CERN IdeaSquare Journal of Experimental Innovation, 2026; 10(1): 23-28
DOI: https://doi.org/10.23726/cij.2026.1755

ORIGINAL ARTICLE

Embracing Chaos in Health Education: Dark Pedagogy and Scenario-Based Learning in Entrepreneurship Education

Nadja Aagaard Færgemand[1], Hanne Møjbæk Duedahl Nørgaard[2], Michael Breum Ramsgaard[3]

[1]Bachelor Degree Programme in Nursing, VIA University College, Denmark and Research Centre for the Study of Professions, VIA University College, Denmark; [2]Bachelor Degree Programme in Nursing, VIA University College, Denmark and Research Centre for the Study of Professions, VIA University College, Denmark; [3]Research Centre for the Study of Professions, VIA University College, Denmark
Corresponding author: Nadja Aagaard Færgemand, naar@via.dk

ABSTRACT

Higher education is facing a growing sense of weariness and apathy toward climate change, linked to sustainability fatigue, bleak future projections, and climate anxiety. How can educators in health education prevent these factors from leading to passivity and disengagement among students? This article presents an innovative teaching design tailored to health education that uses a scenario-based approach. The teaching design, exemplified through a case from nursing education, bridges education for sustainable development, dark pedagogy, and entrepreneurship education. By simulating a dystopian future and engaging students in future-thinking, the teaching design promotes critical awareness of the potential consequences of climate change. The teaching design aims to enhance students' belief in their capacity to drive change and examines how professionals navigate complex, evolving challenges in healthcare. The case contributes insights from a simulation of acute and critical nursing care, addressing pertinent themes about the role of climate and sustainability in health education.

Keywords: Dark pedagogy; Sustainability; Entrepreneurship Education; Scenario-Based Learning.

Received: September 2025. Accepted: February 2026.

INTRODUCTION

Sustainability fatigue is a growing sense of weariness and apathy toward climate change (Talmage & Gassert, 2020; Tan et al., 2023). Research indicates that people increasingly feel overwhelmed by bleak future projections and the seemingly endless stream of negative environmental news (Lysgaard & Bengtson, 2022, 2023). A large-scale investigation of climate anxiety among people aged 16–25 found that, across all countries, 59% worry about climate change, and more than 45% report that their feelings about it negatively affect their daily life and functioning (Hickman et al., 2021). This increasing concern can lead to passivity and disengagement (De Meyer et al., 2021), which is particularly problematic in educational settings that require active participation and creative thinking to address complex challenges such as sustainable development (Lysgaard et al., 2019). At the same time, fostering student agency is a key objective in higher education, and it is equally crucial that teachers critically reconsider how this agency is understood and applied when addressing global challenges in educational designs (Brentnall & Higgins, 2024).

This article presents, analyses, and discusses a teaching design tailored to health education. It offers a scenario-based setup from nursing education that bridges education for sustainable development (ESD), dark pedagogy, and entrepreneurship education.

ESD provides a framework for integrating climate literacy into higher education curricula, empowering future professionals to address environmental determinants of health. By fostering understanding of how climate change affects public health, ESD equips health students with the skills to develop sustainable solutions to evolving global challenges (Bianchi et al., 2022). This is particularly relevant to nursing education, where students (and professionals) face constant demands for knowledge, skills, and competence in environmental sustainability (Lopez-Medina et al., 2019). Nurses have significant potential to drive climate protection efforts, as they make up approximately 60% of the global healthcare workforce and work closely with those most vulnerable to climate change (Álvarez-Nieto et al., 2022). However, a multinational study pointed to a paradox: Despite nurses largely understanding climate change, its causes, and systemic effects, they often refrain from taking active steps to address it (Kotcher et al., 2021).

THEORETICAL BACKGROUND: ESD, DARK PEDAGOGY, AND ENTREPRENEURSHIP EDUCATION

A pressing question in health education, is what the future of public health and healthcare systems will look like if we, as educators, do not actively counteract the bleak projections that we are so tired of hearing about. Climate change is already affecting health in a myriad of ways, and it will inevitably lead to more natural disasters, increased displacement of people, and a higher prevalence of (many new and known) diseases. Thus, the climate crisis could undermine the progress made over the past 50 years in global health (Gostin et al., 2023). For nurses, this means a future with increasingly diverse challenges, including higher patient flow, resource management issues, and preparedness and disaster management challenges (Gkouliaveras et al., 2025). This highlights the need to develop innovative, value-creating actions and competencies, making it increasingly important for higher education institutions to support students' confidence in their ability to act.

It is, therefore, relevant to explore how innovative designs for health education can help address this gap. According to Shaban et al. (2024), incorporating environmental sustainability as a core competency in nursing education equips future nurses to implement eco-friendly practices and lead the shift toward sustainable healthcare. Fields et al. (2021) proposed a strategy, emphasizing the importance of ensuring that sustainable development is not merely an add-on, but is thoroughly integrated into curricula, thereby supporting awareness, critical thinking, and action competence.

Additionally, participating in entrepreneurship education can significantly enhance students' confidence in their ability to create change in professional fields where experts face complex and ever-changing challenges (Blenker et al., 2012). Activities that involve students in real-world problem-solving scenarios, such as innovation camps, case-based learning, or, as here, a chaos scenario, foster a mindset that not only strengthens skills but also encourages imagination and proactive engagement with future challenges (Ramsgaard & Austin, 2022).

Given the importance of encouraging students' ESD awareness and entrepreneurial self-efficacy (Mauer et al., 2017) and mindset (Larsen, 2022), it is essential to understand how specific educational approaches can cultivate students' abilities in creative problem-solving and action. Entrepreneurship education plays a pivotal role in developing skills that can be applied both to launching new ventures and to addressing challenges within existing systems, such as healthcare in the context of potential climate change (Tiitta et al., 2024).

A groundwork for the chaos scenario in focus here, is the concept of dark pedagogy, which is a pedagogical approach that emphasizes bringing forward dark or somber themes in education to promote critical thinking and a deeper understanding of complex issues. Societal problems, such as climate change, social justice, and environmental collapse, resist simple solutions, which can provoke denial as a coping mechanism, also among students (Lysgaard, 2019). The paradox of modernity is that while people crave insight and control, they simultaneously often reject inconvenient truths. Climate change exemplifies this: people understand its causes, yet systemic change is obstructed by the very structures that sustain their way of life. According to dark pedagogy, education must move beyond the transmission of knowledge and engage with the discomfort of the unknown (Lysgaard & Bengtsson, 2020).

Inspired by speculative realism, dark pedagogy therefore embraces wonder as a tool for learning, which invites students to confront the unsettling strangeness of reality. The approach prevents despair and cultivates agency in navigating uncertainty. So, although dark pedagogy highlights darkness, its purpose is not to instil hopelessness but rather to inspire action through emotional engagement. When students are exposed to both the consequences of inaction and the potential for positive change, they are motivated to engage in sustainable actions and solutions (Lysgaard et al., 2019).

Table 1. Bridging ESD, dark pedagogy, and entrepreneurship education

	ESD	**Dark pedagogy**	**Entrepreneurship education**
Positioning *(why is this perspective needed?)*	Not merely an add-on, but thoroughly integrated into curricula supporting awareness, critical thinking, and action competence (Fields et al., 2021)	Engages with emotions as part of an existential human condition (Lysgaard & Bengtsson, 2020)	Enhances students' belief in their capacity to drive change (Blenker et al., 2012)
Competencies in focus *(what does the perspective offer?)*	A core competency equips future nurses to implement eco-friendly practices and lead the shift toward sustainable healthcare (Shaban et al., 2024)	Transforms abstract concepts into lived experiences and bringing forward dark or somber themes in education to promote critical thinking (Lysgaard & Bengtsson, 2020)	Encouraging entrepreneurial self-efficacy (Mauer et al., 2017) Fostering an entrepreneurial ESD mindset (Larsen, 2022)
Potential tensions and critical elements	Can provoke denial as a coping mechanism (Lysgaard, 2019)	Challenges normalized perspectives and encourages a deeper ethical and political awareness of humanity's place within a more-than-human world	Inspiring solution-oriented innovation and engaging with the limits and unsettling realities of sustainability

Lysgaard and Bengtsson (2020, 2022) further addressed the growing resistance to bringing dark and uncomfortable predictions into the classroom. ESD educators are met with questions such as "Do you really want to open up to feelings of uncanniness, depression, and alienation as part of educational processes?" A relevant counter question is "Are we not already exposed to feelings of uncanniness, depression, and alienation?" Instead of shielding students from feelings such as anxiety and alienation, dark pedagogy combined with entrepreneurship education and ESD engages with these emotions as part of an existential human condition (see Table 1). Inspired by Heidegger, the theoretical framework argues that tuning in to these emotions rather than denying them fosters a deeper awareness of, for example, environmental and sustainability issues, as well as encouraging entrepreneurial action. The goal of the current learning innovation is not to make education discomforting but to challenge normalized perspectives and encourage a deeper ethical and political awareness of humanity's place within a more-than-human world.

METHOD: AN INNOVATIVE PEDAGOGICAL APPROACH

To encourage reflection on the challenges and tensions presented, we introduce a case analysing a chaos scenario developed for a fifth-semester nursing education curriculum at a university of applied sciences (see Supplementary Material). Drawing on the principles of dark pedagogy, we construct a future scenario (30 years ahead) characterized by natural disasters, resource scarcity, and increased migration flows. By simulating this dystopian future, we engage students in future-thinking and raise their awareness of the potential consequences of climate change. We seek to integrate the simulation of acute and critical nursing care with themes of climate and sustainability. By creating realistic scenarios in which students must act and make decisions under pressure, they begin to understand and manage the complex challenges climate change may bring. This means that the climate crisis sets the stage for the chaos scenario without specifically addressing it. Instead, focus is on the students' personal and professional growth in relation to the competencies in GreenComp (Bianchi et al., 2022).

The literature on ESD emphasizes the need for innovative pedagogical approaches, such as scenario-based learning, to develop competencies such as systems thinking. Integrating climate change and sustainability into health education necessitates incorporating real-world clinical scenarios that underscore their practical relevance. Therefore, the suggested approach not only aims at changing attitudes but also encourages interdisciplinary collaboration, breaking down siloed education. Engaging professionals in applied, scenario-based learning promotes a more integrated approach to creating sustainable futures (Richardson et al., 2019). Weston and Felten (2019) pedagogically defined a scenario as a dynamically structured situation enacted in a specific setting, such as a classroom. The purpose of scenario-based learning is to place teachers and students in a carefully designed scenario, allowing the scenario itself to guide the process.

The goal of the pedagogical approach is to help students recognize a connection between their future roles as nurses and broader societal challenges. By returning to the present after the simulation, students develop solutions to prevent the simulated future from becoming reality. This emphasis on action and prevention is crucial in fostering a sustainable healthcare system and preventing students from being left in a void with a sense of hopelessness. Thus, we create a space and opportunities for innovative, value-creating actions that can contribute to alternative, more desirable future scenarios. In developing and presenting the chaos scenario, we are often asked, "Aren't you afraid of fostering the students' sense of hopelessness?" The confident answer is addressing these topics didactically through our scaffolded learning design for innovative health education.

RESULTS: SCAFFOLDING CHAOS IN HEALTH EDUCATION

In the suggested chaos scenario, darkness is shaped as a blend of images, sounds, and a narrative that, together, draws students deep into a dystopian future in which the healthcare system is under pressure. The students are not required to play a role; instead, they are asked to imagine themselves in a scenario where they face difficult choices and decisions they must engage with and act on.

The scenario presented focuses on fostering students' imagination and creativity. The British biologist and systems thinker Phoebe Tickell's (see Tickell & Kimber, 2023) work on imagination activism has fuelled this path, particularly her emphasis on creating conditions that allow imagination to thrive and drive change. Tickell identifies three key elements necessary to unlock imaginative power: dedicated time and space, permission, and support through exercises and portals. Students are given both the time and space to unblock their imaginations, free from the constraints of traditional learning. Moreover, focusing on granting students permission to engage with the scenario without fear of judgment. In many performance-driven educational environments, the fear of humiliation can stifle creativity, but in our scenario, students are encouraged to explore and experiment. Lastly, we have integrated exercises that evoke both cognitive and emotional engagement, in line with Tickell's emphasis on unlocking not just the mind but also the feelings. This

approach enables students to connect deeply with the challenges presented, fostering a richer understanding of the interconnectedness among climate change, healthcare, and societal impact. By applying these principles, we aim to empower students to imagine and contribute to more sustainable futures.

The chaos scenario is implemented in the fifth semester of nursing education at a university of applied sciences, which is focused on acute, critical, and complex nursing care. The scenario extends over four sessions of 45 minutes each (see Appendix A). Content-wise, the learning design consists of five steps involving a storyteller and a facilitator who guide and initiate the students' learning process (Figure 1).

Students are welcomed to the time machine and introduced to the life of a nurse in the dark dystopian future of 2055. We start with short video clips showcasing climate change, refugee flows, and emerging diseases in 2055. Following this, students are guided into a hospital set. The concept is based on students' interest in acute, critical, and complex nursing care. The scenario's tasks involve decision-making under pressure and present dilemmas, but there are also times and opportunities for reflection, discussion, and timeouts—possibly with hints or external assistance.

After the initial chaos, we once again enter the time machine and return to the present, where the students are tasked with preventing the simulated future. In this context, longing and hope are employed to support the imagination of various futures. This is done to emphasize the importance of their present engagement and actions in creating a better/alternative future.

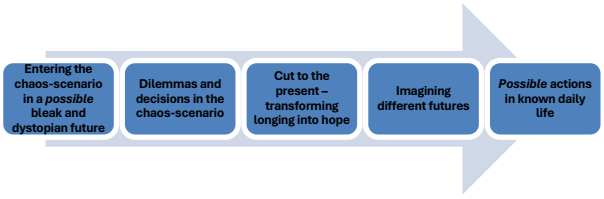

Fig. 1. Visualization of the exercise.

The overall goal is to let the dynamics of the situation shape and direct most of the action and learning that unfolds. In the context of the chaos scenario, the teaching space goes beyond merely being a place for discussion topics or theoretical problems. Instead, a dynamic framework for structured, interactive engagement that adapt and evolve in response to the unfolding chaos. Rather than presenting a static, given situation with limited responses, the progression in the scenario allows for unfolding drama in which the complexity of the chaos gradually invites curiosity and exploration. This process creates a space for continuous discovery, in which answers and resolutions emerge incrementally, fostering excitement and deeper engagement throughout the experience.

DISCUSSION: STRUCTURED EXPERIENCES OF DISCOMFORT

The chaos scenario presents a critical challenge related to UNESCO's concept of futures literacy, which is the ability to understand how the future influences our present actions and decisions (see Jennische & Sörbom (2023)). Since this skill is essential for tackling global challenges through anticipation to help societies develop resilient systems that can endure shocks and support long-term sustainability, a key question is whether higher education institutions are prepared for this. By exploring different possibilities, rethinking the present, and encouraging participatory learning, futures literacy promotes new perspectives, innovation, and openness. This approach complements the chaos scenario by equipping individuals to navigate uncertainty and think creatively in an unpredictable world.

One interesting theme concerns the students' growing awareness of their own coping mechanisms as the scenario unfolds. During the exercises, most of the students respond with humour. As humour is considered an adaptive coping strategy in stressful situations (Chabeli, 2008), the presence of morbidity and sarcasm among the students indicates that the scenario may not only confront the students with uncomfortable emotions but also that humour provides an appropriate distance from the scenario, enabling them to engage in the challenges they meet. Some students highlight their realization that it is a balancing act to meet despair with humour, and they identify humour as a subtle catalyst for further communication and cooperation. This connects directly to the principles of dark pedagogy for tackling horror, crisis, death, and related concepts (Lysgaard et al., 2019).

Another theme concerns the students' visions of the future, as the process moves from a blank canvas to possible actions in everyday life. Some of the students engaged in this part of the exercise are highly motivated and use it as an opportunity to express their hopes for the future. A student created a letter from 2024 to 2055. Among other things, she wrote, "The sky is blue again. Humans and animals live in symbiosis. Healthcare survived.... We learned to thrive within the chaos we had created."

Health professionals increasingly face complex, high-stakes challenges (Glover et al., 2024), spurring calls for pedagogical approaches that prepare students for uncertainty, ethical dilemmas, and emotional reflection. The current learning innovation illustrates how dark pedagogy can enhance learning experiences by confronting subjects that probe moral ambiguity and invite existential reflection. As such, the teaching design offers an interesting framework for preparing future professionals in nursing, social work, and other healthcare fields. However, the case insight raises some

critical concerns to be considered regarding health education.

First, growing sustainability fatigue breeds weariness and apathy toward climate change (Talmage & Gassert, 2020; Tan et al., 2023). Implementing innovative ESD-centered teaching should aim to increase engagement and motivation. However, the opposite could also occur, leading to passivity and disengagement (in line with De Meyer et al., 2021), as confronting nursing students (i.e., the nurses of tomorrow) with bleak scenarios may increase their sense of overwhelm and stress. It is well documented that we face huge nursing shortages, and that nurses are often not able to pursue more sustainable options due to rules or protocols (this restricts them, even if they have great capabilities). Therefore, the suggested chaos scenario also carries risks and demands new skills from teachers and universities. A critical point is that the public sector is typically more risk-averse than the private sector and therefore faces barriers to innovation. This can include "staff resistance, rigid organizational structures, and a lack of shared innovation goals" (Vassallo et al., 2023, p1).

In the healthcare professions, emotional labor is an unavoidable aspect of daily practice. Nurses, teachers, social workers, and caregivers frequently encounter human suffering, loss, and similar crisis situations that can lead to emotional exhaustion or even burnout. In dark pedagogy course formats, students are not shielded from these realities but instead guided through structured experiences of discomfort that allow them to explore their emotional responses in a safe learning environment. Reflection and debriefing after intense scenario-based exercises help students process emotions, develop coping mechanisms, and build self-awareness, which can, in turn, foster greater psychological preparedness for their future roles.

CONCLUSION

One of the most persistent challenges in professional education is ensuring that theoretical knowledge translates effectively into practice. Dark pedagogy, when integrated with scenario-based learning, transforms abstract concepts into lived experiences. Instead of merely discussing ethical theories or crisis management strategies, students experience these challenges in a controlled yet immersive environment where they must apply their knowledge in real time. This approach can deepen learning and, hopefully, reinforce a professional identity that fosters a sense of responsibility that extends beyond the classroom.

In this article, we analyse how dark pedagogy, entrepreneurship education, and futures literacy inspire the design of a chaos scenario and the accompanying pedagogical strategies that collectively support students in identifying courses of action. These actions address both the immediate context of the disaster depicted in the scenario and the ability to translate imagination into sustainable, everyday practices.

Although the scenario is developed for nursing students, its depiction of a dystopian hospital in chaos presents a possible future that may alarm most readers, highlighting the threat of inaccessible healthcare services. Thus, both the scenario context and the pedagogical design may be relevant and applicable beyond nursing, in any field where sustainable development is to be integrated into the curriculum.

CONFLICT OF INTEREST

None to declare.

SUPPLEMENTARY MATERIALS

Please see the Teaching Guide published as Supplementary Materials.

REFERENCES

Álvarez-Nieto, C., Álvarez-García, C., Parra-Anguita, L., Sanz-Martos, S., & López-Medina, I. M. (2022) Effectiveness of scenario-based learning and augmented reality for nursing students' attitudes and awareness toward climate change and sustainability. *BMC Nursing*, 21, 245. https://doi.org/10.1186/s12912-022-01023-9

Bianchi, G., Pisiotis, U., & Cabrera Giraldez, M. (2022). GreenComp – The European sustainability competence framework (M. Bacigalupo & Y. Punie, Eds). EUR 30955 EN, Publications Office of the European Union. https://doi.org/10.2760/13286

Blenker, P., Frederiksen, S. H., Korsgaard, S., Müller, S., Neergaard, H., & Thrane, C. (2012). Entrepreneurship as everyday practice: Towards a personalized pedagogy of enterprise education. *Industry and Higher Education*, 26(6), 417–430. https://doi.org/10.5367/ihe.2012.0126

Brentnall, C., & Higgins, D. (2024). Entrepreneurship educators in an age of climate and ecological breakdown. *Entrepreneurship Education and Pedagogy,* 8(4). https://doi.org/10.1177/25151274241277828

Chabeli, M. (2008). Humor: A pedagogical tool to promote learning. *Curationis*, 31(3), 51–59. https://doi.org/10.4102/curationis.v31i3.1039

De Meyer, K., Coren, E., McCaffrey, M. & Slean, C. (2021) Transforming the stories we tell about climate change: From 'issue' to 'action'. *Environmental Research. Letters*, 16(1), 015002. https://doi.org/10.1088/1748-9326/abcd5a

Fields, L., Perkiss, S., Dean, B.A., Moroney, T., (2021) Nursing and the sustainable development goals: A scoping review. *Journal of Nursing Scholarship*, 53(5), 568–577. https://doi.org/10.1111/jnu.12675

Gkouliaveras, V., Kalogiannidis, S., Kalfas, D., & Kontsas, S. (2025) Effects of climate change on health and health systems: A systematic review of preparedness, resilience, and challenges. *International Journal of Environmental*

Research and Public Health, 22, 232. https://doi.org/10.3390/ijerph22020232

Glover, W. J., Crocker, A., & Brush, C. G. (2024). Healthcare entrepreneurship: An integrative framework for future research. *Journal of Business Venturing Insights*, 22, e00476. https://doi.org/10.1016/j.jbvi.2024.e00476

Gostin, L. O., Chirwa, D. M., Clark, H., Habibi, R., Kümmel, B., Mahmood, J., ... & Were, M. K. (2023). The WHO's 75th anniversary: WHO at a pivotal moment in history. *BMJ Global Health*, 8(4), e012344. https://doi.org/10.1136/bmjgh-2023-012344

Hickman, C., Marks, E, Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. *Lancet Planetary Health*, 5(12), 863–873. https://doi.org/10.1016/S2542-5196(21)00278-3

Jennische, U., & Sörbom, A. (2023). Governing anticipation: UNESCO making humankind futures literate. *Journal of Organizational Ethnography*, 12(1), 105-119. https://doi.org/10.1108/JOE-10-2021-0055

Kotcher, J., Maibach, E., Miller, J., Campbell, E., Alqodmani, L., Maiero, M., & Wyns, A. (2021). Views of health professionals on climate change and health: a multinational survey study. *Lancet Planetary Health*, 5(5), 316–323. https://doi.org/10.1016/S2542-5196(21)00053-X

Larsen, I. B. (2022). Fostering an entrepreneurial mindset: A typology for aligning instructional strategies with three dominant entrepreneurial mindset conceptualizations. *Industry and Higher Education*, 36(3), 236–251. https://doi.org/10.1177/09504222211038212

Lopez-Medina, I. M., Álvarez-Nieto, C., Grose, J., Elsbernd, A., Huss., N., Huynen, M., & Richardson, J. (2019). Competencies on environmental health and pedagogical approaches in the nursing curriculum: A systematic review of the literature. *Nurse Education in Practice*, 37, 1-8. https://doi.org/10.1016/j.nepr.2019.04.004

Lysgaard, J. A., Bengtsson, S., & Laugesen, M. H. L. (2019). *Dark pedagogy*. Springer International Publishing.

Lysgaard, J. A. (2019). Denial. In *Dark pedagogy: Education, horror and the anthropocene* (pp. 23-36). Cham: Springer International Publishing.

Lysgaard, J. A., & Bengtsson, S. (2020). Dark pedagogy – speculative realism and environmental and sustainability education. *Environmental Education Research*, 26(9–10), 1453–1465. https://doi.org/10.1080/13504622.2020.1739230

Lysgaard, J. A., & Bengtsson, S. (2022). *Action incontinence: Action and competence in dark pedagogy*. In *Pedagogy in the Anthropocene: Re-wilding education for a new Earth* (pp. 107–128). Cham: Springer International Publishing.

Lysgaard, J. A., & Bengtsson, S. (2023). Dark pedagogy: Speculative realism and environmental and sustainability education. In New materialisms and environmental education (pp. 212–224). Routledge.

Mauer, R., Neergaard, H., & Linstad, A. K. (2017). Self-efficacy: Conditioning the entrepreneurial mindset. In Revisiting the entrepreneurial mind: Inside the black box: An expanded edition. International Studies in Entrepreneurship. Volume 35. (pp. 293–317). Springer.

Ramsgaard, M. B., Austin, R. D. (2022). Understanding cases as narratives in entrepreneurship education: a conceptual framework. In *Reframing the Case Method in Entrepreneurship Education* (pp. 20-30). Edward Elgar Publishing.

Richardson, J., Clarke, D., Grose, J., & Warwick, P. (2019). A cohort study of sustainability education in nursing. *International Journal of Sustainability in Higher Education*, 20(4), 747–760. https://doi.org/10.1108/IJSHE-02-2019-0064

Shaban, M. M., Alanazi, M. A. H., Mohammed, H. H., Amer, F. G. M., Elsayed, H. H., Zaky, M. E., Ramadan, O. E. M., Abdelgawas, M. E., & Shaban, M. (2024). Advancing sustainable healthcare: A concept analysis of eco-conscious nursing practices. *BMC Nursing*, 23(1), 660. https://doi.org/10.1186/s12912-024-02197-0

Talmage, C. A., & Gassert, T. A. (2020). Unsettling entrepreneurship by teaching dark side theories. *Entrepreneurship Education and Pedagogy*, 3(3), 316–345. https://doi.org/10.1177/2515127420910415

Tan, E., Wanganoo, L., & Mathur, M. (2023). Generation Z, sustainability orientation and higher education implications: An ecopedagogical conceptual framework. *Journal of Applied Learning & Teaching*, 6(1), 314–323. https://doi.org/10.37074/jalt.2023.6.1.ss2

Tickell, P., & Kimber, N. (2023). Imagination is at the heart of change. How is Camden working to build imagination into everything they do? Located [06-02-2026] at https://www.phoebetickell.com/writing/2024/11/10/imagination-is-at-the-heart-of-change-how-is-camden-working-to-build-imagination-into-everything-they-do

Tiitta, I., Cubelo, F., McDermott-Levy, R., Jaakkola, J. J., & Kuosmanen, L. (2024). Climate change integration in nursing education: A scoping review. *Nurse Education Today*, 139, 106210. https://doi.org/10.1016/j.nedt.2024.106210

Vassallo, J. P., Banerjee, S., Zaman, H., & Prabhu, J. C. (2023). Design thinking and public sector innovation: The divergent effects of risk-taking, cognitive empathy and emotional empathy on individual performance. *Research Policy*, *52*(6), 104768. https://doi.org/10.1016/j.respol.2023.104768

Verduijn, K., & Berglund, K. (2020). Pedagogical invention in entrepreneurship education: Adopting a critical approach in the classroom. *International Journal of Entrepreneurial Behavior & Research*, 26(5), 973–988. https://doi.org/10.1108/IJEBR-04-2018-0274

Voros, J. (2017). Big history and anticipation: Using big history as a framework for global foresight, in R. Poli (Ed.), Handbook of anticipation: Theoretical and applied aspects of the use of future in decision making. Springer International, Cham.

Weston, A., & Felten, P. (2023). Teaching as the art of staging: a scenario-based college pedagogy in action. Routledge.

WHO (n.d.). World Health Organization. Climate Change Fact Sheet. Located [11-04-2025] at https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health