Moving from interdisciplinary research to transdisciplinary educational ethics: Bridging epistemological differences in researching higher education internationalization(s)

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Abstract

This article begins with the proposition that inter- and transdisciplinarity offer an important methodological grounding for collaborative HE research addressing complex agendas such as HE internationalization. Internationalization acts as a figure for the ‘troubled’ nature of higher education; hence we begin with the larger problem, discussing the current crises of disciplinary knowledge as the background question. We set out a framework for understanding and conceptualizing inter- and transdisciplinarity as a meta-theoretical approach that problematizes reductive and disciplinary approaches, in favour of research and analytical strategies which can work with, and across, differences. To work further through and operationalize different possibilities offered by inter- and transdisciplinary approaches to HE internationalizations, we discuss the use of tools such as social cartography to do ‘bridging work’ across different disciplinary and theoretical backgrounds

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and contexts. A non-formal practitioner–collaborator project is discussed to highlight emergent dimensions of collaboration that might otherwise be overlooked. Inter- and transdisciplinarity are not pre-specified specialized ‘methods’ but, rather, are orientations that may take reductive, convergent, divergent or emergent pathways. Inter- and transdisciplinarity can perhaps be best treated as a problematizing and open-ended methodological approach that foregrounds plurality and contestation, orienting research frameworks towards inclusiveness, tensions, unpredictability and complexity.

Keywords

Higher education, interdisciplinarity, internationalization, social cartography, transdisciplinarity

Introduction: researching internationalization amidst troubled HE and destabilized disciplines

Research about higher education (HE) internationalization is embedded within continuing ambiguity and uncertainty about the systemic changes occurring in HE worldwide. Internationalization is not just another phenomenon for higher education researchers to research. Internationalization acts as a figure for the ‘troubled’ nature of higher education in an age of complexity. In this article, we respond to the general criticism that there is a dearth of ‘meta-thinking about HE’ in HE research (Barnett, 2014: 9) caused by the lack of a theoretical framework for thinking about HE educationally (Barnett, 1990). We suggest that researchers of higher education might respond meta-theoretically to this systemic change and complexity, by turning to inter- and transdisciplinarity as a methodological starting point, and highlighting its relevance to critical and reflexive higher education research in general. While interdisciplinarity is a somewhat familiar term, transdisciplinarity is a young term that remains unfamiliar in educational studies, having developed largely out of interactions between the natural sciences, sustainability studies and public health (Klein, 2004; Lawrence, 2015). Transdisciplinarity points higher education research (including, but not confined to, research on HE internationalization) towards questions of how knowledge, research and teaching practices may be reconceptualized in more holistic, cross-disciplinary and transversal ways. Inter- and transdisciplinary approaches thus direct HE research towards practices of methodological deepening and innovation. The concepts of inter- and transdisciplinarity imply that researchers must make greater efforts to enact practical cross-cultural understanding, foster openness to cultural and value-based diversity, and advance non-dominating, equitable international research collaboration. Inter- and transdisciplinary approaches offer methodological openings, possibilities and underpinnings to advance pluralistic, diversal, decolonial and social justice focused research. In this paper, we take the problem focus of researching HE internationalizations. We set out and conceptualize inter- and transdisciplinarity. We suggest that inter- and transdisciplinary approaches offer a vibrant and powerful potential for rethinking HE internationalizations and emphasize that such methodologies are relevant to rethinking HE, research collaboration and partnerships more generally.

This paper begins with the proposition that inter- and transdisciplinarity offer an important methodological grounding for collaborative HE research addressing complex agendas such as HE internationalization. We begin with the larger problem, discussing the current crisis of disciplinarity as the background to laying out the meanings of inter- and transdisciplinarity and conceptualizing the terms. Having laid the groundwork for conceptualizing inter- and transdisciplinarity, we draw upon different experiences with critical research on HE to reflect on how inter- and transdisciplinarity might offer methodological insights and strategies for working with, and across,

differences. Imagining what inter- and transdisciplinary research on HE internationalizations might look like, we discuss ‘bridging work’ that brings in challenges in working across academic and non-academic audiences and non-formal perspectives, highlighting dimensions of collaboration that may be overlooked by the theoretical, academic and strategic managerial perspectives that dominate the current state of research on HE internationalization. Inter- and transdisciplinarity involve bringing in different actors and perspectives using inclusive methods, while the transformative demand of transdisciplinarity orients the research questions and analyses toward more challenging demands of decoloniality, justice and transformation.

Our discussion draws on collaborative inter- and transdisciplinary work from projects with which we have been involved. Three of the authors of this article, Su-Ming Khoo, Meeri Hellstén and Jani Haapakoski initially connected through the Ethical Internationalization in Higher Education (in times of global crisis) (EIHE) research project, a networked research project involving researchers with particular interests in decoloniality and diversity, led by Professor Vanessa Andreotti and funded by the Academy of Finland from September 2012 to June 2016 (Andreotti et al., 2016; Khoo et al., 2016; Pashby and Andreotti, 2016). Additionally, Su-Ming Khoo and Joanne Malone are involved in a global citizenship research and collaboration project involving non-formal educators, UNIFY-SDG (University-based Research and Education for Youth Solidarity and Equality towards the SDGs), funded by the Irish Research Council. As we worked through issues of collaboration as researchers and practitioners, we began to note that a research gap exists concerning how research methodology is itself conceptualized in HE research. The aim and scope of the article is not primarily concerned with communicating the research findings from the specific projects, but rather with looking at inter- and transdisciplinary methodology as an open-ended, inviting ground for incubating discussions and confronting critical and challenging questions about epistemology and ethics. The main purpose of this article is to reflect upon our research work in order to think through and explain inter- and transdisciplinarity as such, and to reflect on the implications of inter- and transdisciplinarity as a methodological approach and as a broader enterprise, bridging academia and social demands for transformation.

The institutional and cultural contexts for HE and global learning are changing rapidly. Our educational systems (both formal and informal) are called to answer to enormous challenges facing global society. Meanwhile, higher education institutions (HEIs) must also respond to numerous pressures to restructure, and to fundamentally transform themselves to become more ‘international’, ‘global’, interdisciplinary and ‘relevant’ (Hawawini, 2011). The nineteenth and twentieth century imaginaries, which placed the Humboldtian research university and its modern civic counterpart in a shared, prestigious imaginary, are no longer regarded as legitimate or sustainable from either inside or outside the academy (Frodeman, 2014; Readings, 1996). Disciplines, with their individual histories, cultures, subject matters, methods, people and social positioning (Huber, 1990) represent the original ‘academic tribes and territories’, but they are becoming less relevant (Trowler, 2012), because the disciplinary and interdisciplinary architecture of knowledge itself is changing (Zeleva, 2006: 195). Localized factors and interdisciplinarity are becoming more salient as research moves away from a discipline-defined ‘donnish dominion’ to a model driven by ‘impact’ and ‘usability’, evaluated according to non-discipline-specific performance benchmarks. Universities and research institutions are becoming corporatized, making generic commercial symbols and strategies more predominant. Managerialism, enterprise culture and fiscal crises have shifted the ground of how HE understands itself and its values. Disciplinary academic knowledge is no longer valued for its own sake, and it is even seen by some as ‘unsustainable’ (Frodeman, 2014), as increased emphasis is placed on the economic value of knowledge (Trowler, 2012: 28). Academic tenure, the foundation for autonomous disciplinary knowledge, is increasingly regarded as an outdated and ‘unsustainable’ model for academic work. Professional input from outside academia is increasingly valorized, while academic

work is becoming more eroded through casualization and precarious employment. The contemporary crisis of disciplinary knowledge becomes even more salient for disciplines and subject groupings that have been de-funded, threatened with closure or actually closed. Academic offerings across traditional disciplines in the arts, humanities, social sciences and fundamental sciences have come under pressure (Zeleva, 2006; Belfast Telegraph, 2015; Preston, 2015), while recently ‘STEM’ ([applied] science, technology, engineering, mathematics and/or medicine) disciplines are promoted as having market ‘relevance’ and appeal. As arguments proliferate about the increasing irrelevance or unjustifiability of disciplinary knowledge, interdisciplinarity is lauded for its greater relevance and problem-solving potential. The arguments that exert pressure on disciplinarity also concern foundational questions about the nature and role of HE itself, what educational change and reform should take place, and how the domains of knowledge and education must themselves be transformed.

Much of the current critical discussion about internationalization has focused on the trend towards corporate and market transformations (see e.g. Hellstén, 2018). The requirement to become more ‘global’ and ‘international’ has been aligned with revenue-seeking and institutional positioning in global markets using global rankings. Some critical commentators have considered more diverse problems such as global learning, global citizenship, inclusion, cultural and ethical dimensions related to research methods (Hawawini, 2011; Clifford and Montgomery, 2014; Trahar, 2014). However, less attention has been focused on what higher education must do to face the real critical global challenges and crises, such as unsustainability, inequality, exclusion, insecurity, violence and persistent conflict. Extraordinary movements of people, growing inequality and the breaching of the environmental ‘safe operating space’ are challenges that cannot be met neither by individual disciplines, nor by marketization. Mignolo identifies four essential issues of concern – a shared sense of a ‘world on fire’ that requires addressing:

- (i) The looming threat of ecological catastrophe;
- (ii) The inappropriateness of private property relations to govern knowledge and intellectual goods;
- (iii) Socio-ethical dilemmas brought about by new technological developments (posthumanism); and
- (iv) The problems of social polarization and exclusion (Mignolo, 2013).

New forms of learning and collaboration are required to address these problems and dilemmas.

Inter- and transdisciplinarity are complicating and complex. When we move from disciplinarity to ‘interdisciplinarity’ to ‘transdisciplinarity’ we move from conceptions of integration and multidimensional or holistic problem-solving to more challenging concepts that include transgressiveness (Klein, 2010), transformation (Max-Neef, 2005) and reflexive coordination (Piaget, 1931; Lawrence 2015). Interdisciplinarity concerns the interactions between disciplines as distinct domains and practices, with a problem focus. Transdisciplinarity pushes beyond interdisciplinarity by including resistant, radical, unpredictable and emergent modes of thought and practice as well as more pragmatic and practically inclusive ones. This article reflects on and discusses transdisciplinarity in relation to research work within the EIHE project and non-formal educators to illustrate what collaborative inter- and transdisciplinarity work might begin to look like in practice. We draw on some experiences in collaboration and reflect on the possibilities and challenges of inter- and transdisciplinary methodology.

Approaching inter- and transdisciplinarity methodologically

The concept of disciplines derives from the Latin root word *discere*, to learn. The root word also gives us *discipulus*, discipleship and *disciplinis*, what can be taught and learned in a specific way, with connotations of control. ‘Multi’ merely means ‘many’, in contrast to ‘inter’, which implies mutuality and reciprocity. Interdisciplinarity requires analysis that synthesizes and harmonizes links in a coordinated and coherent whole (Choi and Pak, 2006). Transdisciplinarity connotes a further step beyond linking or exchange across disciplines, and implies going beyond them, to integrate, transcend and change (Alvargonzalez, 2011). This prompts an important unresolved question – whether ‘transcendence’ requires different knowledges or epistemes, multiple and heterogeneous disciplines and beliefs to be *unified*, or not, and how this could happen. The leading transdisciplinary theorist, Edgar Morin, identifies three fracture sites, or ‘emergence levels’ of knowledge: the physical, the biological and the anthropo-sociological. His somewhat abstract theoretical approach suggests that these fractures can be resolved by the social sciences becoming entrenched in the life sciences, and the life sciences merging into the natural sciences, using cognitive maps provided by systems theory, cybernetics and information theory (Morin, 1994; Alvargonzalez, 2011: 397). This direction of integration implies a pecking order of disciplinary configurations which places ‘natural sciences’ at the top, followed by social sciences and then the humanities at the bottom, but this hierarchy reflects the ‘scientific fixation of modern society’, a fixation which has European and imperial origins (Zezeza, 2006: 197). Conversely, practitioner-oriented and health-centred authors suggest an opposite direction of transcendence, with the humanities acting to contextualize and transcend disciplinary boundaries by integrating natural, social and health perspectives (Choi and Pak, 2006). The contrast between different routes of integration points to the key problem of ethnocentrism (Nicolescu, 2002), which transdisciplinarians recognise, arguing for dialogical methods to be used, instead of proceeding by simply subsuming one type of knowledge into another. The desire for a single, unified and ordered world can drive research into an erroneous direction, because the different levels of reality are impossible to fully resolve (Alvargonzalez, 2011: 397–399). This line of thinking leads transdisciplinarity towards emergence – ongoing, accommodative practices and unfinished processes rather than perfected theories, and to ways of working that are somewhat pragmatically and materially determined. In the sciences, pragmatic transdisciplinarity often occurs around new functional technologies influencing how disciplines operate, requiring ‘operational material continuity’, while accepting common principles such as mechanics or thermodynamics (Alvargonzalez, 2011: 394). Broader transdisciplinary practice extends this idea of ‘operational continuity’ to principles of sustainability, ecology and public health, or of social or cognitive justice.

Transdisciplinarity involves deconstruction, different levels of reality, paradoxes and conflicts, raising questions about what problems there are to be solved, including the methodological question of problem choice (Klein, 2004). The ‘troubling’ of disciplinary academic knowledge leaves fundamental questions open, concerning what needs to be ‘problematized’ or ‘understood’ in HE, and its international dimensions. The ‘relevance’ of research cannot be assumed to be universal, or a priori: it depends on a sense of intelligibility and shared meaning, purpose or transformative intent across a world increasingly recognized as pluriversal.

Conceptualizing different views on interdisciplinarity: a model

Having reviewed some different ideas and propositions challenging disciplinarity, and reflecting on our different researcher interests and positions, we outline a model for conceptualizing inter and transdisciplinarity which is sketched out in Table 1. Disciplinarity involves disciplining and

Table 1. Approaching inter- and transdisciplinarity.

Cultures of the disciplines (Trowler, 2014; Huber, 1990) Social Sciences ↔ Life Sciences ↔ Natural Sciences (Morin, 1994) Natural Sciences ↔ Social Sciences ↔ Humanities (Choi and Pak, 2006)				
	Reduction	Convergence	Divergence	Emergence
<i>Disciplinary</i>	Discipline homogenization Single 'best' approach to theory, questions and evidence	Reinforce Discipline boundaries	Challenging disciplinary hierarchy, questions and methods	New theories and evidence
<i>Multidisciplinarity</i>	One discipline perspective or process predominates	Each discipline contributes to multifaceted but definite problem and solution	Disciplines diverge on problems and solutions	New ways of redefining problem and solutions
<i>Interdisciplinarity</i> A.1 Subject A.2 Practices	Single shared problem, method and approach	B. Synthesising analysis B. Harmonized links, coordination coherence	B. Multiple problems and approaches B. Analytical tools for mapping divergences B. Cross-disciplinary critique B. Challenging power, protocols, standards, logics, goals and values	B. Systems thinking B. Diversal perspectives B. Pedagogical tools
<i>Transdisciplinarity</i> C		C. Operational continuity co-production learning collectives C. 'Target knowledge' (values) C. Bridging concepts C. 'Transformation knowledge' (collective action)	C. Diversity and dialogue problem definition, goals and values C. 'Included middle' C. Rendering negative space visible C. Questioning epistemic privilege	C. Transformation knowledge C. Reflexive science C. Open-ended learning C. Pluriversal coexistence of rational and relational modes

Mode '1' 'pure' ← ————— → Mode '2' 'applied'

reduction, while inter- and transdisciplinarity invite possibilities for convergence, divergence and emergence. We are concerned to promote the idea that interdisciplinarity 'A' not only deals with the different disciplinary fields of knowledge (A1), as discussed, but also must include different modalities and arenas of practice such as academic research and teaching, management, administration and public engagement (A2). Methodologically, the plurality of interdisciplinarity A1 and A2 meet another form of interdisciplinarity which we will call interdisciplinarity 'B'. Interdisciplinarity 'B' concerns different interactions between theory and data, which may be inductive or deductive, connecting to research questions to data in different ways, using different strategies. Critical elements of interdisciplinarity 'B' include ways of defining scope, eliciting and crafting research questions and developing analytical heuristics that enable cross-disciplinary exchange.

Transdisciplinarity, 'C', is associated with applied or 'Mode 2' knowledge and involves the dissolution of the science–society barrier that characterizes 'Mode 1' or purely academic knowledge. 'Mode 2' knowledge adopts a problem-solving focus (Nowotny and Gibbons, 2001). The 'post-normal science' condition locates all knowledge in-between disciplinary, curiosity-motivated 'Mode 1' and problem-oriented, transdisciplinary 'Mode 2' research. 'Mode 1' knowledge cannot be dispensed with, because the long-term public good is served by the existence of independent and disinterested knowledge: however, it tends to be trapped within the rigidities of disciplinary boxes. 'Mode 2' knowledge can also get trapped in projects, and become bureaucratized and captured or 'privatized', thereby limiting the potential for transformative change and public good. Post-normal science accepts the salience of issue-driven research, combining the positive features of the 'Mode 1' and 'Mode 2' knowledge, but admits that there are always uncertainties and ethical complexities that have to be managed in the process of research.

The multiplicity of possible perspectives and commitments must remain in dialogue with each other, resisting the urge to reduce all dialogue down to a single, one dimensional standard, value, price or 'numeraire' (Funtowicz and Ravetz, 1994). A single 'truth' is no longer achievable, nor even desirable, given the uncertain nature of knowledge and the diversity of relevant, practical problems. The diversity of the life-world needs to be taken into account; abstract and specific knowledge need to be linked, grasping the complexity of problems but without losing sight of the common good. Post-normal science has to accept the open and uncertain character of natural systems, and must consider the relevance of a range of possibly contending human values. The expectation that there can be a holistic, unified, scientific transdisciplinary 'solution' is therefore almost certainly illusory (Alvargonzalez, 2011: 400–401). This destabilization of a single accepted problem focus returns us to the research topic of HE internationalization. Hawawini suggests that a more radical, critical form of internationalization is one where HEIs seek to 'learn from the world' rather than 'teaching the world what the institution knows' (Hawawini, 2011: 4).

Critical interdisciplinarity: resistance and struggles for social justice

Interdisciplinarity has historic roots in critical social movements with particular emancipatory demands. Critical interdisciplinarians Parker and Samantrai (2010) openly criticize influential perspectives on interdisciplinarity which treat social justice concerns as secondary, or obscure them altogether. They find the scientific synthesis and holism of these accounts to be apolitical and disregarding of the history of how academic orthodoxy came to be socially and politically challenged by radical politics that were the breeding ground for real interdisciplinary programmes. Critical interdisciplinarity is dissenting and remains ambivalent about academic knowledge, being rooted in critiques of exclusionary and dominating knowledge and vigilant about academia's institutional role in reinforcing inequalities (see also Zeleza, 2006). These movements embodied emancipatory hopes for academic institutions to be transformed, to become an equalizing force in society. The

critical view uncovered the messy histories of disciplinary norms and linked these to social inequalities, leading to lengthy, highly politicized struggles with authority, challenging the power to make truth claims (Parker and Samantrai, 2010: 3). This returns critiques of patriarchy and Eurocentrism to the centre of the educational enterprise, while continuously attempting to transform the social groups that benefit from the educational enterprise: '[I]nterdisciplinarity can be an intervention in the microphysics of power to prepare students not for disciplinary society, but for practices that ground social relations outside those defined by the professions or by capitalist productivity' (Parker and Samantrai, 2010: 6). In North America, fields such as Black studies, Chicano studies, Asian American studies, women's studies and Native American studies rejected the exclusions and domination of an imperialist, white and heterosexist academy, while African and Africanist scholars sought to 'decolonize' African studies and epistemically liberate their disciplines (Zezeza, 2006: 203). Cultural studies in Britain, and subaltern studies in South Asia and the Antipodes, spearheaded the challenges and formed new centres for research and engagement. These interdisciplinary study fields were highly politicized in their championing of dissenting, resistant and emancipatory methods and pedagogies.

Ultimately, critical social justice-focused interdisciplinarity leads to the critique of its own epistemologies and a search for different ways to link interdisciplinary thinking and social action. The theory of intersectionality has served to critique not only epistemology and the academy, but also power relations within established social movements. The analysis of power is shifted away from universals towards conceptions and theories of justice that attend to difference and heterogeneity (Parker and Samantrai, 2010: 12). This undoubtedly entails a loss of homogeneity and unity, but brings more vitality and relevance. The search for 'another justice' turns to new protocols and logics, for example by constituting knowledge that has been effaced or occluded, by focusing on the imbrication of modern epistemologies with exclusion and violent silencing, by turning the focus on more subtle, internalized forms of subjection and docility, or by focusing on new goals and concepts of justice such as healing, reconciliation or love. This does not presuppose or enforce standard rules to end disputes over justice, but remains continually in search of what are the rules without seeking to end all disputes and differences. The competing academic protocols, standards, logics, goals and values of social justice remain contested, but they are made explicit, so that they can be interrogated, debated and reshaped (Parker and Samantrai, 2010: 18).

It is important to argue here that the critique of disciplinarity should not be naïve. It is crucial to recognise a wider context, in which disciplinary knowledge has already become subject to a problematic form of transdisciplinarity, in the form of the transgressive and transformative principles of neoliberalism and the market. What began with the reduction of the discipline of economics to neoclassical macroeconomics has subsequently spread as an imperialism of neoliberal macroeconomics that 'economizes' the other social sciences and the adoption of neoliberal methods of definition and evaluation, a process aptly described as 'the dull and universal compulsion of zombieconomics' (Fine, 2009: 85). Manfred Max-Neef argues that our current context and method of organizing knowledge and learning cannot adequately address the problem of setting new goals for sustainable development (Max-Neef, 2005, cf. Clifford and Zaman, 2016).

Arguably, current HE is unsustainable if its main role is to support capitalism within the ongoing ecological crisis (Ruuska, 2017) and serving to reproduce the politics of 'actually existing unsustainability' (Barry, 2012), and perhaps becoming completely empty and grandiose (Alvesson, 2013). Max-Neef does not necessarily view disciplinary knowledge and the 'Humboldtian' model of the discipline-driven research university as inevitably problematic as long as they remain coherent with the challenge. However, the global challenges that we face are not disciplinary challenges, they are inter- or arguably transdisciplinary challenges. Such challenges require different kinds of knowledge to emerge, simultaneously involving many levels and domains of education, learning

and research. Interdisciplinarity 'A1' (disciplines) and 'A2' (practices) need to move via a methodological approach that rethinks theory and data (interdisciplinarity 'B') through knowledge production practices such as co-production, contestation and dialogue. When this includes academic and extra-academic parties such as policymakers, social justice campaigners or ecologists (transdisciplinarity 'C'), there are greater opportunities for emergent and transformative developments.

Transdisciplinarity is said to result when coordination between all hierarchical levels leads to the levels becoming described in a different way. Max-Neef's idea of transdisciplinarity is oriented to future generations and the planet as a whole to construct 'an economy as if people mattered', invoking the language and concepts of deep ecology (Max-Neef, 2005). Can social equity and justice values inform a new transdisciplinarity, taking biospheric boundedness and future orientation as per Max-Neef's central axioms, while becoming more capable of meeting diverse and contested human needs? There are currently considerable tensions between anthropocentric versus ecocentric and between Eurocentric or 'Western' versus indigenous, African, or Southern frames of reference. 'Strong transdisciplinarity' is said to be grounded in the acceptance of multiple levels of reality, the principle of the 'included middle' and complexity. Strong transdisciplinarity recognizes that rational and relational modes of reasoning can exist simultaneously, challenging linear and binary logics that would otherwise accord a privileged place to rational thought, while rejecting many actors' claims. The complication is that 'social equity' is not a single coherent value but, rather, an assemblage. The value of 'equity' can become trapped in 'Mode 2' thinking and become redefined by reference to a whole assemblage of other values, such as excellence or efficiency, and connected to a set of governmental techniques that are problematically associated with neoliberal politics (Rizvi and Lingard, 2011). Elsewhere, Stein interrogates the persistent problems surrounding the tendency for epistemic privilege to replay imperial power relations in internationalizations of higher education. If internationalization is not to become yet another means of economic expansion and epistemic erasure, then further work is needed to interrupt the imperial tendency to instrumentalize difference, assert mastery, and seek national advantage at the very moment the international is evoked as an ethical concern (Stein, 2017).

If disciplinary limitations shape current and dominant conceptions of what is an economy in which people matter, how is this changed by the distinctively transdisciplinary logic of the included middle, and the ways of working suggested by transdisciplinarity? Max-Neef argues that the great challenge is essentially a *linguistic* one, in the sense that a language shift is needed. But it is not simply needed in the abstract. It is needed to counter the dominant transdisciplinary language shift that has already taken place in HE – the shift towards neoliberal economization and quantified control (Burrows, 2012), that, according to Max-Neef, distorts reality, creates confusion and falsifies knowledge. Max-Neef's view is that integrative knowledge is required. The 'integrative synthesis' for re-orienting HE toward sustainability requires a synthesis of *understanding* (Max-Neef, 2005).

Operationalizing transdisciplinary methodology: the role of reflexive and communicative interaction

A pragmatic and substantive approach to 'doing' transdisciplinarity in a specifically transdisciplinary way is offered by pragmatist transdisciplinary scientists, working mainly in the area of sustainability studies (Lawrence, 2015; Schauppenlehner-Kloyber and Penker, 2015). Thinking through the incommensurability of different imaginaries of HE and research, pragmatist transdisciplinary scholars (Popa et al., 2015) suggest that the focus on epistemologies and methodologies can be crucially complemented by a focus on *processes* that enable reflexive interactions between the differing perspectives (Kläy et al., 2015). This involves a focus on research design and

communication procedures and processes known as ‘transdisciplinary co-production’ (Polk, 2015), using purposive spaces, frameworks (Mitchell et al., 2015), structured opportunities and procedures for communicative interaction as tools, and treating the formation of ‘learning collectives’ as a central task. According to Piaget, reflexive coordination and formation of ‘learning collectives’ is *the* definitive role of ‘international education’ (Kläy et al., 2015: 74; Piaget, 1931).

The pragmatic perspective takes the principle of the included middle toward inclusive practices that ‘walk the talk’ of inter- and transdisciplinarity by emphasizing what needs to happen in terms of procedures and processes for reflexive and inclusive knowledge co-design and co-production to take place. The view promotes a concept of non-dominating and reflexive ‘strong objectivity’ (Rosendahl et al., 2015) that derives its strength from a rigorous appreciation of social situatedness, informed by a standpoint perspective that involves both expert and non-expert actors in co-producing knowledge, be that systems, target or transformative knowledge. Significantly, this aligns with some researchers’ interests in fostering ‘meaningful co-creation, collaboration, and engagement of citizens in the policy and planning activities that shape their world’ and ‘freedom as non-domination’ (Hogan, 2016). However, many projects that set out to be transdisciplinary do not fully succeed in the ‘walking the talk’ (Lawrence, 2015:6).

Jointly-defined issues serve as the common denominator for producing system knowledge which integrates altered perspectives. Shared values offer ‘target’ knowledge, to which possible solutions can be attached, while ‘transformation’ knowledge relates to what type of collective action can be used for changing the system, in view of the values expressed (Rosendahl et al., 2015: 18). This pragmatist view of transdisciplinarity seems to us to be generative, critical and reflexive, enabling research on international education to move beyond the ‘troubling’ critiques, toward systemic change as anchored in a variety of transformative values and reflexive educative processes that enact the transdisciplinary principle of the ‘included middle’. Work on pedagogical situatedness complements the current methodological literature on research co-production (Prescott and Hellstén, 2005; Lawrence 2015: 6). How societal issues come to be jointly defined and taken forward still need to be clarified, and to this end educational researchers might look to linking with pragmatic transdisciplinary initiatives, which currently are mainly found in sustainable development and public health research.

The next ‘applying analysis’ sections reflect on recent collaborative research approaches on doing pragmatically transdisciplinary ‘bridging’ work, by using social cartography for discursive mapping in order to point to dominant and missing perspectives and in collaborative work with non-formal educators in order to identify the intersections within social justice oriented education.

Applying analysis and discussion (i): social cartography as a bridging tool for inter- and transdisciplinary research

This section discusses the methodological import of inter- and transdisciplinarity, by reflecting on the issues that emerged from the use of a particular tool, social cartography, to do ‘bridging’ work among different actors and audiences in and around HE. The emphasis is not on discussing the empirical findings of the EIHE project that have been discussed elsewhere already (see e.g. Pashby and Andreotti, 2017, Haapakoski and Pashby, 2017, Suša, 2016). The EIHE project is an example of an interdisciplinary mixed-methods project, joining 23 partner universities from nine countries in a collaborative effort to examine and discuss the contemporary challenges in and potential alternatives for internationalization of HE. Because participating researchers were approaching the theme from different disciplinary and theoretical backgrounds and contexts, the project used social cartography as a practical bridging tool to enable inter- and transdisciplinary practice. The social cartography tool that

was developed and discussed in several workshops served the purpose of enabling communication and intelligibility across different perspectives without suppressing resistant and solidaristic perspectives within the project (Andreotti et al., 2016). However, the relevant question that remains after the project is whether such tools can be used to forge a common and potentially transformative approach between and across different audiences within, and outside, academia.

Social cartography can be defined as ‘mapping discursive terrain to portray the interrelations of competing and conflicting claims surrounding some issue, concern, or direction’ (Nicholson-Goodman, 2012: 243). It was originally formulated as a research and pedagogical tool for comparative education, but has been applied in different fields in education and social science (Casebeer, 2016; Paulston, 1999). Although internationalization of HE is a different but closely related phenomenon to comparative education, the two share similar premises. Internationalization in the HE context consists of a breadth of ideologies, power relations/asymmetries, contexts, cultures, desires, investments and foreclosures that highlight the need for more inclusive methods for examination and discussion.

The EIHE project adopted social cartography as a common epistemological framework to enable members of the research community, from their incumbent disciplinary backgrounds and orientations, to work in a fluid and non-prescriptive manner (Andreotti et al., 2016; Paulston, 1999). The epistemological task within the project membership has been to enable fruitful interaction without a need for consensus, thus enabling the coexistence of different, and sometimes contradicting views to open up a ‘third space’ for new formulations to take shape (Rutherford, 1990). Social cartographies have therefore been applied as performative and pedagogical heuristic devices to open up discussions on HE internationalization by making visible the limitations and boundaries of (normative) discursive assemblages (Andreotti et al., 2016). Social cartographies enable visual representation of the tensions between different discourses around internationalization without privileging any particular discourse over another (Pashby and Andreotti, 2016; Paulston, 2000).

Related to the spatial dimension of map-making, social cartography uses negative space to examine also what has not been placed on the map (Yamamoto and McClure, 2011). This enables the formulation of comparative alternatives through the process of ‘filling in the blanks’ as well as infusing discussion about the meanings and purposes of those negative spaces. In the case of negotiating between interdisciplinarity A and B, the challenge lies in how to present the theoretical formations and the research findings across different audiences, which represent different disciplines as well as non-academic staff members. This collegial co-existence across disciplinary boundaries must validate the different communities of practice within each discipline. Such interdisciplinarity is of particular importance when engaging in internationalization where the implementation of activities can be taken to be in the hands of non-academic, administrative staff. Furthermore, the challenge is how to portray the diverse discourses and contexts emerging from the research while enabling alternating, at times contradicting, interpretations. Social cartography can be used as an experiment to bridge different communities within the HE sector in the attempt to make diversity intelligible.

To discuss the use of social cartography as an interdisciplinary ‘bridging tool’ within the EIHE project, we will present one type of mapping as an example. The EIHE project was influenced significantly by concerns about the growing neoliberalization of HE. This can be witnessed in the ways the civic role of the university is being colonized and transformed by commercial interests. The emerging project analysis found that discussions of internationalization tended to revolve largely around a somewhat limited dualistic perspective of a struggle between the civic/liberal and the neoliberal/corporate imaginaries of HE. The project’s aim was to disrupt this type of binary thinking by introducing three main discursive orientations (the neoliberal, liberal, critical) and their interfaces (neoliberal–liberal, liberal–critical, neoliberal–critical; and all three combined) that

Figure 1. The interfaces of the three main orientations.

Adapted from Andreotti et al. (2016: 10); reproduced here under Creative Commons Attribution Licence 4.0.

operate within the wider civic and corporate imaginaries. The neoliberal orientation contains rationales in internationalization related to marketization of HE, whereas the liberal orientation is concerned with HE as a public good. The critical orientation includes rationales that attempt to interrupt the normalized patterns of knowledge and power in HE that become barriers for cognitive justice and more equal participation. To bring more complexity to the discussion, the interfaces of the three main orientations include new combinations and ways to map rationales in HE and internationalization (see Figure 1: for a more detailed description, see Andreotti et al., 2016). The main discursive orientations and their interfaces were developed through the theoretical framework of the project that focused on the critiques of neoliberalism and liberalism, the liberal subject, and critiques of modernity. Although the orientations are not distinct or separate phenomena and can, and should, be contested, they provide a useful point of entry into discussion about different dimensions on HE and internationalization (Pashby and Andreotti, 2016).

In the example of social cartography, internationalization is articulated differently based on the discursive orientation. In the neoliberal orientation, internationalization is understood as a driver and tool for the knowledge economy and the focus is on tuition fees and on other forms of ‘Academic Capitalism’ (Slaughter and Rhoades, 2004). In the liberal orientation, internationalization is tied to democracy and equal opportunities within HE internationalization and the focus is on personal growth of the students and fostering competencies in global citizenship. The critical discursive orientation attempts to respond to the globally uneven terrain of HE and internationalization and the focus is on systemic transformation of the structures that maintain and reproduce the global asymmetries of power, depoliticization of difference and the hegemony of Western knowledge. The interfaces between the main orientations then illustrate further the ambiguity of rationales. At the neoliberal–liberal interface, the focus in internationalization is on rationales that feed back to both the public good ideals and the income generation, such as using mobility programmes to facilitate the acquisition of relevant competencies for the labour market. The neoliberal–critical interface would mean using the critical agenda to leverage economic/reputational gain through internationalization. As an example, we can take grant programmes that target specific marginalized/disadvantaged groups abroad (for example refugees), but at the same time these programmes function as promotional tools for expanding international, and domestic, recruitment by leveraging the institution’s brand of socially just or responsible internationalization. In the liberal–critical interface there is more focus on injustices but they are still more self-reflexive and personal than

system-wide, such as grant programmes that target students from marginalized groups, helping individuals but failing to improve the status of the whole group.

Using the bridging tool of social cartography enabled the EIHE research data to be rendered intelligible and to be interpreted in a less deterministic and more emergent way. We found that the critiques of both neoliberal and liberal orientations lend themselves to thinking about the possibilities for more ethical approaches to internationalization, because they add challenging and dissenting perspectives to the debate through their serious potential to disrupt and challenge the more dominant orientations. Critical calls for social justice must, to an extent, be based on questions of equity and participation and these in turn invoke the need for epistemic pluralism and equity in relation to knowledge production in general. However, merely pointing out the need for wider participation and ‘ecology of knowledges’ (de Sousa Santos, 2007) might not generate sufficient intelligibility as such, because this involves challenging basic presumptions about the nature of HE and indeed how we ‘do knowledge’ in our practices of research, collaboration, education and communication. The use of social cartography to do ‘bridging’ work and present alternative discourses and rationales in internationalization might still fall victim to ‘abyssal thinking’ (de Sousa Santos, 2007), where the starting points for different view-points and understandings are simply too far apart and the discussion between the different parties becomes unintelligible. Intelligibility may however be preceded by a focus on disrupting the dominant imaginaries of higher education, enabling subsequent work to travel toward a transdisciplinary approach where the ‘included middle’ enables the potential co-existence of a multiplicity of knowledges in line with non-essentialist, post-normal science and socially situated ‘strong objectivity’ (Alvargonzalez, 2011; Kläy et al., 2015). Cartographies can function as tools for dialogue that attempt to transcend boundaries between different academic communities while enabling mutual intelligibility amidst a multitude of interpretations. The post-representational use of maps sees them as performative, situated and historically contingent, highlighting the roles of production and interpretation. Cartographies can be used as pedagogical devices, which should therefore be approached in a pedagogically meaningful fashion. The intention is not to achieve mechanical iteration but, rather, active engagement through the production, interpretation and discussion of the map as a heuristic that can be drawn, negotiated and re-drawn. If used in this way, maps become dialectical in holding the potential to portray parts of the world while projecting things back through usage (Kitchin et al., 2009).

Applying analysis and discussion (ii): reflections from a non-formal practitioner–collaborator perspective

The reflections on transdisciplinarity as a process invite all collaborators, including the practitioners, to ask fundamental questions about the ‘why’ of researching HE and internationalization. To what end, and to which means, are we researching these processes? From an NGO practitioner perspective, the complexity and unpredictability of transdisciplinarity demands a level of freedom and trust that is rarely afforded in the practice realm.

The University-based Research and Education for Youth Solidarity and Equality towards the SDGs (UNIFY-SDG) was a collaborative project funded by the Irish Research Council, between an academic researcher Su-Ming Khoo, a non-formal global education NGO working with HE students, SUAS Educational Development, and a professional body of development educators, the Irish Development Education Association, IDEA. Operationalizing the model of interdisciplinarity A1 (disciplines) and A2 (practices), the Irish Research Council’s funding strand specifically aims to direct academic research toward NGO collaborator needs. The first work activity, a workshop on ‘Inclusion and Exclusion in Global Citizenship Education’, aimed to stimulate dialogue, sharing and collaboration between researchers and practitioners on the topic of

non-discriminatory Global Citizenship Education (GCE). The non-formal education partner, SUAS Educational Development, specified that their knowledge priorities were to find ways to integrate gender issues throughout GCE, to engage young people and to incorporate Southern and post-colonial perspectives.

The collaborative UNIFY-SDG research project offered opportunities to explore to what extent different actors are able to transcend our ‘disciplines’ and our discipline-specific codes to achieve intelligibility across diversity more rapidly and effectively. The project addressed the question of how practitioner-collaborators might act to make the collaborative space more inclusive. The project therefore focused on the processes of partnering and understanding ways for researchers, practitioners and learners to work together. Collaboration and participation enabled the NGO partners SUAS and IDEA to experience and capture knowledge and learning from high-level, global research debates taking place in the USA and Europe about inequalities, global citizenship education, learning, ethics, internationalization, and postcolonial, Global South and rights-based perspectives. SUAS has ambitions to pursue these themes in relation to how they think about measurement and evaluation and how to work across the theory–policy–practice divides. The NGO intends to use this learning to inform its education programming in disadvantaged communities as well as its third-level global citizenship programming in Ireland, while IDEA hosted a graphic learning capture to present both the process of the collaboration and the materials that were generated by the learning event in a creative and accessible way on its website. Their long-term ambition is to develop future work from the perspective of the main professional national non-formal educators’ organization.

The potential impacts and benefits of long-term, mutual research relationships and networks relate to how academics and collaborating non-formal (global/development education) organizations can push the current state of the art in the global education, development and development education sectors. The UNIFY-SDG responded to key observations and recommendations in Ireland’s 2015 Global Education Network Europe’s (GENE) report, regarding values, and the changing conceptual framework principally around the ideas of ethical internationalization, global citizenship, postcolonial critiques and how to integrate questions of gender equality. IDEA was able to draw on its experiences to work on Europe-wide recommendations about inclusive conceptualization of development education; forms of cooperation and coordination; and how to integrate HE (GENE, 2015: 48). SUAS and IDEA drew on their collaborative experience to formulate their contributions to a new national Development Education Strategy for 2017–2023 (Irish Aid, 2016).

In the context of the UNIFY-SDG, the practitioner collaborators in the interdisciplinary group have been encouraged to ask how a transdisciplinary approach might go further beyond a general articulation of shared values and principles in a practice context that includes youth volunteers and schoolchildren. In SUAS’, strategic planning work, prejudice and discrimination in society are identified as the key barriers to children’s opportunity to realize their full potential, because the NGO engages university students to do volunteer work to support disadvantaged children in school settings. As an organization it is committed to promoting gender equality and the valuing of diverse identities within all its work. Further transdisciplinary work could lead to the development of future learning experiences and resources to challenge prejudice and discrimination and to promote deeper understanding and valuing of diverse identities.

The interdisciplinary collaboration with EIHE researchers has spurred a non-formal, student-led organization such as SUAS to ask how practitioners might support universities to reassert their civic role in addressing persisting economic, cultural and environmental crises. They have begun to ask how they should extend their advocacy role to a more general advocacy of higher education’s civic purposes and social justice mission. To date they have focused on justice issues in local and global educational contexts: to take this further, they could use universities themselves as case

studies to raise questions about key justice and development issues. Collaborating in this research has raised questions for non-formal practitioners about how the internationalization of HE might be leveraged for Global Citizenship in the country in which they primarily work, and beyond. This collaboration has challenged non-formal global educators to redefine the spaces for Global Citizenship Education in HE, and ask how these can be made more inclusive.

The questions that concern the non-formal educators most urgently, and which concern them as practising educators and researchers, involve responding to the rise of identity-based social mobilization and increasing incidences of intolerance and violence. They are oriented towards knowledge in an activist and transformative rather than a disinterested, scientific mode, and ask, 'what values, competences, action and activism do we need to encourage, and how?'. This activist way of seeing knowledge is challenging for academics, who are used to a more dispassionate and incremental science than a transformative approach to knowledge, and who would probably feel uncomfortable with the idea of responding directly and actively to social challenges. The call for higher education to become more 'civically engaged' troubles the disinterested posture of research, and argues for partnerships with community actors to bring about social transformation (Jacoby, 2009; Shultz and Kajner, 2013).

Conclusion

This article responds to the general criticism that there is a dearth of 'meta-thinking about HE' in HE research (Barnett, 2014: 9), and the complaint that the theoretical framework for thinking about HE fails to do so educationally (Barnett, 1990), by reflecting on inter- and transdisciplinarity as a way of thinking about our recent research on the ethical dilemmas of higher education internationalization. In order to make inter- and transdisciplinarity a usable methodological starting point, we have outlined a general schema for thinking about inter- and transdisciplinary methodology, and applied the model of interdisciplinarity to illustrate different aspects of interdisciplinarity: A (A1 disciplines and A2 practices) and B (theory and data) and the considered the implications for transdisciplinarity C (transformative, collaborative). The discussion responds to current debates about the decline of academic disciplinary 'Mode 1' knowledge and the call to involve diverse disciplinary, linguistic, pedagogical communities (Hellstén and Reid, 2009) and wider social actors trying to connect research to social justice and transformation (Alvargonzalez, 2011; Jolivéte, 2012) in academic work.

Our model of inter- and transdisciplinarity responds to the crisis of disciplinarity as unsustainable by pointing to problem-focused convergence, critical divergence and transdisciplinary emergence as alternative possibilities for conceptualizing an inter- and transdisciplinary research methodology. Troubling internationalization brings up 'shadow sides' of neoliberal transdisciplinarity that tend to 'economize' and bureaucratize the purposes and practices of HE, thereby limiting the inclusive and transformative potential of post-normal science. Responding to the concern to 'trouble' research on HE internationalization, the EIHE project experimented with the use of social cartography (Paulston, 2000) and social 'imaginaries' (Castoriadis, 1997), with a focus on using heuristic tools heuristically or performatively (Andreotti et al., 2016). This more open-ended and inductive approach attempts to get at 'methods of thinking [that] lie perhaps still concealed in the experience-use of our understanding and of reason' (Kant, 1998: 3), as in the sense of Kant's 'heuristische' (Oxford English Dictionary, 2015). Adopting an open-ended approach, the EIHE project hoped to initiate more dynamic and theoretically adequate discussions about internationalizing HE. The key importance and generativity of collaborative working led the authors to focus this article on theoretical conceptualization and methodological debates about, and arising from, inter- and transdisciplinarity as a methodological orientation in itself. In doing this, we have begun to

understand that inter- and transdisciplinarity are not pre-specified and absolute ‘methods’, but, rather, are orientations that can take reductive, convergent, divergent or emergent pathways. Inter- and transdisciplinarity can perhaps be best treated as a methodological approach that foregrounds plurality, contestation and ‘problematization’. We now understand better that successful inter- and transdisciplinary practices depend on well-facilitated processes and innovative tools to open a dialogue across disciplines. True transdisciplinarity cannot be reductive, and is conceived in and through diverse knowledges, theory and data, and practical orientations toward target values such as social justice.

How might we move beyond troubling internationalized HE beyond simply creating a ‘waste basket’ of troubled international research and pedagogy (Hellstén and Reid, 2009)? Questions of relevance and legitimacy rest upon an inclusive and reflexive appreciation of whose knowledge counts, how much different knowledges count for, and the extent to which different knowledge actors can bring their concerns to the research table. The post-colonial problematique proves valuable to inter- and transdisciplinary approaches because it offers a starting point for productively troubling epistemologies in methodological terms and, in doing so, exposing the ‘crack’ to let in the light and thus disrupt monolithic global ideologies (Brydon, 2010). More diversified knowledge positions offer hope that research and pedagogical practices can be made more relevant and capable of addressing the pressing educational and societal challenges and problems of our times. Sharing knowledge interests and understandings nevertheless raises questions about mutual intelligibility, solidarity and the propensity for transformative action. Many questions remain about the intersections between the horizontal disciplinary ‘tribes and territories’, and the vertical cleavages between theory and data and between scholarly knowledge and other forms of inquiry and action for change; but inter- and transdisciplinary collaborations offer hope that mutual learning and emergent solidarity are possible across differences.

Our pragmatic approach to interdisciplinarity drives different knowledge actors to query what questions we can place at the centre of shared enquiry in order to conduct genuinely transdisciplinary collaborative research that responds to different knowledge co-producers’ interests in problem-solving, transformation and progression, broadly-defined. These questions are not only subject to ‘ownership’ by academic researchers within their various disciplines, but also arise out of the queries and concerns of other research stakeholders, such as administrative actors and non-formal educators, for wider social change. The boundary between interdisciplinarity and transdisciplinarity is the boundary between focused problem-solving and emergent awareness of new types of questions, between the demands for diversity and solidarity, and between questions of dissent and the need for mutual intelligibility and collaboration. The question of transformation raises pragmatic questions about the purpose of our research knowledge and what kinds of transformations we might agree upon to seek in concert. It yields an exercising of academic freedom with relevance and responsibility, working to accomplish trust among diverse stakeholders and confronting challenging issues to inform improvement or change.

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