

**Erik Jon Byker
Adriana Medina
Editors**

Global Education Collaborations

**Advancing the Internationalization
of Higher Education**



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DOI: <https://doi.org/>

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Additional color graphics may be available in the e-book version of this book.

Library of Congress Cataloging-in-Publication Data

ISBN: 979-8-89530-630-7

Published by Nova Science Publishers, Inc. † New York



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Chapter 4

Regenerative Internationalization: Designing Learning for a Thriving Future

Ray O'Brien¹

Ben Levy²

and Craig Cliff¹

¹Toitū te Taiao/Sustainability Office, Ōtākou Wakaihu Waka/University of Otago, Ōtepoti/Dunedin, Aotearoa New Zealand

²Te Kura Toi Tangata School of Education, University of Waikato Te Whare Wānanga o Waikato, Kirikiriroa Hamilton, Aotearoa New Zealand

Abstract

While internationalization of higher education can help develop global competencies, there are significant risks that increased international mobility will undermine the credibility of universities to address wicked problems like climate change. The social license for institutional strategies that emphasize the growth of internationalization is now under scrutiny. In this chapter, the design of internationalized learning experiences for inbound international students are viewed through the lens of regenerative practice. This chapter proposes a transition towards regenerative internationalization. A set of reflective questions have been developed to allow those designing the next generation of international learning experiences to fully consider the extent to which the experiences will have regenerative impacts so that universities realize the significant benefits of internationalization in a manner that will withstand their own critique. In doing so, this framework positions the designers of these experiences as leaders of change, actively contributing to a thriving future of internationalization.

In: Erik Jon Byker and Adriana Medina
Editors: Global Education Collaborations
ISBN: 979-8-89530-630-7
© 2025 Nova Science Publishers, Inc.



Keywords: Aotearoa New Zealand, critical internationalization, future studies, regenerative internationalization, Three Horizons Framework

Introduction

Internationalization of higher education is commonly associated with learners traveling to overseas institutions in pursuit of learning, but it is much broader and includes activities such as internationalization of the curriculum, internationalization at home, international partnerships, and global research collaborations (Beelen & Jones, 2015; Hudzik, 2014). In this chapter, we explore the tensions between the benefits of internationalization (specifically inbound student mobility) of higher education and the environmental and reputational costs. Particular attention is given to the Aotearoa New Zealand context and offering a framework for reflection which can be used by those designing internationalization experiences for inbound international students. Aotearoa is the Māori name of the North Island of New Zealand and is now commonly used as the Māori name for New Zealand. Out of respect for the treaty between Māori and the British Crown the country is referred to as Aotearoa New Zealand through this chapter.

Internationalization in Aotearoa

According to a 2006 study commissioned by the New Zealand Ministry of Education, the most often quoted benefits of internationalization were “revenue flows, opportunities for staff and student exchanges and preparing students for the global economy” (McInnis et al., 2006, p. 34). While the financial benefits are clear, the New Zealand Government also sets clear expectations on the quality of education, support services, and the overall wellbeing of international students through various policy initiatives (NZQA, 2021). Internationalization in Aotearoa New Zealand has predominantly focused on the enrollment of international students. The country has long been recognized for delivering high quality tertiary education in the global league tables (QS Quacquarelli Symonds Limited, 2024). In the past two decades, rapidly rising international student enrollments influenced strategic resource priorities and the development of numerous policies to maximize the opportunities for increased revenue from internationalization and international student well-being. Pre-COVID (2019), the tuition revenue from international

students in the Aotearoa New Zealand university sector was NZD\$1.750 billion, generated from 33,828 inbound students. In the same year, the total onshore economic contribution in New Zealand from international students across the education sector was estimated to be NZD\$4.93 billion, with universities' earnings from export education representing 0.9% of all New Zealand's exports of goods and services (Education New Zealand, 2021).

The extended pause in global mobility due to the COVID-19 pandemic created spaces to reflect critically on the purposes and approaches to higher education internationalization. Universities were originally established to serve the public good as centers of knowledge production and learning with "social, cultural, ideological, political, and economic responsibilities to society" (Maringe & Foskett, 2013, p. 1). However, impacts from the spread of neoliberalism throughout the 20th and 21st century have substantially shifted this core purpose (Williams, 2016). Political and economic drivers at times surpass knowledge 'as a public good' as the structural and strategic engines of institutional activities. Institutional policies and strategies have been influenced by these forces which question if knowledge-oriented outcomes are secondary to financial outputs (Pashby & de Oliveira Andreotti, 2016).

Higher education has become a global economic industry. The internationalization of higher education has been leveraged as a catalyst for institutions to become highly competitive and increasingly focused on revenue generation and global prestige (Pike, 2012). There are an estimated 235 million students enrolled in higher education institutions around the world (UNESCO, 2023), with just eight countries serving as the primary host countries: United States, United Kingdom, Germany, France, Australia, China, Canada and Japan. Higher education institutions have leaned into global ranking schemes to build and highlight their reputations and leverage their competitive positions to recruit talented students and staff and increase revenues. The neoliberal drivers of higher education internationalization have resulted in a fast-paced, competitive scramble for positioning, further resulting in a lack of clarity in how it is defined and implemented.

During the COVID-19 global pandemic, higher education institutions that had focused much of their internationalization activities on the recruitment of international students, and the correlated revenue dependence, were confronted with substantial pressures on their business model resulting in considerable financial losses (Holloway, 2022). There is some evidence that internationally mobile students' destination preferences changed during the pandemic, with Aotearoa New Zealand, dropping in popularity with students, particularly from Hong Kong and China (Mok et al., 2021). Some higher

education institutions (HEIs) explored opportunities to apply innovative pedagogical approaches to internationalization through virtual mobility. In Europe, virtual exchanges were offered by 52% of universities post-pandemic, while it was only 12% before the global pandemic (Collier-Murayama, 2023). In some instances, the pandemic highlighted the risks to student mobility: exposure to infectious diseases; inadequate risk assessment, mitigation and response plans; and the impacts to the environment (Gaebel et al., 2024). Other institutions have refocused on sustainable development and the advancement of the United Nations Sustainable Development Goals (SDGs) through internationalization (Ramaswamy et al., 2021). In Aotearoa New Zealand, the International Education Strategy sets out a pathway to “craft a new future for international education that is sustainable, resilient and diversified” (Education New Zealand, 2022, p. 9). While this signals something of a return to the original public good of internationalization, the varied forms of costs associated with internationalization are not so well explored.

The Costs of Internationalization on Our Climate

While the financial implications of international student mobility and the potential public good are well understood, research also suggests that internationalization is leading to many undesired effects, including increased commoditization of higher education, increased number of students leading to a greater proliferation of campus infrastructure, increasing inequalities, and decreasing quality of education for a large number of students (Altbach, 2013). However, the impact on climate change is less explored.

We know from universities in Aotearoa New Zealand who report upon student travel emissions that reduced international student enrollments results in reduced emissions. For example, when the University of Otago experienced a COVID-19 induced drop in international enrollments between 2019 and 2020, the emissions from student travel dropped by 29% (University of Otago GHG Emissions Report 2020, 2021). There are also clear signals that Aotearoa New Zealand universities intend to increase the number of international students in coming years as part of their recovery from the financial challenges imposed by COVID. Based on university investment plans for six of the eight universities in Aotearoa (who account for approximately 70% of all 2023 international enrolments in New Zealand), the level of ambition ranges from 12% increase to over 50% increase between 2022 and 2025. The mean across this representative group is a 25% increase in international student enrollments

between 2023 and 2025. This will clearly have a material impact on the emissions footprint of internationalization in Aotearoa (e.g., see Auckland University of Technology, 2024; Lincoln University, 2023).

To understand the significance of that growth in terms of climate change, it is necessary to establish an estimated baseline of emissions due to air travel by international students coming to New Zealand, across the whole university sector. In order to calculate the baseline, public data from the NZ Ministry of Education was used that lists international students by home country 2014-2023 (Education Counts, 2024). The methodology used to estimate air travel emissions follows the International Education Sustainability Group's Climate Action Barometer (International Education Sustainability Group [IESG], 2024), which accounts for one return trip between the largest airport in the home country and the destination country, using great circle formula for distance rather than specific flight routes, and 2023 New Zealand based emissions factors for short and long haul international aviation which are inclusive of radiative forcing (Duval, 2009; GlobeAir AG, 2024; Ministry for the Environment, 2024). The number of students enrolled was used, rather than the more commonly used Equivalent Full Time Student (EFTS), to better reflect the total number of flights that might have occurred. For inclusion in the data, a student must have been enrolled as at least 0.3 EFTS. This estimate includes assumptions that any additional trips back to home countries during the year of study are the students' personal choice over which the institution has no operational control. Therefore, the associated emissions are part of the students' personal footprint rather than of the institution. The 2023 emissions factors have been used across all years, which may result in some error as historic emissions factors tend to be slightly higher in reflection of improved aircraft efficiency. Economy class travel has been assumed throughout, and domestic connecting flights excluded. The resulting estimated greenhouse gas (GHG) emissions from inbound international students' air travel, relative to enrollment numbers are shown in Figure 1.

While the emissions in 2023 are estimated at almost 94,000 tCO₂e¹, based on the planned mean growth of 25% percent in international student enrollments from 2023-2025, an estimate of the GHG emissions in 2025 would be closer to 117,000 tCO₂e. This assumes that the relative proportions of students coming from different home countries will remain constant, and that technology will not advance so rapidly in that short time frame that it will

¹ tCO₂e is the standard unit of global warming potential and includes a range of greenhouse gases.

make a material reduction in emissions factors. To provide some context, that would be 10% higher than the 2019 pre-COVID peak, while at the same time the country and the world are desperately trying to reduce emissions to meet international commitments such as the Paris Agreement and trade agreements (Fernández & Daigneault, 2016; Pérez de las Heras, 2023). To provide further context into the significance of these emissions, 117,000 tCO₂e is equivalent to the total annual per capita emissions of over 9000 New Zealanders, even if you include carbon dioxide, methane and nitrous oxide from all sources and land-use change (Jones et al., 2024; Ritchie et al., 2023). In a global context, to meet the Paris agreement objective of limiting global warming to 1.5 degrees, we need to reduce global average per capita emissions to 2-2.5 tCO₂e (United Nations Environment Programme [UNEP], 2020). This means that in 2025, New Zealand international student air travel alone, could be responsible for a share of global emissions equivalent to between 47,000 and 58,500 global citizens. Through either an environmental or an equity lens, this does not seem to represent a fair share (Ellis, 2021).

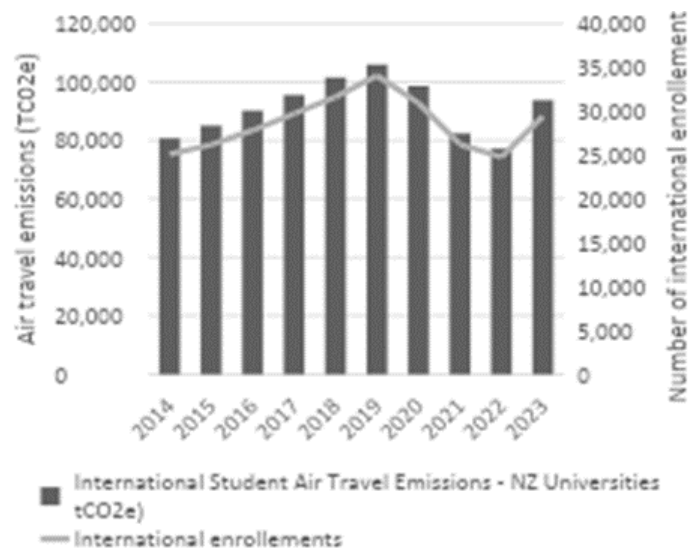


Figure 1. GHG footprint of international inbound student travel to New Zealand.

Sustainability or Regeneration?

The truths of post-COVID19 internationalization in tertiary education are inconvenient for those institutions seeking an expansion of internationalization activities. Inconvenient truths about the future are not unfamiliar (Gore, 2006). Arguably, resolving or reconciling that inconvenience is at the heart of the role tertiary education needs to play in society (Harland & Pickering, 2011). In Aotearoa New Zealand, that role is at least partially articulated in legislation as being a critic and conscience of society (Shephard, 2020). However, as Shephard (2020) suggests, the legislation “obliges New Zealand universities to research their own practices and to be [a] critic and conscience of these practices in the same way as it obliges New Zealand universities to research the practices of those outside of the university and to be [a] critic and conscience of them” (p. 29). So, given the weight of scientific evidence of the anthropocentric impact on climate change (Lee et al., 2023), how can universities realize the significant benefits of internationalization in a manner that will withstand their own critique?

This tension has another significance in the treaty-based context of Aotearoa New Zealand. Te Tiriti o Waitangi is a founding document for the nation, and article two of Te Tiriti requires that the crown ensures Iwi (tribal groups) can exercise Rakatirataka (similar to chieftainship) over their land and natural resources. Within Te Ao Māori (Māori world view), the relationship between the natural environment and humans is inseparably linked through whakapapa (genealogy). This connects all living things in our environment to Papatūānuku (the earth mother) and Rakinui (sky father) (Ministry for the Environment, 2023). Therefore, any anthropocentric impact on *te taiao* (the environment) is seen to have an impact on ancient ancestors and their *mauri* (shared life force) and may therefore affect the ability of Iwi to exercise Rakatirataka. Universities, as crown funded entities, are bound to honor Te Tiriti o Waitangi. Therefore, actions that result in increased impact of climate change on the environment, may be viewed as falling short of the expectations of Te Tiriti.

From a western perspective, the following definition of sustainable development provided in the Brundtland Report (World Commission on Environment and Development, 1987) is often taken as a baseline for sustainability: “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (p. 16). However, this definition assumes a homogenized agreement of future need and lacks two elements that could inform the narrative around higher education

internationalization today. There is a lack of clarity around the level of needs that should be considered necessary in the future, nor does it indicate the breadth of different needs that should be considered. The United Nations Development Program established the Sustainable Development Goals (SDGs) in 2015 (United Nations, 2015). These seventeen goals set out a global agenda for 2030 that encompassed people, planet, prosperity, peace, and partnership. These broad and highly interconnected goals, and the associated targets aligned under each goal, provide a useful indicator of the breadth of the sustainability narrative, and the future needs that should be considered necessary (International Council for Science [ICSU], 2017). A significant group of university leaders from around the world have recently requested that the “world’s governments should extend the mandate of the SDG framework to 2050, with updated high-ambition milestones and quantified objectives” (Sustainable Development Solutions Network [SDSN], 2024). This is a positive indication of the adoption of the SDGs, of the significant work still to be done, and the significant role that tertiary education must assume to progress the agenda, a role of which internationalization must be a part.

Even with global commitment to the SDGs there are still unanswered questions around the level of commitment required. To this end, it is worth exploring a deeper understanding of the connection between current actions and the future, which could supersede our understanding of sustainability as it is described above. This is the shift from sustainable actions to regenerative actions (Robinson & Cole, 2015).

When reflecting upon the extent of harm caused by international travel, the word *sustainability* itself seems not enough, and falls short of what is needed (Wahl, 2019). The word is aligned to sustaining the status quo, and the systems that have created the poly-crisis we face (Homer-Dixon et al., 2021). An alternative narrative is presented by Reed (2007) whereby shifting from an issues-based view to a living system-based view, regenerative systems can be designed. Regenerative systems require engagement with the entirety of what makes a place healthy. Wahl (2016) furthers this description to include a higher level of expectation for the future than the sufficiency implied by the Brundtland Report.

“Regenerative design creates regenerative cultures capable of continuous learning and transformation in response to, and anticipation of, inevitable change. Regenerative cultures safeguard and grow biocultural abundance for future generations of humanity and for life as a whole” (Wahl, 2016, p. 31).

This is a perspective closer aligned to the abundant reciprocity with nature, so eloquently described by Kimmerer (2013), and is far away from the transactional nature of placing relative financial value on ecological services and natural capital described by Costanza et al., (1997). A regenerative approach to internationalization would perhaps demonstrate a similar relational nature to the natural world, rather than the transactional nature of ambitious growth described earlier. However, this would represent a significant transition from current practice.

Framing

To appropriately deal with the uncertainties, complexities, and timeline of transitioning to a more regenerative model of higher education internationalization, this chapter draws on critical future studies connected to the Three Horizons Framework (Sharpe, 2013). A set of reflective questions related to internationalization have been developed which a designer could use to critically consider the impact of the internationalization activity which they are designing.

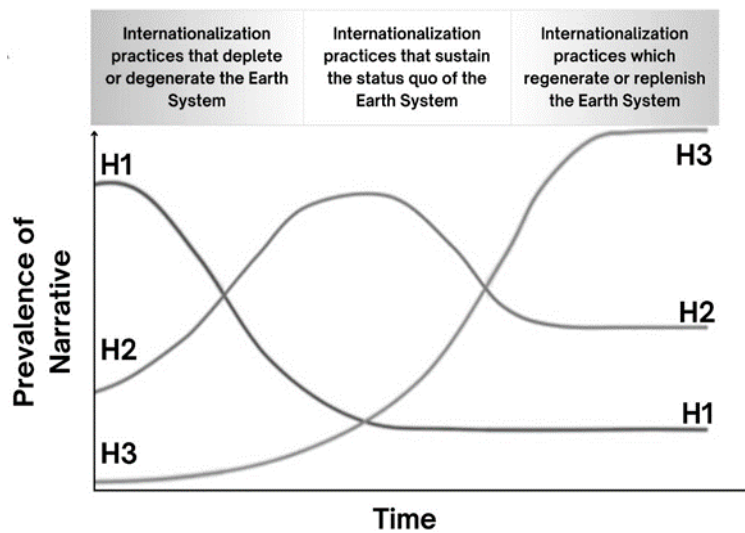


Figure 2. Three horizons of regenerative internationalization (inbound international student mobility) Ray O'Brien, CC BY-SA 4.0 <<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons.

The Three Horizons Framework (Sharpe, 2013) examines the prevalent narrative at different stages in a transition. See Figure 2 for an illustration of the framework. The first horizon (H1) represents the narrative prior to change. The third horizon (H3) represents the vision for the future. The second horizon (H2) represents a transitional narrative that bridges the current state (H1) to the future state (H3). It is important to clarify that the peaks on each of the three horizons show the prevalent narrative, not *the* narrative. At every stage in the timeline all three narratives are present, but the prevalence shifts over time. These horizons should be understood more as orientating heuristics, bringing focus and awareness to different patterns of change and the extent of disconnect between the current situation and desired future, rather than a reductionist diagnostic tool (Schaal et al., 2023). The Three Horizon Framework has already been used in the context of educational transformation (Rijken, 2022) but does not appear to have been applied to the internationalization in higher education.

Discussion

In the case of transitioning to a regenerative model of higher education internationalization, Horizon 1 could be the narrative of financially driven neo-liberalization of higher education internationalization, contributing significantly and unjustly to climate change. Horizon 2 is a transitional narrative where harm is recognized and there is a pragmatic effort to minimize it, while still looking to accept uncomfortable truths about growth. The third Horizon is a narrative about regenerative actions and thinking, which repairs the ecological ceiling and support the social foundations of life in a safe and just space.

Based on the high emissions and high international growth aspirations of universities in Aotearoa-New Zealand described earlier in this chapter, Horizon 1 still seems to be the prevalent narrative in relation to inbound student mobility, but given the increasing importance of sustainability rankings and sustainability related international experiences, there is evidence of pockets of narrative from Horizons 2 and 3 (e.g., see the ACTS, 2021; CANIE, 2022; Education New Zealand, 2022; Gaebel et al., 2024), reinforcing that at any time there is narrative from more than one horizon present. This chapter has looked at the context of higher education internationalization in Aotearoa New Zealand and the environmental costs of their activities, with specific attention to inbound student mobility. Once operational practices have

been considered across relevant characteristics, a set of cross cutting evaluative questions can then provide a more holistic understanding of the prevalent narrative(s). There is evidence of themed evaluative questions being distilled from the application of theoretical frameworks to the practice of designing learning experiences, and then being used to examine the level of alignment between those experiences and creating a thriving future (O'Brien & O'Brien, 2025; O'Brien, 2023). The following questions provide a starting point for those wishing to explore the extent to which inbound international student mobility is aligned with the idea of regenerative internationalization-H3 as the prevalent narrative:

- To what extent does the internationalization activity actively mitigate climate impact?
- To what extent have you increased a student's sustainability competence and action orientation?
- To what extent does this activity go beyond minimizing negative impacts to the environment and creating a positive impact?
- To what extent is your institution aware of the balance between the costs and benefits of inbound student mobility?
- To what extent has the institution developed and committed a plan to move from degenerative internationalization activities to more regenerative internationalization activities?

Conclusion

This chapter has set out to reframe internationalization to be viewed in the context of creating a thriving future. The framework is not intended to be a definitive description of or prescription for regenerative internationalization, but rather a template to allow contextualized or localized design of regenerative experiences. While this chapter has applied the framework to inbound student internationalization, it could equally be applied to a range of other internationalization activities (e.g., virtual exchanges, short-term study abroad, internationalization of the curriculum, research collaborations, institutional partnerships, etc.).

Whatever the context, the three narratives approach supports us in considering the challenges in internationalization from different perspectives concurrently. Scaling down allows us to reflect on our practices and the extent

to which one narrative seems more prevalent than others at a given time. This plurality of narratives means that there is unlikely to be a prescribed or ideal start point or end point in a transition to being more regenerative. Therefore, any point should be considered as a good starting point. There is leadership responsibility on the designers of international higher education experiences to start the transition no matter where that starting point might be. To fail in that leadership places the credibility of higher education institutions at risk, but more importantly perpetuates the degenerative impact on the Earth System. If internationalization fails to transition to a more regenerative model, then higher education is positioning itself in the same moral bucket as fossil fuel companies by deliberately profiting from the creation of a catastrophic future.

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About the Authors

Ray O'Brien is Tumuaki o Toitū te Taiao- Head of Sustainability at the Ōtākou Wakaihu Waka -University of Otago. His research interests explore the interface between sustainability and learning design, with a focus on how those designing learning experiences can be leaders of change for a thriving future (ORCID 0000-0001-6062-7719).

Ben Levy is a higher education scholar-practitioner of 24+ years on 6 continents. He holds a B.Sci. in Environmental Sciences, M.A. in



Sustainable Development, and is a current Ph.D. candidate with research focusing on “Navigating National Priorities, Regionalism and Internationalization in National Universities of Oceania.” Additionally, he holds positions with the University of Otago and the University of the South Pacific (ORCID: [0000-0002-6667-9111](https://orcid.org/0000-0002-6667-9111)).

Craig Cliff is the Net Carbon Zero Programme Manager at Ōtākou Whakaihu Waka - University of Otago. He recently completed a post-graduate diploma in business research at Otago, with an emphasis on social and environmental sustainability.