new narrative and scientific paradigm (Ellis, 2018), particularly in the humanities and social sciences (Bebbington et al., 2019). Consequently, various subfields within management are increasingly shifting to address this unprecedented challenge, including marketing (Rémy et al., 2024), strategy (Bansal et al., 2025), or organization studies (de Figueiredo & Marquesan, 2022; Kalonaityte, 2018; Wright et al., 2018).

However, despite the critical and imperative situation, there is still a surprising lack of research on firms’ strategic decision-making in response to climate change challenges (Bleda & Pinkse, 2023), often marked by complacency (Wade & Griffiths, 2022). Consequently, Management Learning and Education (MLE) is increasingly being called upon to integrate this new imperative by integrating new concepts, such as tipping points (Lenton et al., 2019) and planetary boundaries (Richardson et al., 2023), that embed economic and social activities

within the broader framework of global sustainability (Edwards et al., 2021). In this context, scholars have found that firms' strategic decisions about climate change challenges, or inaction (Mazutis & Eckardt, 2017), are determined by how executives understand climate impacts and their strategic consequences (Bleda & Pinkse, 2023). But there is a scarcity of both conceptual and applied tools for supporting MLE regarding such a cognitive process, for instance emotions toward climate change (Edwards & Küpers, 2024). This study aims to explore the ongoing cognitive processes experienced by business school students as they navigate this new reality. Understanding these processes is crucial for identifying the cognitive frameworks present in our classrooms, which in turn will help us develop course content and teaching practices that are both relevant and well-adapted. Our research question is as follows: *What is the cognitive process at work for our students in realizing such a new imperative?*

To address this issue, we conducted a qualitative and inductive study based on reflective journal entries from over 400 post-graduate students at a business school. These students were instructed to write retrospective, reflective, and narrative accounts detailing the circumstances and modalities of their climate change awareness as a subjective, personal process. These texts map the key milestones of their encounter with the Anthropocene—a journey often marked by inner conflict and profound upheaval. Over a three-year period (2022–2024), we gathered these narratives to explore the cognitive dimensions of what we have called the 'Anthropocene Epiphany.' This paper seeks to conceptualize it, and ultimately defines it as (i) a cognitive phenomenon triggered by a positive feedback loop of encounters with intimate climate change phenomena, (ii) fostering a progressive accumulation of realizations that make the climate imperative meaningful and heighten awareness, and (iii) culminating in a rupture with one's former reality, which may result in inaction or a depoliticized response but also opens the door to radical and political solutions for transforming business and management.

The study is structured as follows: First, we provide a review of the literature on the various forms of awareness and consciousness, ultimately linked to the cognitive framework. Grounded in the field of MLE, we then argue for the necessity of understanding the cognitive processes at work among our students and trainees, to adapt our pedagogical content and practices in a relevant and effective manner. Following this, we outline our research methodology, including data collection and analysis. We then present a comprehensive and detailed analysis of our students' narratives, organized into three sections corresponding to the three dimensions of Wade and Griffiths' (2022) integrated model of decision-making: Factor Foundation, Cognitive Process, and ultimately, Decision. Next, we propose a conceptualization of the Anthropocene Epiphany and discuss its corresponding teaching implications. Finally, we explore how Management Education can be adapted to integrate climate change and the Anthropocene more effectively, ultimately enhancing students' preparation for effective decision-making.

## 1. LITERATURE REVIEW

### 1.1. AWARENESS AND CONSCIOUSNESS: KEY DEFINITIONS

The transformative process at an individual level is commonly referred to as climate, environmental, ecological, or sustainability awareness (or consciousness). Some scholars emphasize the importance of distinguishing these concepts (Kousar et al., 2022). Table 1 offers a synthetic presentation of the definitions and distinctions. *Climate change awareness* is often reduced to a single component among others, such as risk perception, and primarily refers to an understanding of the climate change phenomenon and its impact on biodiversity, society, etc. (Apaolaza et al., 2022; Hernández & Muñoz, 2022; Kousar et al., 2022). *Environmental awareness* pertains to an understanding that focuses on the negative effects of human activities on external natural elements, such as water, air, and biodiversity (Fu et al., 2020; Kousar et al., 2022). It implies an increasing commitment to protecting these elements and integrating them

into decision-making processes (Bittar, 2018; Jain et al., 2020; Kousar et al., 2022). *Ecological awareness* offers a more systemic understanding, emphasizing the interrelationships between human societies and natural ecosystems. It is closely associated with the mobilization of methods and tools for managing the use, protection, and transformation of the environment (Wierzbiński et al., 2021). *Sustainability awareness* is characterized by its emphasis on individual actions and behaviors (Gericke et al., 2018, p. 47), aiming to reconcile environmental respect with addressing social needs and achieving economic objectives (Kalsoom & Khanam, 2017, p. 1302), which ultimately leads to assessing our current state and deciding on the desired direction for future action (Ovais, 2023).

**Table 1: Being Aware and Conscious, a few definitions**

| Related Concepts | Synthetic Definition | Definitions and references |
|---|---|---|
| **Climate change awareness** | Basic understanding of the climate change phenomenon | "… involves an appreciation of the degradation of natural ecosystems and biodiversity and also the potential shortages of critical resources" (Hernández & Muñoz, 2022, p. 287)<br>"… the degree to which people are aware that climate change is a reality, has become an important topic in the literature." (Apaolaza et al., 2022, p. 2)<br>"… the capability of individuals to recognize the nature of climate change issues, i.e.; awareness about rising temperatures, high sea levels, extreme weather, and global warming." (Kousar et al., 2022, p. 2) |
| **Environmental awareness** | Focus on the impact of human activities on external natural elements<br>Mitigate environment impact of decisions | "… an individual's understanding of the natural environment and their actions to save or harm the natural environment." (Kousar et al., 2022, p. 4)<br>"… reflects people's concern for and knowledge of the impacts of their behaviors on the environment" (Fu et al., 2020)<br>"… has been conceptualized as concerns and perceptions towards environment and the attitudes to reduce environmental problems." (Jain et al., 2020, p. 3)<br>"… understands the environmental problem currently faced by our society, acts in an environmentally responsible way and prefers to acquire environmentally sustainable products." (Bittar, 2018, p. 530) |

| | | |
|---|---|---|
| **Ecological awareness** | Interrelationships between human societies and ecosystems<br>managing and protecting the environment. | "the state of knowledge, views, and perceptions of people about the role of the environment in human life, its anthropogenic load, and level of exploitation as well as threats and protection, including the state of knowledge about the methods and tools for managing the use, protection, and shaping of the environment." (Wierzbiński et al., 2021). |
| **Sustainability awareness** | Oriented toward actionable solutions<br>Aligned with Triple bottom line (environment, social, economics) | "a latent capacity within individuals to act in a pro-sustainable way" (Gericke et al., 2018, p. 47)<br>"one's knowledge, attitudes and behaviours regarding society, economy and environment" (Kalsoom & Khanam, 2017, p. 1302) |

Around these concepts, the literature identifies several variables that both reinforce awareness and consciousness and influence how these contribute to the development of green and sustainable attitudes, behaviors, and actions. Therefore, the literature highlights several contributing factors. Education and training remain the primary levers for enhancing participation in ecological initiatives (Lee et al., 2015), for instance, with employee involvement (del Brío et al., 2007). However, Lee et al. (2015) point out that the main drivers of such engagement vary across countries, suggesting that local and tangible environmental issues play a significant role in shaping this awareness. Similarly, research on sustainable behavior emphasizes that such awareness enhances environmental engagement (Eom et al., 2016; Eom et al., 2018), fosters pro-environmental actions in business contexts (Perron et al., 2006), and influences individuals' managerial thinking and decision-making (Tezel and Giritli, 2019).

Our review, while enhancing the understanding of conditions and responses associated with these forms of awareness, uncovers significant conceptual shortcomings. Although distinctions between these concepts exist, clear definitions remain elusive, often leading to their interchangeable use and resulting in conceptual overlap. This definitional ambiguity complicates the understanding of underlying processes and offers limited insight into the broader dynamics of awareness and consciousness, from triggers to behavioral outcomes.

Moreover, the relevance of these conceptual constructs can be questioned in the context of the Anthropocene. While climate change awareness remains largely under-addressed, the other constructs are primarily embedded within green and sustainable approaches, which are themselves framed by the paradigm of corporate environmentalism. This paradigm promotes a "win–win" perspective, in which climate action is viewed as an opportunity to enhance corporate profitability through improved environmental performance. Yet, as Wright and Nyberg (2024) have shown, such an approach is limited, notably when organizations are framed as "green change agents." The Anthropocene, by contrast, calls for a radical reconsideration of this logic (Priddat & Schlaudt, 2025), which, in practice, has often privileged economic value creation over the protection of planetary boundaries and ecosystems (King & Pucker, 2021). A conceptual effort—to define the entire process of awareness — and a foundational critique — guided by the framework of the Anthropocene —thus appears necessary, a task to which this study modestly contributes.

### 1.2. Understanding Ongoing Cognitive Processes for Managerial Response

To better understand how a transformational response to the Anthropocene unfolds is to ultimately to grasp the cognitive processes at play — that is "how and what managers think about and understand various firm issues that require action" (Madhavaram et al., 2011, p. 533). A cognitive frame is the mental template or process used to scan, select and interpret information to respond to contextual and environmental situations and eventually give meaning to selected information (e.g., Hahn et al., 2014; Walsh, 1995). Research using such an approach allows us to grasp how turbulent, ambiguous, and uncertain business contexts are understood by managers and how they develop a subjective representation of organizational issues (Hahn et al., 2014). These processes are typically used to represent the generalized views that managers use to understand their environment and sustainability issues (Hahn et al., 2014; Sharma & Jaiswal, 2018). In the current context of the Anthropocene, it has become imperative

to adapt these sustainability frameworks accordingly — not only to foster a paradigm shift in how decision-making is shaped, but also to better understand the specific cognitive processes currently at play (Wade & Griffiths, 2022).

Wade and Griffiths' (2022) recent review suggests establishing underlying reasons for managerial inaction on climate change through better understanding using this framework. Consistent with the cognitive managerial literature highlighting how decisions made by management are highly dependent on previous experience (Hahn et al., 2014) and how environmental issues and challenges can be triggers for individual cognitive frame changes (Gröschl et al., 2019; Sharma & Jaiswal, 2018), they propose an integrated model of decision-making on climate change and sustainability issues consisting of three main dimensions : *Factor Foundation, Cognitive Process* and eventually *Decision*. First, the *Factor Foundation* refers to the various components connected to individuals, shaped by their inherited traits, life experiences, organizational environments, and the broader society in which they live. For instance, extreme weather events such as droughts, heatwaves, and floods (e.g., Choi et al., 2020; Deryugina, 2013; Herrnstadt & Muehlegger, 2014; Kalatzi Pantera et al., 2023; Sloggy et al., 2021), personal experiences of climate change (Howe et al., 2013), individual socio-economic characteristics (Lipari et al., 2024; Welsch, 2022), and activist movements or public policy initiatives (Lipari et al., 2024; Thiri et al., 2022) can all enhance and promote climate change awareness. Second, the *Cognitive Process* encompasses cognition, sensemaking, and managerial interpretation, all of which play interconnected roles in the decision-making process regarding climate change, with feedback loops being critical to this process. This step emphasizes recognizing the subjective dimensions of climate change (Moser & Dilling, 2011), as worldviews, values, and emotions shape how we relate to climate change (Leichenko & O'Brien, 2020). This phase involves a wide range of climate-induced emotions (Davidson & Kecinski, 2022; Marczak, Wierzba, et al., 2023; Marczak, Winkowska, et al., 2023; Pihkala,

2022; van Valkengoed & Steg, 2019; Zaremba et al., 2022), which can be both negative (Hickman et al., 2021) or positive (Doherty & Clayton, 2011). Wade and Griffiths (2022) emphasize that the role of emotions is often overlooked, despite the literature acknowledging that emotions influence firms' strategic decisions (Raffaelli et al., 2019). Other scholars have highlighted the role of cognition in shaping action. For instance, Peng and Liu (2016) demonstrate how awareness affects eco-management, eco-processes, and eco-product innovation activities. Similarly, Haney (2017) argues that managerial interpretation of climate change as a threat can actually foster innovation. Finally, *Decision-Making* does not occur in isolation. It involves sensegiving, which precedes action and is facilitated by knowing where to scan for information, how to make sense of it, interpret the options, and ultimately decide whether or not to act.

### 1.3. Addressing the Issue Through Management Education and Learning

Educational attainment is consistently the strongest predictor of climate change awareness (Lee et al., 2015), because addressing climate change ultimately requires questioning established norms, rules, institutions, policies, and practices (Leichenko & O'Brien, 2020). Accordingly, our article is situated within the field of Management Learning and Education (MLE), which encompasses all types of institutions, educational provisions, and training services related to management and business (Hoidn et al., 2022). In particular, MLE is increasingly opening up to a radical approach to climate change, drawing on frameworks such as Earth System Science and the Anthropocene. This approach moves beyond merely teaching about climate change, which typically involves presenting the current state of scientific knowledge on climate evolution. Instead, the Anthropocene paradigm offers a transformative interpretative framework (Wallenhorst, 2023), advocating for the integration of this new climate reality into all fields and disciplines. It is no longer sufficient to merely acknowledge the urgency of the situation; rather, this new imperative must be embedded within one's conceptual framework

and serve as a foundation for decision-making processes, moving away from perspectives primarily focused on the mission of fostering environmental, ecological, or sustainability awareness (Ovais, 2023).

In fact, while proclaiming a climate emergency and incorporating corporate social responsibility curricula and research, programs aiming to embrace sustainability often reinforce, rather than disrupt, the prevailing status quo (Jørgensen & Fatien, 2024). To challenge this status quo, Management Education must now embrace a radical shift (Gasparin et al., 2020; Laasch, 2024), because there is, and there will be, an increasing need for training future managers who will have to confront the consequences of the Anthropocene in their organizations and daily lives (Wright et al., 2018). We need a new and non-negotiable educational and teaching framework that adapts 21st-century education to a rapidly transforming reality (Wallenhorst, 2023).

Given that the Anthropocene presents unprecedented complexity and uncertainty (Bleda & Pinkse, 2023; Wade & Griffiths, 2022), it is essential to understand the cognitive processes of students and trainees at work, which ultimately shape individuals' comprehension of and engagement with the issue (Head, 2016; Ryan, 2016). Consequently, while some scholars advocate for integrating emotional dimensions into teaching and pedagogical practices (Ojala, 2012), there remains a need for a deeper understanding of the underlying cognitive processes involved in addressing a climate change context characterized by uncertainty and disruption (Dallyn et al., 2024).

## 2. METHODOLOGY

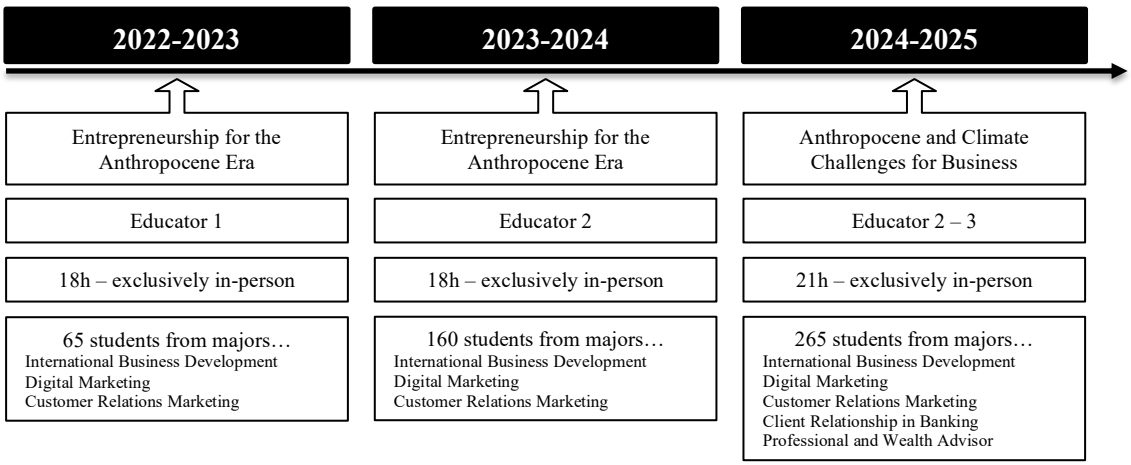
### 2.1. COURSE DESCRIPTION

This study is empirically based on a course initially titled *Entrepreneurship for the Anthropocene Era* and later renamed *Anthropocene and Climate Challenges for Business*,

offered at a French business school to 490 postgraduate students (Figure 1). As a core module, it was attended by all students in the cohort, thereby reaching a diverse population not limited to those specializing in social or environmental issues. The course was designed by the three educators and co-authors of this article and introduces students to the challenges of climate change, with a focus on embedding entrepreneurship (2022-2023 and 2023-2024) and subsequently strategy (2024-2025) within the Anthropocene context (Wallenhorst, 2023).

The overarching educational objective is to prepare students to navigate this new climate regime, fostering the development of adapted solutions and innovations that go beyond the typical "business-as-usual" policy options (Leichenko & O'Brien, 2020; Wright & Nyberg, 2017). To achieve this, the course was structured to combine knowledge acquisition on climate change and the Anthropocene with experiential learning. Students were invited to design an entrepreneurship or strategy project within the Anthropocene framework. The course's objective was thus to move away from the "perils of teaching sustainability for the planet in a sector that heavily values teaching sustainability for business alone" (André, 2024, p. 12).

**Figure 1: Presentation of the Courses Conditions**




### 2.2. Data Collection and Analysis of the Students' Narratives

To gain a deeper understanding of how students cognitively process the realization of the Anthropocene, we conducted qualitative research to explore why, when, and how they come

to perceive (or fail to perceive) that climate change has shifted into a new dimension. Our study sought to answer the research question of whether students' reflections support our claims (e.g., Kiss et al., 2024). This approach was inspired by two key sources. First, an important source of inspiration for our initiative was the discovery of a collective work, '*Intimate Encounters with the Anthropocene: Personal Narratives of Scientists*' (Humeau et al., 2021), which features testimonies from scientists involved in the *Labos 1point5* collective, advocating for a reduction in the carbon footprint of scientific research. Second, a testimony from Bruno Latour, in which he was asked how he became aware of the climate problem, also influenced our approach. Latour responded by highlighting two decisive moments that took the form of a revelation. The first was a conversation with an agronomist in the vineyards of his parents' estate in Burgundy (France), where the agronomist expressed concerns about the potential impacts of Gulf Stream disruption on viticulture. The second was when he attended a lecture on actions to address climate disruption, after which he confessed that he "could not sleep for several days" (Latour, 2020). Similarly, we aimed to engage students in this sensitive and personal terrain, a space where they are typically called upon to reflect and act. The goal was to create an environment in which, through writing, students could engage in an introspective process and trace the origins of their climate awakening. From a methodological perspective, the discourse material obtained can be classified as "micro-narratives,"[1] in line with Bertaux's (2016) definition, which states that "a narrative exists whenever a fragment of lived experience is described in narrative form" (p. 14).

We designed this reflexive writing as a specific assignment. The instructions were as follows: *"When, where, why, and how did you become aware of the current climate situation?"* Students were instructed to submit at least two pages recounting the moment they first became aware of

[1] In the remainder of the text, we will use only the term 'narratives.'

climate change or, alternatively, to explain why they had not yet experienced such an awakening, including how they reacted and what they saw as the consequences. Although this narrative formed part of the final assessment, we consistently emphasized in class that students should feel free to express their opinions, experiences, and perceptions of climate change, even if it diverged from the perspectives of the instructors (Huault & Perret, 2011). We also encouraged them to use any written format they felt comfortable with. To support their reflection, we provided examples from Humeau et al. (2021). The narratives submitted by students served as our primary qualitative data. We allocated between two and three months for students to complete this assessment, allowing them to engage in a truly reflective effort. However, like many of our colleagues, we have gradually observed the use of AI, particularly ChatGPT, among our students, which has begun to challenge traditional methods of evaluation and student output (e.g., Barros et al., 2023; Krammer, 2023; Ratten & Jones, 2023). Consequently, we decided to include submissions from the past three years, enabling us to ensure the consistency of our results and the genuinely personal and reflexive nature of the entries. The same key elements were highlighted by students regardless of the academic year. Only the syntax differed, with the latest session occasionally exhibiting more formal language and somewhat more "dramatic" terminology.

We gathered a substantial amount of data (see Table 2) across multiple waves of collection, spanning three course deliveries from 2022 to 2024, amounting to a total of 447 journal entries. From the total number of journal entries submitted, we retained a final selection of 374, excluding entries that were incomplete or deemed off-topic (=57) and considered "uncommon" (=16). These exclusions were initially made by one of the three educators and subsequently reviewed and discussed by all three co-authors and instructors to ensure the legitimacy of the exclusions. We used the same protocol of "uncommon entries", i.e. entries that explicitly reject climate situations (climate-sceptics) or express a climate non-reaction.

**Table 2: Data Collected**

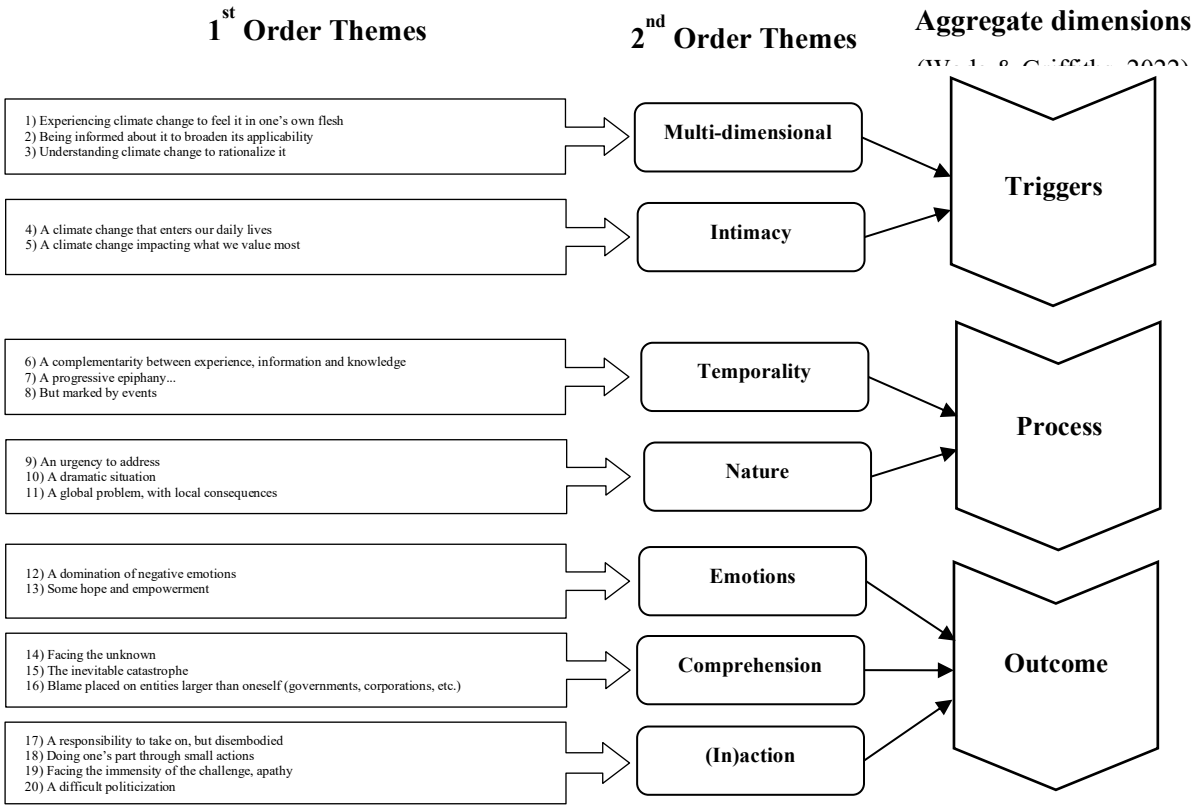
| Academic Year | Educator | Campus | Major of students | Data Collected |
|---|---|---|---|---|
| 2022 – 2023 | Educator 1 | Toulouse | International Business Development (IBD)<br>Digital Marketing (DM)<br>Customer Relations Marketing (CRM) | 54 journal entries, including…<br>- 8 excluded<br>- 6 uncommon |
| 2023 – 2024 | Educator 2 | Toulouse | International Business Development (IBD)<br>Digital Marketing (DM)<br>Customer Relations Marketing (CRM) | 62 journal entries, including…<br>- 12 excluded<br>- 1 uncommon |
| | | Paris | International Business Development (IBD) | 27 journal entries, including…<br>- 3 excluded<br>- 0 uncommon |
| | | Paris | Digital Marketing (DM)<br>Customer Relations Marketing (CRM) | 57 journal entries, including…<br>- 8 excluded<br>- 0 uncommon |
| 2024 – 2025 | Educator 2 | Toulouse | International Business Development (IBD)<br>Digital Marketing (DM)<br>Customer Relations Marketing (CRM) | 59 journal entries, including…<br>- 5 excluded<br>- 0 uncommon |
| | Educator 2 | Paris | International Business Development (IBD) | 33 journal entries, including…<br>- 0 excluded<br>- 0 uncommon |
| | Educator 3 | Paris | Digital Marketing (DM)<br>Customer Relations Marketing (CRM) | 67 journal entries, including…<br>- 8 excluded<br>- 1 uncommon |
| | | | Client Relationship in Banking (CRB) | 51 journal entries, including…<br>- 7 excluded<br>- 3 uncommon |
| | | | Professional and Wealth Advisor (PWA) | 37 journal entries, including…<br>- 6 excluded<br>- 5 uncommon |

Our analysis commenced with an inductive and exploratory phase characterized by methodological bricolage, intentionally diverging from standardized methodologies (Pratt et al., 2022). Given that the three authors of this article have taught the course and reviewed a substantial number of student entries, we began with an initial inductive coding phase. This phase involved collaboratively designing the following categories: *Triggers* (experience, information, knowledge); *Temporality* (immediate, progressive); *Ecological Themes* (inductively identified themes such as biodiversity, justice, water, snow, heat, landscape, extreme weather, etc.); *Nature* (seriousness, big picture, urgency); *Anthropocene Definition* (questions of accountability, irreversibility, and uncertainty); *Action* (responsibility, activism, individual action, inaction); and *Emotions* (drawing on the climate emotions framework by Marczak et al., 2023). Following the development of this initial coding framework, we conducted a comprehensive coding process for each entry. Throughout this process, the three authors participated in multiple collaborative meetings to discuss and refine the final coding structure and conceptualization. Through iterative back-and-forth between the empirical data

and relevant literature (Magnani & Gioia, 2023), we progressively arrived at the data structure presented in Figure 2.

This structure is the result of an abductive and collaborative process among the three co-authors. After conducting the initial data analysis, we refined the first-order themes and analyzed the data through the conceptual framework proposed by Wade and Griffiths (2022), particularly their three dimensions: Foundation Factors, Cognitive Process, and Decision. These dimensions were subsequently renamed to align with our findings. Once this task was completed, we finalized the tables summarizing all the data (samples of which are presented in the following section), enabling us to conceptualize the '*Anthropocene Epiphany'*.

**Figure 2: Structure of Data Analysis**




## 3. FINDINGS: CHARACTERIZING THE CLIMATE EPIPHANY

A central feature of our narratives lies in their discursive reality, that is, the narrative itself and what students express during the act of producing their story. In this regard, situating or explaining the moment of their climate change awareness rarely poses a challenge. On the

contrary, we observe an ease of articulation characterized by a tone of self-evidence, with little hesitation. Statements such as "*It was a summer day when the weather was nice and warm*" (2223_T_IBD_07)[2] or "*I remember that day as if it was yesterday*" (2223_T_CRM_02) are common, reflecting a conscious personal turning point and a striking ability to remember.

### 3.1. EXPERIENCE, INFORMATION, KNOWLEDGE. A CONFRONTATION WITH INTIMACY

Our study highlights the factors that shape the individual's cognitive process, which are inherently linked to the individual themselves (Wade & Griffiths, 2022). Student narratives reveal a diverse array of facts, events, and circumstances identified as the origins of climate change awareness. The analysis of our discursive material allowed us to group these triggers into three main categories: (i) *experiencing* climate change, i.e. a direct encounter with the consequences of climate change, typically in the form of a personal and sensory experience; (ii) *being informed* about climate change, which often occurs through striking media events that stand out within the daily flow of news, (iii) *understanding* climate change phenomena, meaning engaging in a personal quest to explore the anthropogenic forcing linking through educational content such as courses, lectures, or independently reading book and articles. While some of them may dominate in the students' narratives, they are nonetheless interconnected and complementary variables that trigger what we term the 'Anthropocene Epiphany'. (Figure 3 – Table 2).

Among these three variables, our analysis shows that the predominant factor is a direct experience of climate change (42%). In such cases, the trigger revolves around a personal and meaningful story drawn from the student's own life. These findings highlight the key role of a lived experience: directly encountering climate change in a sensory and emotional way fosters

[2] The narrative references are named according to this template: (academic year_campus_major_number).

awareness of its tangible effects on one's daily reality. What are these experiences described in our narratives?

To begin, they encompass a wide range of situations where climate change disrupts individual lives. Recurrent examples in the narratives we collected include the reduced snowfall in ski resorts, Parisian heatwaves making urban life more challenging, forest fires, summer water restrictions, and confrontations with extreme weather events (storms, droughts, etc.). In these accounts, climate change is first experienced and perceived as a disruption of the "normal course of things" and established habits. It emerges as the unsettling intrusion of a new reality that shakes familiar reference points. Many testimonies capture this with a particularly meaningful phrase we can summarize as: "Climate entered my life." This language conveys the sense of a decisive encounter, a sudden closeness. These climate change concerns, once distant and abstract, now become part of daily life through a transformative personal experience. For instance, snow is not only an integral part of childhood enchantment but also a visible indicator of climate change for young people who associate it with the joy of vacations and skiing during family trips to winter sports resorts. Its gradual scarcity and disappearance become more noticeable over time with regular visits to the same resorts. Similarly, witnessing the melting of glaciers firsthand is another significant experience often recounted in stories related to the mountains. Thus, the severity of climate change is never as evident as when its consequences are "in front of their eyes" or "under their feet," which are experienced in a sensory manner without any doubt or ambiguity. Moreover, alongside narratives that describe experiences in familiar places, others highlight the international dimension of traveling abroad, an experience that is far from one's usual environment. Students identify the most extreme negative effects of climate change more strikingly because these effects contrast sharply with the idealized images of the visited places, which they may have long dreamed of and sometimes associated with stereotypes. The outsider's perspective of the traveler sharpens the perception

of climate change's devastation or its causes: forest fires in Canada, droughts in Morocco, seasonal disruptions in Mali, pollution in New Delhi or Phnom Penh, among others.

Indirect exposure to climate issues through media channels and social networks constitutes the second category in our typology that triggers a climate change awakening. It ranks second behind experiential triggers, accounting for 29% of the narratives. The hyper-connectivity of this generation of "digital natives" exposes them to vast amounts of information about climate issues in various forms. Here, distant events intrude upon the immediate environment, following the logic of media reporting with its procession of shocking and sensational images. The negative news that dominates media coverage make climate a daily source of distressing news: forests reduced to landscapes of ruins and ashes, devastating tsunamis, cities engulfed in flames, charred animals, and populations in despair. The students' narratives highlight the importance of information sources favored by their age group: social networks, the role of certain influencers (Inoxtag, Hugo Clément...), active personalities on social media (Aurélien Barreau, Greta Thunberg...), or popular figures engaged in activism (Yann Arthus Bertrand, Mike Horn, Andrew Morgan, Al Gore...). This type of information almost always pertains to the consequences of global warming, presented in a dramatized form that resonates with individual sensitivities to the point of causing an inner upheaval.

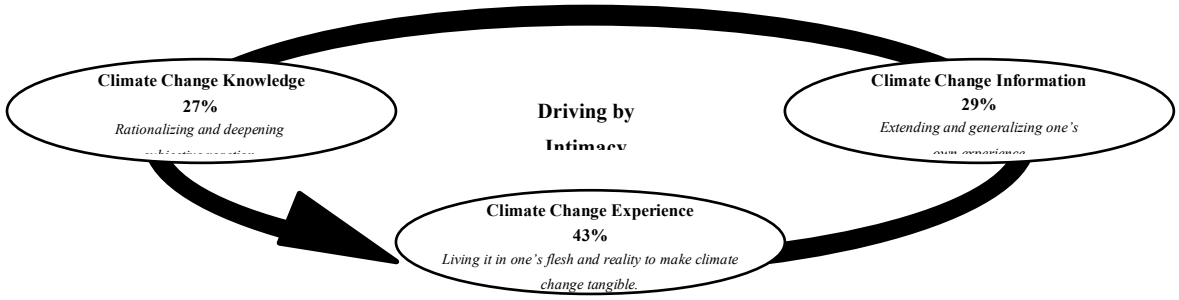
The third type of triggering factor, knowledge, corresponds to an in-depth understanding of the new climate regime. It is mentioned in nearly a third of our narratives (28%). It is important to note that what we classify under the "knowledge" variable often results from a deliberate and voluntary personal effort to better understand the nature of climate change issues. While this typically involves an active process, it can also arise from imposed situations and passive processes, such as mandatory school lectures or coursework. However, students emphasized the importance of a deliberate and voluntary approach. Generally, they readily acknowledge the role of various school and academic awareness programs they have attended. Yet, in many

narratives, this awareness remains "latent." Although climate change is recognized as real, it often feels abstract, distant, and insufficiently embedded in their own reality to generate a profound inner transformation.

Finaly, what is common to all individuals is that this entry point is anchored in a deeply personal and subjective dimension. Furthermore, the students' journal entries highlight that the process of climate realization depends on the intersection of climate change with personal experience, information, and/or knowledge. This is poignantly illustrated by a student who titled his narrative '*Climate Change Has Messed Up Our Lives*' (2324_P_MD_38). These results are explicitly

These results are explicitly expressed in the students' narratives. Firstly, climate change is increasingly intruding into their daily lives. What were once abstract and distant phenomena now directly affect their personal lives and habits. Disturbed in their daily routines, they find climate change becoming omnipresent, inevitable, and inescapable. However, more than just merely altering their daily lives, climate change becomes real and concrete because it intimately affects what they cherish, and often what they are in the process of losing. The world in which they grew up and lived is disappearing before their eyes. The landscapes, activities, and family refuges (gardens, rivers, beaches, etc.) that form the fabric of their intimacy are inexorably being transformed and lost.

**Figure 3: Experiencing, Observing and Understanding: A positive Retroaction**




### 3.2. A MOUNTING PRESSURE…

**Table 3: Representative Supporting Data for the First Aggregate Dimension – Triggers**

| *Themes* | *Representative Quotations* |
|---|---|
| | **Multi-dimensional** |
| **1) Experiencing climate change to feel it in one's own flesh** | "*The drought at the beginning of the year left a strong impression on me. The restrictions imposed by the region made it all the more real. Limiting our water usage makes the issue tangible and forces us to become even more responsible, even if it's against our will*." (2324_T_CRM_19)<br>"*For me, the real climate wake-up call happened during our stop in New Delhi, when it was 32°C at 8a.m., and the sky was GRAY. It was impossible to see the sun. The white faint orb barely visible through a thick layer of pollution was the only way to guess where the sun was*." (2324_P_MD_06)<br>"*I personally experienced the violence of Hurricane Irma in 2017, which devastated my community and left permanent scars. These extreme events, once rare, have become increasingly frequent and intense*." (2425_P_CRM_10)<br>"(…) *The news spread quickly, confirming our worst fears: a massive forest fire was raging nearby. (...) For me, the situation was particularly distressing. My motel was located in an area that had quickly become potentially dangerous. As the flames approached dangerously, warning sirens blared throughout the town, urging us to move to safe areas immediately*." (2324-T-IBD-19) |
| **2) Being informed about it to broaden its applicability** | "*At first, it was social media that gave me this climate epiphany. Twitter is an enormous source of information, offering both concise and clear updates, as well as visual and auditory evidence. (…) Every day, I would see new tragic events like oil spills, tsunamis, rising sea levels, extreme droughts, difficulties in rice harvesting in India due to floods, and wildfires in Australia, Russia, and the Amazon. I can't even list them all—there are just so many catastrophes happening around the world*." (2324_T_IBD_06)<br>"*(...) it was a simple photo posted on social media that made me aware of the ecological problem. It was the image of a starving polar bear searching for food*." (2223-T-IBD-04)<br>"*They showed landscapes transformed by drought, forests destroyed by fires, and communities displaced by extreme weather events. It was a shock. I felt a deep sadness seeing these images and realizing that human actions were the cause of these disasters*." (2425-P-PWA-15) |
| **3) Understanding climate change to rationalize it** | "*The first time I heard about this phenomenon was in middle school, in natural science or geography classes. (…) But back then, I was still a carefree teenager, and these issues seemed very abstract and disconnected from my daily life*." (2324_P_CRM_19)<br>"*This moment marked the beginning of a new awareness for me. I started looking for information about climate change, trying to understand the causes of these seasonal disruptions affecting our world*." (2324_T_MD_04)<br>"*This personal realization pushed me to explore more deeply the causes and consequences of climate change. I immersed myself in further studies on climate models, environmental policies, and the socio-economic impacts of climate change*." (2324_P_MD_36)<br>"I read a book, *La nature au cœur*. It gave me a different perspective on nature, particularly the importance of soil life and the harmony of ecosystems, as well as a vision of a cycle that must be respected." (2223-T-MD-30) |
| | **Intimacy** |
| **4) A climate change that enters our daily lives** | "*The small family garden had become a real testing ground for understanding the effects of local climate change*." (2425_P_PWA_04)<br>"*As a 23-year-old Parisian, the rising temperatures are an ever-present reality that impacts my daily life and my future in the capital*." (2324_P_MD_10)<br>"*Then came the water usage restrictions during the summers. Experiencing these restrictions was more than just a seasonal inconvenience; it was a tangible and powerful reminder of the fragility of our natural resources and our impact on the environment*." (2324_P_CRM_22)<br>"*Another significant realization came from observing the increasing number of natural disasters around us: storms, earthquakes, droughts*." (2425-P-CRB-08) |
| **5) A climate change impacting what we value most** | "*This realization led me to understand that my future children would probably never be able to ski or experience the joy of gliding down the slopes. This reality deeply affected me and became the starting point of a broader reflection on my own behaviors and their impact on the planet*." (2324_P_MD_10)<br>"*Since I was little, I've been going to the seaside on the Côte Vermeille, catching crabs on the pier in Canet-en-Roussillon. In recent years, I've returned to try to relive the experience, but sadly, I haven't seen any crabs*." (2324_T_CRM_11)<br>"*That same year, another emotional shock occurred when I revisited the rivers of my childhood, where I used to spend hours catching tadpoles and fish. To my surprise, these rivers were now dry*." (2324_P_MD_22)<br>"*I was seing familiar landscapes, similar to those of my childhood: dense forests, remote villages, and clear rivers. These peaceful scenes were quickly followed by images of heavy machinery felling trees, barren and infertile soils, and displaced communities. It was as if a part of my past was disappearing before my eyes*." (2425-P-PWA-14) |

Once we distinguished the triggers of the Anthropocene Epiphany, our findings emphasized a specific cognitive process that shapes sensemaking and ultimately interpretation (Wade & Griffiths, 2022). This process is organized around two dimensions we identified: *temporality*, which sequences the epiphany and the *nature* that composes it (Table 4). However, it is crucial to emphasize that, in their diachronic dimension, the students' narratives reveal a successive combination of the three points of encounter with climate change, which collectively foster an increasingly heightened awareness. Each stage addresses a different dimension of the ongoing climate phenomena, collectively reinforcing the acknowledgement of the climate change reality. The three variables—information, experience, and knowledge—interact in a cognitive reconfiguration where "nothing is as it was before." "*Why this precise moment?*" writes a climate phenomena, collectively reinforcing the acknowledgement climate phenomena, collectively reinforcing the acknowledgement of the climate change reality. The three variables —information, experience, and knowledge—interact in a cognitive reconfiguration where "nothing is as it was before." "*Why this precise moment?*" writes a student. "*Perhaps because I had finally taken the time to stop and connect the dots: this unbearable heat, these natural disasters that seemed to follow one another, this diffuse sense of urgency that I had never taken seriously. At that moment, I was thinking back to my childhood*." (2425-P-CRB-11).

For instance, students position the role of knowledge both before and after experiencing climate change. Prior to initial awareness, knowledge lays the groundwork for a later trigger, often described as having a "delayed effect": it fully resonates only once the reality of climate change has been experienced and felt. After this experience, knowledge assumes a complementary role. From this perspective, the narratives frequently describe a post-experience reaction, where students feel a need for active information-seeking and a desire to deepen their understanding of what initially impacted them. They then engage in a process of rationalizing their experience and reactions to climate change, integrating knowledge to make sense of the transformative

moment. In this way, the three elements form a positive feedback loop, evolving from an initial climate realization to a deeper understanding and heightened awareness. (Figure 3).

Across these three factors, encountering climate change fundamentally involves a process of convergence, often described through spatial metaphors. What was once perceived as "distant" (such as events occurring in far-off countries) becomes "closer," infiltrating familiar environments and altering daily habits on both spatial and temporal levels. This realization of a critical climate situation depends on a spatio-temporal understanding of climate change issues, marked by the interplay between global/local and long-term/short-term dimensions. Specifically, students increasingly connect the global phenomenon of climate change with its tangible local consequences. They experience and observe these impacts firsthand, bridging the gap between general global discourse and specific local events. Meaningful connections are made through three levels: (1) linking isolated local events to a global phenomenon, (2) understanding the geographical and total scale of climate change consequences, and (3) recognizing the inextricable interdependence and entanglement of local and global climate issues and solutions. This comprehension helps them grasp the severity of the climate situation, realizing that extreme events are part of a larger pattern where no one is immune to these consequences. A second level of understanding transforms their perception of climate change. While climate change is a long-term phenomenon, students emphasize the importance of recognizing that it is no longer a distant, abstract catastrophe they will never encounter. Instead, they come to understand the potential future impacts through the lens of today's damages, occurring within a context of accelerating and intensifying consequences. Climate change is perceived as a present and urgent reality, already manifesting through extreme weather events that they experience, learn about, and increasingly comprehend. The "future" to which climate change issues were once mentally relegated has forcibly merged with the present. In this sense, climate change is not "*a distant problem to be solved by others in the future, but an urgent*

*issue impacting here and now*" (2324_T_MD_13). This leads to an abstract/concrete opposition often overlapping with the distant/close opposition in narratives. Through this dual convergence, *hic et nunc*, both geographically and spatially on one hand, and temporally on the other, climate change is no longer an issue for others or for tomorrow.

Ultimately, as a cognitive process, this epiphany is both progressive and event-driven. It unfolds over an extended period, shaped by the three factors previously outlined, through a series of realizations about the reality, tangibility, and impact of climate change on their lives. Far from being a sudden, singular "eureka" moment, this process is gradual, punctuated by significant events that students can distinctly identify. Notably, the narratives highlight that this generation of students is constantly exposed to these themes, particularly through education, even if they remain somewhat implicit. For example, the first verbatim below emphasizes that while the epiphany is a progressive process that ideally should have occurred earlier in life, it necessitates an accumulation of events to fully manifest. The second verbatim underscores the importance of reflexivity in recognizing and assessing this progressive accumulation, ultimately leading to a deeper understanding of its true significance.

> "*While working on this project, I realized that my awareness could have emerged much earlier. Since childhood, there were signs, pivotal moments that could have been my triggers to act on behalf of the climate*". (2425_P_MD_30)
>
> "*I was often close to situations that should have alerted me about the climate impacts that we are generating, which would have emerged as an awakening about our impact. But it was only when writing down these different anecdotes that I truly reflected on when they first crossed my mind.*" (2425_P_PWA_31)

Through these insights, climate change becomes deeply meaningful for students. The accumulation of climate change realizations allows them to progressively grasp the seriousness of the climate crisis from both natural and socio-economic perspectives. From a natural standpoint, climate change shifts from being an abstract concept to a tangible and concrete

**Table 4: Representative Supporting Data for the Second Aggregate Dimension – Process**

| *Themes* | *Representative Quotations* |
|---|---|
| | **Temporality** |
| **6) A complementarity of approaches** | "*It was through a mix of theoretical courses, hands-on projects, and enriching discussions that I experienced what I can now call my 'climate epiphany.'*" (2425_P_PWA_17)<br>"*Why that particular moment? Maybe because I had finally taken the time to pause and connect the dots: such as the unbearable hea and the natural disasters that seemed to keep coming. There is now a vague sense of urgency I had never taken seriously before. At that moment, I was also thinking back to my childhood.*" (2425_P_CRB_11) |
| **7) A progressive epiphany...** | "*My epiphany wasn't a sudden flash of insight but rather an accumulation of facts, research, and personal memories that eventually came together to reveal what I had been refusing to see.*" (2425_P_CRB_04)<br>"*For me, it wasn't just a 'spark' but rather a series of realizations that transformed my perception of the environmental reality we are facing today.*" (2324_P_CRM_08)<br>"*(...) My awareness was gradual but inevitable.*" (2324_P_MD_34)<br>"*Reflecting on that day, I realize that this moment of epiphany did not happen by chance. Several warning signs had prepared me.*" (2425-P-CRB-09) |
| **8) But marked by events** | "*My 'climate revelation' also came through a series of significant experiences.*" (2425_P_MD_26)<br>"*That's when I understood.*" (2425_P_CRM_35)<br>"*It was a true wake-up call that pushed me to educate myself, reflect, and take action.*" (2324_P_MD_03)<br>"*It was a real wake-up call that pushed me to become informed, to think, and to act.*" (2324-P-MD-03)<br>"*But that summer, something was different.*" (2425-P-CRB-32) |
| | **Nature** |
| **9) An urgency to address** | "*I realized that climate change wasn't just an issue for experts and activists but a crisis affecting all of us, here and now.*" (2324_T_CRM_07)<br>"*(...) Watching the fire consume the vegetation, a reality that had until then seemed abstract became brutally clear: climate change wasn't a distant problem for others to solve in the future but an urgent crisis impacting lives, ecosystems, and memories here and now.*" (2324_T_MD_13)<br>"*These initial warning signs did not immediately lead to a full awareness for me. Instead, they planted the seeds of growing concern. With each new piece of information, my interest and worry about the climate increased. It was an accumulation of knowledge, observations, and personal reflections that led me to understand that climate change was a major issue requiring urgent attention.*" (2324-P-MD-32) |
| **10) A serious situation** | "*This sight was more than just a visual shock; it profoundly moved me and made me realize the gravity of the climate crisis. Climate change was no longer an abstract concept but a tangible reality right in front of me.*" (2324_P_MD_05)<br>"*I have no doubt about it: this environmental, climatic, and ecological crisis will undeniably be THE major challenge, the crucial test, the defining breaking point of the 21st century for all humanity.*" (2324_P_CRM_19)<br>"*That's when I realized we were on the brink of a major crisis, one that threatened not only biodiversity and ecosystems but also our survival as a species.*" (2324_T_CRM_24) |
| **11) A global problem, with local consequences** | "*This tragedy, though local, is a symptom of a global problem.*" (2425_P_CRM_06)<br>"*It was then that I understood what we were experiencing in Béjaïa was not an isolated event. It was part of a global issue, a climate crisis affecting millions of people around the world.*" (2324_P_CRM_05)<br>"*By connecting these elements, I became aware of the complexity of the interactions governing our planet's climate and realized the scale of the damage was far more alarming than I had imagined. (...) These accounts show me that the impact of climate change is global, and no one is immune.*" (2324_P_MD_10) |

reality, manifested through meteorological phenomena and environmental disruptions, such as biodiversity loss, irreversible pollution, species and landscape disappearance, and the surpassing of planetary boundaries and tipping points. From a socio-economic perspective, the effects become equally evident, with economic losses, the vulnerability of local communities, threats to lifestyle and comfort, and an existential danger to humanity itself.

These progressive insights rely heavily on the recognition that climate change impacts are not distant but short-term and local, erupting directly into students' personal and immediate environments. This realization makes climate change more tangible, serious, and perilous, transforming it from an abstract issue into an urgent, personal reality. Through the cumulative understanding of its implications, climate change assumes a broader and deeper significance. It is no longer perceived as a simple environmental shift but as humanity's entry into a new epoch: the Anthropocene.

### 3.3. ULTIMATELY… A BREAKING POINT

After the realization that we are experiencing an unprecedented situation and that its consequences are and will become increasingly serious, some students expressed a shift with their former conception of climate change (Table 5). They became aware of a new reality: the Anthropocene, characterized by radical new considerations and rationales for action, such as extreme volatility, uncertainty, irreversibility, and unthinkable consequences (Acquier et al., 2024; Campbell et al., 2019; Heyd, 2021).

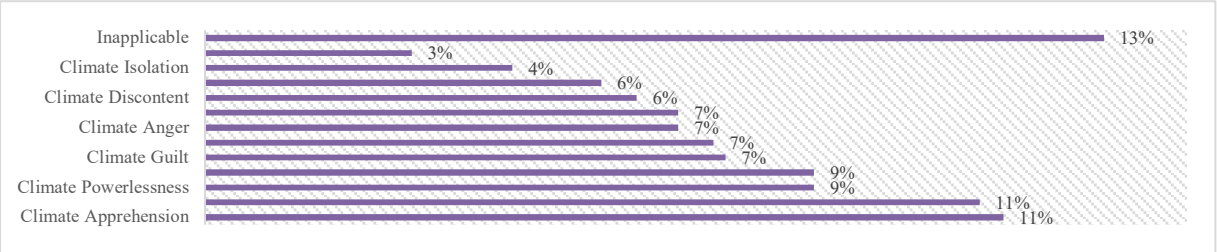
The student who expressed such a realization experienced the final stage of the epiphany: a rupture. They can no longer envision the future and the present in the same way. This situation is generally articulated around three dimensions that allow students to have a global understanding of the current situation. First, they perceive climate change as an inevitable catastrophe: "*The question isn't whether we're heading for disaster, but how fast we're getting*

*there*" (2425_P_CRB_26). Indeed, these students often emphasize the anthropogenic forcing and its irreversible consequences. Regardless of what we do, we must adapt and, at best, limit the catastrophe. This situation is further confirmed by scientific literature and well-acknowledged by the students. Such a situation elicits reactions from students ranging from solastalgia for a lost world that their children will not know, to catastrophism when reading the SSP5-8.5 scenario from the IPCC. Second, the students envision the consequences of an irreversible change of our climate regime leading to increased uncertainty and the emergence of the unknown. For students, this unprecedented situation represents a significant challenge for adaptation and requires a shift from our current societal, business, and management practices. Third, in response to this situation, students move away from a stance of neutrality. Confronted with the circumstances they endure, they assign blame. While a few students acknowledge their own individual responsibility, many recognize that the ongoing changes are not the result of isolated actions but of larger structures and socio-economic dynamics beyond their control. The onset of the Anthropocene is attributed to entities such as large corporations, previous generations, the wealthiest social classes, shareholders, and formerly colonizing countries.

The Anthropocene takes on a dramatic significance. It symbolizes the loss of a lived world and a projection into an anxiety-inducing future. In fact, the consequences are immediate and ever-present, prompting a predominantly negative emotional response from students. Drawing on the climate emotions framework by Marczak et al. (2023), we identified a diversity of emotional responses in the students' narratives (Figure 4), predominantly expressed through negative emotions such as climate apprehension (135), climate sorrow (131), and climate powerlessness (103). These emotions are linked to various behaviors and thoughts that reflect the challenges and struggles of coming to terms with the loss of their world, their past, and their memories. For instance, students evoke "*a degraded world*" (2425_P_MD_26) or

"*unrecognizable*" (2425_P_CRM_08), with a risk that it might be "*too late to act*" (2425_P_CRM_21) and witnessing "*a world fading before our eyes*" (2324-T-CRM-03). Additionally, such negative reactions are characterized by the difficulty in envisioning qualitative and optimistic futures for themselves and their relatives, who "*will not experience those little things that made my childhood beautiful*" (2425_P_MD_10). However, a significant number of narratives express positive emotions such as climate hopefulness (103) and climate empowerment (86), which are based on the knowledge of climate solutions, the historical resilience of human societies, and ongoing activist and social movements.

**Figure 4: A Diverse Emotional Response**




The Anthropocene Epiphany is characterized by a deeply emotional cognitive outcome. It is the intrusion of catastrophe into familiar spaces: the family vacation spot by the sea or in the mountains, the "homeland," or the cherished sense of home. These negative transformations resonate more profoundly in students' consciousness. Here, we observe a form of present "*solastalgia*", which corresponds to the lived experience of negatively perceived environmental change (Albrecht et al., 2007) —a bitter realization of transformations that alter a place, a landscape, or a natural environment to the point of rendering it increasingly unrecognizable. This epiphany concludes with a rupture: we cannot go back. What remains is to project ourselves into a world that is, for now, both undesirable and inevitable.

In the face of emotional fragility, students predominantly express a depoliticized response. Some experience a sense of apathy, whether assumed or endured: what can an individual do in

**Table 5: Representative Supporting Data for the Third Aggregate Dimension - Outcome**

| *Themes* | *Representative Quotations* |
|---|---|
| | **Emotions** |
| **12) A domination of negative emotions** | "*Despite my small contribution to the fight against climate change, my outlook on the global ecological transition remains rather pessimistic.*" (2324_P_MD_33)<br>"*The thought that they might grow up in a world degraded by our choices terrifies me.*" (2425_P_MD_26)<br>"*The environment has never been anyone's priority, and at that moment, it outraged me.*" (2425_P_CRB_11) |
| **13) Some hope and empowerment** | "*Despite the magnitude of the challenges, I remain optimistic. Awareness is growing, and numerous initiatives are emerging.*" (2425_P_CRM_10)<br>"*Despite these challenges, I am optimistic about our ability to overcome this crisis. The example of Greta Thunberg and other young climate leaders show that the global youth is ready to take the lead in demanding systemic change.*" (2324_P_MD_24)<br>"*At the same time, I feel a glimmer of hope seeing the growing number of people mobilizing to fight against climate change.*" (2324_P_MD_25) |
| | **Comprehension** |
| **14) Facing the unknown** | "*In the end, all of this adds to what we are already experiencing today: an increasingly unpredictable and chaotic meteorological reality. If we pay attention, the weather itself seems to be turning upside down.*" (2324_T_IBD_18)<br>"*So I asked myself, what will happen to us if this rise in temperature continues? How will we survive when basic necessities like vegetables or wheat become unavailable and extremely scarce due to drought?*" (2425_P_CRM_24) |
| **15) The inevitable catastrophe** | "*In truth, I was envisioning a horror scene straight out of the SSP5-8.5 scenario.*" (2425_P_CRM_30)<br>"*This realization, as spiritual as it was tangible, made me understand that my dream of passing on these moments to my future children will likely never come true.*" (2425_P_CRB_07)<br>"*But unfortunately, the point of no return has been reached.*" (2425_P_CRB_37)<br>"*(...) It was a new reality—a climate reality. And suddenly, it became clear to me: we weren't merely in a temporary phase but living through an irreversible and inevitable change.*" (2425_P_CRB_42) |
| **16) Blame placed on entities larger than oneself** | "*The populations of developing countries, indigenous communities, and people living in high-risk areas are often the first to feel the effects of global warming, despite their minimal contribution to greenhouse gas emissions.*" (2324_P_MD_16)<br>"*We are like animals that need to be caged to protect the planet. This realization is hard to accept, but it is real.*" (2425_P_MD_26)<br>"*These products don't truly exist to preserve our planet but rather to exploit this awareness in the human mind to generate profit.*" (2425_P_PWA_15) |
| | **(In)action** |
| **17) A responsibility to take on, but disembodied** | "*However, these individual actions are not enough. It is essential that governments and international institutions take decisive measures to reduce greenhouse gas emissions and mitigate the impacts of climate change on the most vulnerable communities.*" (2324_P_MD_36)<br>"*Indeed, the climate crisis cannot be resolved through isolated actions. It requires collective mobilization and a global awareness of the urgency of the situation*" (2324_T_CRM_07)<br>"*It's a colossal challenge, but it's also a responsibility we must all assume.*" (2425_P_CRB_21) |
| **18) Doing one's part through small actions** | "*I decided to reduce my carbon footprint by adopting a vegetarian diet, limiting air travel, and prioritizing public transportation or cycling. Every decision, however small, was a step toward a more sustainable lifestyle.*" (2324_P_MD_27)<br>"*It's my consumption, my choices, and I was free to direct them toward more sustainable solutions. These decisions were entirely in my hands without external pressure.*" (2425_P_MD_15) |
| **19) Facing the immensity of the challenge, apathy** | "*But I'm young, I have the world to explore, and should I not travel in the name of ecology? While industries make no effort to limit their energy consumption? For me, it's a no. We only have one life, and I don't want to deprive myself of experiences.*" (2324_T_MAJ_NB)<br>"*Having a minor impact like a grain of sand in the ocean makes no sense.*" (2425_P_CRM_30) |
| **20) A difficult politicization** | "*I therefore started to get more involved in citizen movements and to support political campaigns focused on environmental protection. I participated in climate protests and signed petitions demanding concrete measures against global warming.*" (2324_P_MD_16)<br>"*But despite this, I don't think we should remain mere spectators. Instead, we must act at our own level. Figures like Greta Thunberg are at the heart of the climate movements.*" (2425_P_CRB_49) |

the face of such an impending catastrophe? The majority adopt a "small actions" strategy, believing that everyone should do their part (e.g., reducing meat consumption, limiting electricity use, avoiding waste and overconsumption). They also criticize governments and large corporations whose actions are currently inadequate to meet the challenges. Ultimately, confronted with the Anthropocene crisis and the lack of concrete, radical, and political solutions—at least those that are known—students find themselves disillusioned, limited to individual actions and a desperate call for collective mobilization. Indeed, negative climate emotions are primarily associated with these depoliticized responses. In contrast, the more students engage in political mobilizations, such as climate marches, local associations innovative entrepreneurial solutions, or more assertive activism, the more they experience a sense of agency and hope.

## 4. DISCUSSION

### 4.1. A Comprehensive Approach of Anthropocene Epiphany

Drawing on the cognitive framing approach (e.g., Hahn et al., 2014; Walsh, 1995), particularly within the literature that emphasizes how environmental issues trigger changes in individual cognitive frames (Gröschl et al., 2019; Sharma & Jaiswal, 2018), this study seeks to conceptualize the ongoing cognitive process experienced by business and management students when confronted with contemporary climate challenges and the Anthropocene reality. Specifically, this work is grounded in the concept of the Anthropocene, which presents unprecedented consequences and challenges (Acquier et al., 2024; Campbell et al., 2019; Heyd, 2021). Accordingly, the study aims to theorize the cognitive process at play among students as they confront the Anthropocene as a new imperative—a phenomenon we term the *Anthropocene Epiphany*. Drawing on students' narratives, we build on Wade and Griffiths'

(2022) framework of climate change cognitive framing, which includes three dimensions: *Factor Foundation*, *Cognitive Process*, and, ultimately, *Decision* (Figure 5).

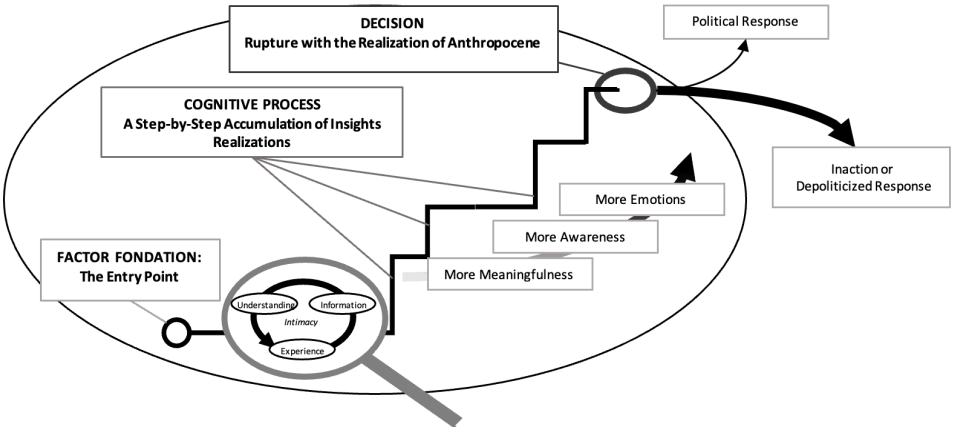
First, our study highlights the factors shaping the students individual's cognitive process inherently linked to the individual themselves (Wade & Griffiths, 2022). Through inductive reasoning, we have identified three distinct yet complementary variables driving these factors: *experimenting with* climate change, *being informed* about climate change, and *understanding* climate change phenomena. Each factor addresses a different dimension of the ongoing climate phenomena and, together, deepens the realization of the Anthropocene reality, ultimately forming a positive feedback loop that progresses from an initial climate realization to a final epiphany. Moreover, this loop is driven by an intimate encounter with the Anthropocene reality. Climate change becomes real and concrete because it touches them intimately, ultimately impacting their lives and the things they value most.

Second, our findings emphasize a specific cognitive process that shapes sensemaking and ultimately interpretation (Wade & Griffiths, 2022). We demonstrated that far from being a sudden and unique "eureka" moment, this process unfolds over time but is punctuated by significant events that students can clearly identify. Through these insights, climate change becomes meaningful and concrete for students, allowing them to grasp the seriousness of the climate situation. The consequences are (and will continue to be) present and imminent.

Third, the Anthropocene Epiphany eventually culminates in a rupture with the student's former worldview. From that point onward, the student re-interprets climate change as a new and more imperative climate regime: the Anthropocene. However, such an interpretation is currently met with few adequate or positive responses, as students often limit themselves to calls for governmental responsibility and small-scale individual actions. In the absence of clear and positive political responses, they fall into a form of depoliticized apathy, ultimately leading to

inaction. Few, in the end, assign a political meaning to both the current climate situation and its potential and necessary solutions.

**Figure 5: The Anthropocene Epiphany**




Consequently, we define the '*Anthropocene Epiphany*' as (i) a cognitive phenomenon triggered by a positive feedback loop of encounters with intimate climate change phenomena, (ii) fostering a progressive accumulation of realizations that make the climate imperative meaningful and heighten awareness, and (iii) culminating in a rupture with one's former reality, which may result in inaction or a depoliticized response but also opens the door to radical and political solutions for transforming business and management.

### 4.2. Teaching Implications, for Promoting and Guiding the Anthropocene Epiphany

By conceptualizing what we term the Anthropocene Epiphany, we emphasize the cognitive processes of Management and Business students. Now that we have a clear understanding of how they react to and progressively integrate the Anthropocene imperative, we can propose pedagogical implications for fostering and guiding such an epiphany. It seems to us that an important part of our mission as educators is to ensure that, once students undergo this cognitive process, they will be better equipped to navigate their roles as future managers, executives, or

entrepreneurs in the Anthropocene era (Carreira et al., 2022). However, such a purpose require a shift in management learning and education which have contribute to the deteriorated state of our planet (Colombo et al., 2024; Laasch, 2024). To begin with the global approach, our findings highlight that management education should not be knowledge-centered with the covert objective of achieving ecological conversion. Instead, it should adopt a student-centered and reflexive approach (e.g., Leichenko & O'Brien, 2020). In this section, we advocate for an autonomous and reflexive learning process, where the teacher's role is to guide and support the student through their epiphany by providing not only knowledge but also personal and political support. To this end, the teacher must create the appropriate pedagogical and learning conditions to trigger, sustain and support the Anthropocene Epiphany (Table 6).

**Table 6: Teaching Implications, Guiding each step of the Anthropocene Epiphany**

| Anthropocene Epiphany Dimensions | Definitions | Teaching Implications |
|---|---|---|
| **Triggers** | A cognitive phenomenon triggered by a positive feedback loop of encounters with tangible and intimate climate phenomena | *Experience dimension*<br>- Engaging in out-of-class experiences to observe and understand the local impacts of climate change.<br>- Reflecting on how climate change affects and transforms one's personal environment and lived space.<br>*Information dimension*<br>- Promoting awareness of key social influencers, climate activists, expert websites, podcasts, and other credible sources.<br>- Developing skills for critically evaluating the reliability and validity of information sources.<br>*Knowledge dimension*<br>- Gaining a scientific understanding of phenomena observed or experienced.<br>- Conducting research and engaging with climate change knowledge through reading and analysis. |
| **Process** | a progressive accumulation of realizations about the imperatives of addressing climate change | - Integrating both gradual, long-term trends and sudden, event-driven aspects of climate change.<br>- Exploring the implications of climate change across different temporal and spatial scales.<br>- Addressing students' emotional responses to climate change and fostering constructive engagement.<br>- Engaging students in reflexive work for realizing the sum of what they already experienced or know |
| **Outcome** | Culminating in a rupture with one's former reality, which calls for prospective solutions | - Recognizing the Anthropocene as a defining context and as an urgent imperative for action.<br>- Analyzing current proposed solutions as inherently political decisions.<br>- Envisioning radical and innovative political solutions tailored to the challenges of the Anthropocene. |

First, as educators, it is important to initiate the epiphany process. We have previously highlighted that the retroactive process triggering the epiphany is often conditioned by an

intimate encounter with the Anthropocene reality. This finding allows us to rule out an exclusively objective and academic approach to teaching climate change. Instead, we recommend adopting teaching methods that engage students subjectively. Furthermore, our findings indicate that this process is frequently sparked by direct or indirect experiences. Thus, we advise educators to begin each course with an experiential encounter with climate change. Our results suggest that educators could employ experiential and out-of-class pedagogies to help students engage with its consequences. For instance, this could involve visits to nearby locations where the tangible effects of climate change can be observed or to corporations struggling with its impacts.

If such experiential approaches are not feasible, an alternative would be to initiate the process through reflective teaching. Educators could ask students to focus on a personal passion, hobby, or place and identify the ongoing transformations that will disrupt it. This approach would help students acknowledge that climate change is encroaching on their personal spaces and experiences. Following this step, educators could emphasize the informational and knowledge-based dimensions of climate education. Specifically, educators might encourage students to stay informed about climate-related issues by recommending credible social influencers, climate change activists, expert websites, podcasts, and other resources. This approach could help broaden students' interest and application of knowledge to diverse and larger ecological themes. However, this dimension necessitates the ability to verify the accuracy of climate-related information to avoid misinformation or climate-skeptical narratives, thereby fostering critical thinking. Finally, by leveraging the knowledge dimension, educators can help students develop climate literacy through both natural sciences and social sciences (André, 2020), enabling them to deeply understand the phenomena they observe or experience and become autonomous in researching and acquiring climate change knowledge.

Second, we emphasized that the process of epiphany is characterized by *a progressive accumulation of realizations about the imperatives of addressing climate change*. Therefore, the role of educators would be to foster and promote such cognitive processes by providing key insights to intensify students' awareness of climate change toward the full realization of the Anthropocene situation. With this perspective, our results suggest that educators, but also Program and Academic managers, must consider both progressive and event-driven dimension of students' cognitive processes by integrating climate change and Anthropocene issues into traditional courses. The Anthropocene would be the imperative context of marketing, human resources, or finance courses. The primary objective would be to develop significant insights to foster a progressive accumulation of realization about how Anthropocene will impact students' future business and management activity. To this end, we recommend adopting the Earth System Science approach, which promotes interdisciplinarity by integrating management and business within the broader planetary framework (Bansal et al., 2024). Our findings suggest that such progressive Anthropocene curriculum must incorporate several approaches that correspond to the three initial trigger dimensions: experience, information, and knowledge. This approach must address different temporal and spatial scales. Specifically, as our findings indicate, achieving a comprehensive understanding of the Anthropocene requires examining it through both short-term and long-term predictions and projections, as well as considering its implications on both a global-planetary scale and a local scale.

Ultimately, we propose a final recommendation concerning the last stage of the cognitive process toward decision-making, which calls for prospective and actionable solutions. Our results show that only a few students reached this stage of Anthropocene awareness—what we term "the rupture." These students expressed this stage by acknowledging the inevitability of a new climate regime, recognizing the challenges of predicting such an unknown era, and identifying some of the main causes of this bifurcation, echoing the conceptual discussions of

the Anthropocene. Thus, as educators, we recommend explicitly presenting the characteristics of the Anthropocene, discussing its conceptual challenges, and engaging students in projecting compelling futures (e.g., Carreira et al., 2022; Gasparin et al., 2020). Such educational methods could serve as the foundation for a rupture with previous perceptions of reality, leading to both prospective and political solutions. Indeed, our findings demonstrate that students tend to depoliticize responses to climate change at present, which leads them to propose individual micro-actions or call for an intangible collective responsibility (particularly from governments and big corporations). This tendency often results in a form of collective apathy. We argue that a pressing challenge is repoliticizing our teaching, and emphasizing the roles of organizations, corporations, and their actors in the necessary transformation (Cator, 2022).

Two key steps appear essential. First, educators should present current solutions addressing climate change and the Anthropocene to demonstrate that viable strategies exist. These might include current corporate responses (Wright & Nyberg, 2024), employee political activism (Hug & Zhang, 2024), or "sentinel organizations" (Bonnet & Landivar, 2024). Second, these examples could serve as sources of inspiration, encouraging students to imagine, for instance, new products (Marketing), innovative workplace policies (Human Resources), or disruptive business models (Entrepreneurship) that are adapted to and integrate the imperatives of the Anthropocene. Our findings demonstrate that such an epiphany is not a singular, momentary realization but rather a progressive, reflexive, and complex transformation. Therefore, as a final recommendation, we suggest integrating this process throughout the entirety of the students' curriculum. For example, in a graduate program, we propose dividing the three years of a bachelor's degree into stages that align with the three steps of the cognitive process. The first year would focus on the personal realization of climate change through a dedicated course. The second year would build on this foundation by exploring the accumulation of climate change events and their consequences, progressively introducing and evidencing the reality of the

Anthropocene. This stage could be supported by traditional business and management modules, which would use specific climate change dimensions as their context. In doing so, the Anthropocene would be framed as the new business reality, naturally integrated into the curriculum without being presented as an isolated focus, which students might otherwise resist. Finally, the third year could concentrate on political and strategic solutions to address the challenges of the Anthropocene, demonstrating that viable solutions exist and guiding students to envision how, as future practitioners, they can contribute to these solutions. This approach can also be adapted for postgraduate programs or for continuing education and lifelong learning initiatives.

## CONCLUSION

Grounded in the concept of the Anthropocene, which presents unprecedented consequences and challenges (Acquier et al., 2024; Campbell et al., 2019; Heyd, 2021), this study makes significant contributions. Utilizing the cognitive framing approach ((Hahn et al., 2014; Wade & Griffiths, 2022; Walsh, 1995), this study conceptualizes the entire cognitive process experienced by business and management students when confronted with the reality of Anthropocene, from initial triggers to final outcomes. This addresses a gap identified in the literature, which highlights the lack of both conceptual and practical tools to support MLE pedagogy in this context. This contribution is essential, given the increasing need to prepare future managers to navigate the consequences of the Anthropocene in both their professional and personal lives (Wright et al., 2018). Consequently, management and business education must undergo a radical transformation (Gasparin et al., 2020; Laasch, 2024). The article concludes with educational recommendations for developing curricula that adopt this approach. We provide a detailed curriculum and teaching implications to foster, guide, and support the Anthropocene Epiphany, integrating climate change and Anthropocene concepts into new management and business curricula (Carton & Valiorgue, 2023).

While our methodology was rigorous, this article acknowledges certain limitations and presents opportunities for future research. One notable concern is the potential for conformity bias among students toward the Anthropocene perspective taught by the three instructors. Despite frequent reminders encouraging students to share their genuine opinions, experiences, and perceptions, some narratives may have been influenced by a desire to align with perceived instructor expectations. Further research into the pedagogical conditions and methodological potential of reflective and personal submissions (as explored in other studies, e.g., Kiss et al., 2024) could enhance the use of such data.

Moreover, our findings are shaped by the specific profiles of the students studied, which consist exclusively of management and business postgraduate students, primarily under 30 years old. Consequently, these conclusions cannot be generalized to continuing education programs targeting practitioners, managers, or entrepreneurs. Similarly, the conceptualization is limited to French students, or at most, to Western students. Expanding this research to include diverse populations would help refine and deepen our understanding of the cognitive processes involved, thereby facilitating the development of more tailored teaching methods and curricula for specific audiences.

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