sustainability

MDPI

Article

Conceptual Development in Higher Education Sustainability Initiatives: Insights from a Change Laboratory Research Intervention

John Scahill [1,2] and Brett Bligh [2,*]

[1] Galway-Mayo School of Engineering, Atlantic Technological University, H91 T8NW Galway, Ireland; john.scahill@atu.ie
[2] Department of Educational Research, Lancaster University, Lancaster LA1 4YD, UK
* Correspondence: b.bligh@lancaster.ac.uk

Abstract: An international debate is taking place about embedding sustainability in higher education institutions (HEIs). Separate strands of literature address the importance of sustainability concepts and strategic change approaches. This paper explores conceptual development as an unfolding process within sustainability change initiatives. Data are derived from nine Change Laboratory workshops, conducted over 6 months, in which 20 stakeholders of varying backgrounds worked to create "a sustainable campus" in an HEI in Ireland. Transcribed video recordings and artefacts produced in workshops are analysed using activity theory principles to examine conceptual development, identifying four novel concepts created by stakeholders. The development of the *Campus Sustainability Statement* (CSS) concept is analysed in depth. It was produced in four stages of development—pursuing, in turn, a purposeful definition of "sustainability", a shared framework to contextualise different actions, a mission statement for the campus, and the CSS proper. Each stage arose from a conflict of motives expressed within the coalition of participants, which was addressed by suggesting an abstract idea and considering its implications, with the latter stages also including attempts to embed and objectify the concept. Successive ideas were challenged, refined, and/or abandoned by participants on the grounds of ethics, fit with the institution, and relevance to subsequent action, with the eventual CSS judged to be an acceptable basis for institutional work. This paper emphasises the processual importance of developing sustainability concepts within institutions, including the creative potential for addressing value tensions and the possibility for nurturing new forms of collective agency.

Keywords: sustainability change; embedding sustainability; sustainability initiatives; sustainability in higher education; activity theory; Change Laboratory; concepts; conceptual development; expansive learning

check for updates

Academic Editor: David Gonzalez

Received: 20 March 2025
Revised: 22 April 2025
Accepted: 25 April 2025
Published: 28 April 2025

Citation: Scahill, J.; Bligh, B. Conceptual Development in Higher Education Sustainability Initiatives: Insights from a Change Laboratory Research Intervention. *Sustainability* **2025**, *17*, 3968. https://doi.org/10.3390/su17093968

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

This paper contributes to the literature on sustainability in higher education from the perspective of organisational change. In particular, it highlights that the issue of conceptual development is a crucial consideration for those higher education sustainability initiatives in which groups of stakeholders come together to enact change within their institution. We present an analysis of data from such a change initiative within a higher education institution (HEI), tracing how a *Campus Sustainability Statement* (CSS) was developed as a core outcome of the group's work. Importantly, the idea of having a CSS was developed (alongside several others) within the group, rather than being imposed from above at

the beginning of the project; it arose from the group's own difficulty in establishing an understanding of the term 'sustainability' that they could agree on and which seemed relevant to practice in their HEI setting. We trace how the underlying idea, which has since become central to a range of other campus initiatives, was first posed in abstract form and was subsequently developed through several iterations, being subject to considerable contestation by stakeholders at each stage. We aim to demonstrate that processes of conceptual development and contestation, rather than being a distraction or an annoying but necessary precursor to the "real" work, are a crucial aspect of the stakeholder engagement that needs to occur when seeking to encourage engagement with sustainability in HEIs.

The context is an increasing recognition, in many countries worldwide, of the need for sustainability-related change within HEIs [1–4]. Universities have played key roles in initiatives related to sustainability and sustainable development for many decades: conducting the underlying research into associated ecological, economic and societal issues; coordinating initiatives for identifying challenges and formulating policy; and contributing to strategic actions alongside other partners [5–8]. Yet, far from serving as exemplars for organisational practice, HEIs have often been seen as laggards in enacting sustainability-related change in their own institutions. Among other things, such a situation undermines HEIs' educational mission and damages their credibility with stakeholders and external collaborators, as well as perpetuating the harmful, direct environmental footprint of their organisation [3,7].

For such reasons, HEIs have launched a wide range of institutional sustainability initiatives over recent years, with many and varied objectives—such as embedding sustainability into educational programming, mapping and ameliorating the impact of organisational operations, embedding consciousness raising artefacts into the campus experience, outreach and collaboration with local community partners, and environmental auditing and reporting [7]. However, notwithstanding these efforts, prognoses of institutional practices remain pessimistic. Reviews highlight, in particular, a lack of holistic or systemic approaches and a lack of genuine stakeholder engagement [3,9]. The latter issue, in particular, is a core point of focus for the present paper.

A recent project by the Environmental Association for Universities and Colleges (EUAC), which examined a range of HEI sustainability initiatives and produced case reports of 18 schemes at institutions across several countries, drew conclusions that are highly relevant to the present work [9]. The foreword to the associated report makes the argument in the following way:

> "One key thing the EAUC has learnt in its 20 years is that there is no one standard approach to sustainability. Off the peg or tick box approaches can appear attractive on the surface but change can often be just that, on the surface. For the EAUC, the key to success is for a university or college to define sustainability for itself and build a unique strategy and structure which reflects its particular nature, context and geography". (p. 2)

The EUAC report correctly draws attention to a range of issues of crucial importance to the success of sustainability initiatives, including the centrality of stakeholder engagement, the need to define the subject matter of the initiative, and the requirement for bespoke rather than generic strategies. Yet the methodology of the underlying project, which presents disparate case studies and then highlights common features and outcomes, leaves underexplored both (a) the *relationships between* these issues when promoting sustainability and (b) how these aspects unfold within the *process* of undertaking particular initiatives. We contend that such concerns are important for understanding how to design, manage, and explain the success (or lack thereof) of particular attempts at change, and, for this reason, the present paper focuses on this subject matter in more detail.

In the present paper, we draw on a project that attempted to develop just such a "unique strategy and structure" for sustainability. The project, which was undertaken in an HEI in the Republic of Ireland, used the Change Laboratory methodology for research intervention (which we describe below) to bring together a group of institutional stakeholders, who met in regular workshops over several months to discuss how to embed sustainability throughout institutional practice.

At the time of the project, the institution was a medium-sized HEI, with around 12,000 students, whose work was distributed across five campuses in the west of Ireland. Founded in 1973 as a Regional Technical College and with an ongoing commitment to regional development, since the time of the project, the institution has merged with two others, as part of a national reorganisation of the sector [10], to form a larger university with more than 20,000 students. The institution, many of whose campuses are in rural locations, has had a positive history of engagement with sustainability issues. This has included receiving a Green Campus Flag for waste and energy management as far back as 2011, at a time when such accreditation was rare in the sector nationally, and subsequent awards for biodiversity and transport. There have also been other notable initiatives, including the development of a Woodland Trail starting in 2014 and a Living Willow Outdoor Classroom initiative starting in 2016 [11].

Yet the project we draw on in this paper was driven by a conviction that prior work had a fragmentary character, with worthwhile initiatives led by different enthusiasts and champions, but without a common vision that would draw issues of pedagogy and student experience together with campus operations. A range of specific and deeply rooted issues (which participants in the underlying project, using the terminology of our approach as described in Section 3.1, eventually analysed and located as 'contradictions'), have included different visions and values of sustainability, the inconsistent integration of espoused approaches into the actual fabric practice, and mutually incompatible developments occurring in different practices [12].

As we make clear in our literature review, this broad situation has been common in many of those higher education institutions which seriously attempt to engage with sustainability issues. The project took as its starting point a single campus which had a strong record on environmental issues in terms of campus operations and which, as we elaborate further in Section 4.1, was a hub for providing a range of academic programmes—including some (like outdoor education, social care, and construction) with a track record of engaging with sustainability concerns in their curriculum in various ways. The aim was to bring together a range of academic and professional stakeholders in workshops, in which practitioners would pursue the creation of "a sustainable campus".

By its end, the project had achieved considerable success: it not only developed the Campus Sustainability Statement addressed in this paper and hosted a public launch event for it but also put forward proposals for new academic programmes, outlined a suggested approach for ongoing curriculum integration, and nurtured the formation of a more permanent Centre for the Study of Community Sustainability [12]. At the time of writing, many of these suggestions have been taken forward and are in various stages of being enacted.

Yet such success, while genuine, was not achieved easily or quickly; did not arise from a predesignated, imposed plan; and was not based on prescriptions about 'best practice' from elsewhere. Instead, the project relied on robust, open and frank discussions between stakeholders from different backgrounds, with workshops structured to encourage debate and dissent as well as the production and consolidation of new knowledge over a sufficiently extended period of time [12]. In a previous publication, we have documented, in particular, how resistance and criticism, explication and envisioning, and commitment

and action were important at different moments of the project, with each a prerequisite for building the capacity across and within the stakeholder group, which eventually proved so crucial [13].

The purpose of our present analysis is to trace the *conceptual development* which occurred within the initiative, by which we mean the production of new knowledge in forms that 'grasp' aspects of the present situation and guide subsequent action [14]. We regard the suggestion in the EUAC report [9], quoted above, that an HEI needs "to define sustainability for itself" as a clear recognition of the need for conceptual development. However, for us, this is but one example of what is required; conceptual development in sustainability initiatives might reach considerably beyond the specific issue of "defining" one specific term.

We understand concepts and conceptual development in ways influenced by the activity theory tradition [14]. In such scholarship, concepts are understood as a type of artefact which mediates activities in ways that are practical (they help people suggest actions which should be undertaken to pursue the object of the activity) and future-oriented (they help people accommodate visions of problems and/or solutions). Importantly, it is understood that concepts are not developed only by specialists, but by a whole range of people in their everyday life, and that new conceptual development is spurred whenever issues in activity arise which cannot be mediated adequately by existing artefacts. In Section 3.4 we put forward a model which illustrates how conceptual development occurs in sequences of actions, including identifying a conflict of motives arising from an existing activity; putting forward a simple idea; exploring how the idea addresses the conflict of motives; developing the idea to address problems in existing activity; and working up an artefact so that the new concept can be used in the future (potentially by others). Our model also acknowledges that conceptual development is not smooth but instead passes through stages, with stages tending to become abandoned as the inadequacies of the conceptual development work become apparent to those undertaking it. It is this model which frames our analysis of conceptual development in this paper.

The analysis we present in this paper addresses the following research question: *What is the potential for conceptual development to occur, as a process, during a higher education sustainability initiative?* By addressing this question, we aim, as we outline in our literature review (Section 2), to contribute to the literature on sustainability in higher education, and particularly those strands concerned with sustainability terminology and strategic approaches for embedding sustainability in the sector. Such literature, we argue, is regrettably weak in recognising conceptual development within initiatives, and in understanding the processes by which such initiatives unfold. We use our conceptual model to explore how conceptual development occurred within a Change Laboratory, a research intervention methodology often used to understand the potentiality in a given set of practices [15].

To address this question, in what follows we first present a preliminary analysis which demonstrates that several 'strands' of conceptual development could be discerned within the data generated by the project. Having done so, we focus on one 'strand' of conceptual development occurring during the research intervention: specifically, that which resulted in the development of the CSS. In that conceptual strand, as we elaborate below, initial arguments about different interpretations of the word 'sustainability', and attempts to find a common definition, were eventually abandoned by the group in favour of a succession of 'frameworks' and 'statements'. Those frameworks and statements were each, in turn, challenged and refined by different stakeholders, on grounds of ethos, fit with the institution, and relevance to subsequent action, until the eventual CSS was forged and judged to be an acceptable basis for institutional work.

We should be clear from the outset that our approach in this paper differs markedly from the dominant narratives in the literature on sustainability in higher education. In Section 2, we briefly review how, in that literature, sustainability is conceptualised and strategies for implementing it are discussed. We conclude that conceptualisation is primarily addressed in terms of debates about different definitions (understood as universally applicable) and educational movements (usually with an evangelising character), with judgements made about the correctness or comparative merits of the alternatives suggested; while implementation is usually discussed by categorising different objectives or evaluating different outcomes achieved by 'top-down', 'bottom-up', and 'middle-out' approaches. We suggest that our approach in this paper, which emphasises conceptualisation as an attempt to apprehend and guide institutional practice, and which explores implementation as a process within which new concepts can be developed, offers a productive new way for addressing the challenges emphasised within these areas of scholarship.

In the sections that follow, we describe the most important principles guiding our research, including when designing the underlying research intervention and analysing the conceptual development which occurred; outline the specific project design which was derived from these principles; analyse the strand of conceptual development within the project that led to the development of the CSS; and discuss the implications for future scholarship and practice in the area of sustainability in HEIs. First, however, we reinforce our view of how the relevant issues are conceptualised in the relevant literature.

2. Literature Review

The scholarship on sustainability in higher education is large and diverse [16–21]. The present work was constructed on the basis of a literature review whose focus demarcates two specific areas of debate within this wider body of knowledge [12]. One area concerns sustainability terminology in higher education, whose meanings and implications are debated extensively. The other addresses strategic approaches for embedding sustainability in particular institutions. We write this paper as a contribution to several specific strands of debate we engaged with in these areas of literature. In what follows, we provide a brief but critical overview of these debates.

2.1. Sustainability Terminology in Higher Education

The first area of scholarship we address in this paper concerns sustainability terminology and its use in higher education. We analyse this area by disaggregating it into three related strands of debate concerned, in turn, with a lack of clarity in sustainability terminology, value tensions about what sustainability should mean, and communication problems between stakeholders.

The first of these strands addresses a *lack of clarity* in sustainability terminology [4,22–26]. The papers in this strand highlight that discussions about sustainability often lack precision and take the various imprecise interpretations as a source of frustration. This strand of work reflects widespread concerns in the literature on sustainability in organisations more generally (rather than specifically in higher education) that there is no clear definition of sustainability for organisations to adopt [23] and that, therefore, it is difficult for decision-makers to orient their work [24].

Scholarship focused specifically on educational contexts has typically engaged with this issue by striving for greater precision: typically, by emphasising the contribution of education to sustainability, rather than by adopting definite positions on sustainability itself. The Eco-UNESCO definition of 'Education for Sustainable Development' provides one example of how such approaches position education in relation to societal concerns:

> Education for Sustainable Development (ESD), using a wide definition of education (both formal and non-formal), is both a part of Sustainable Development and a tool for achieving the Sustainable Development goals throughout the world and at all levels (national, regional, and local). It refers to a process of learning that allows making decisions that take into account long-term economic and ecological effects, as well as the equity of all communities. It also aims at building the capacity and commitment needed for building sustainable societies [27].

One outcome of this approach, however, has been to produce within educational settings a plethora of new terms and definitions, and contestation between their respective advocates. For example, Wu and Shen's [4] review of sustainability education during the UN Decade for Education for Sustainable Development found that a great variety of different terms were being used and defended, even where the underlying meaning was synonymous or interchangeable. Thus, it is suggested that a lack of clarity in broader sustainability discourse has become mirrored in research and practice on education. This situation is typically viewed negatively: for example, it is seen as having negative effects at an institutional level when pursuing sustainability initiatives [22,26] and as leading to a lack of commitment from bemused stakeholders [25]. Owens and Legere [28] argue that "When a community fails to understand sustainability, it impacts how they conceptualize environmental problems and make decisions to solve them" (p. 367). In our view, such work draws useful attention to the importance of conceptualisation. However, we wish to query the common assumptions that sustainability conceptualisation is the exclusive domain of specialists and that institutional stakeholders should be 'receivers' for unambiguous concepts.

A second strand of debate in this literature concerns *value tensions*, especially those arising from differing views about the centrality of the *environment* when thinking about sustainability [6,29–32]. The underlying context is that a longstanding strand of work focused specifically on environmental issues has been challenged by the emergence of rival conceptions of sustainability with a broader focus.

Some of the corresponding value tensions are clearly highlighted in the *ESDebate* report published by the International Union for Conservation of Nature (IUCN) [29]. This study, based on submissions from expert respondents, seeks to delineate and understand the variety of debates surrounding Education for Sustainable Development (ESD). Respondents' views highlight sharp divides around the centrality of the environment, with many contrasting ESD against the older term Environmental Education (EE) in various ways, viz. that (i) EE is a part of ESD, (ii) ESD is a part of EE, (iii) ESD and EE partly overlap, and (iv) ESD is a stage in the evolution of EE [29] (pp. 11–13). Specific differences between ESD and EE are perceived as highly important by respondents. Some, for example, disparage EE as "naturalist, apolitical and scientific work" (p. 12) or suggest that "EE represents an interest (group)" (p. 13). Others worry about ESD on the following grounds:

> "There is a danger that it [ESD] legitimises the notion of infinite economic growth—only at a more sustained pace. This interpretation is not in line with notions of EE" (p. 13).

The literature emphasises that these value tensions have impacts upon organisational practices, rather than being merely individual preferences. For example, committees and organisations with a longstanding environmental focus are "re-orienting themselves towards transformative learning around equity issues, north–south relationships, cross-cultural aspects, etc." [32] (p. 86). Such trends are correctly taken as posing a range of challenges for those professionals involved in sustainability in higher education, leading to proposals that those practitioners need to develop (and be supported to develop) a wider

range of competencies [32]. Yet this strand of literature does not address how disparate stakeholders might address such tensions within an institution.

Another strand of debate does, however, frame issues of sustainability terminology institutionally—but in terms of *communication problems* [33–35]. Papers in this strand highlight that higher education stakeholders are frequently unable to meaningfully discuss sustainability with each other because they use different terminology or understand the same terms in different ways. Owens and Legere's study [28], for example, analyses how a group of stakeholders from a specific campus discuss sustainability. Their findings highlight that these stakeholders, while apparently using some common words, actually discuss notions that both diverge from each other and differ from published definitions.

Some papers have attempted to explain such terminological difficulties by framing universities as particular kinds of organisations; they are, as Gale et al. [35] note, "loosely coupled networks of semi-autonomous centres of influence and decision-making" (p. 253). Doing so serves to connect debates about sustainability terminology with those engaging with institutional issues (addressed further below in Section 2.2). Such work suggests that different institutional stakeholders imbue sustainability terminology with their own meanings due to their own motivations and background, with the attendant communication problems framed by reference to university silos [34] (p. 26), cross-disciplinary antagonisms [35], difficulties of communication between academic and professional staff [1], and mistrust of senior managers seen as prone to tokenism [1]. Gale et al. also highlight that discussions of sustainability are stymied by different fundamental beliefs, especially about issues such as social democracy, environmental protection, economic growth, and social justice (p. 251). For Djordevic and Cotton [1], a particularly thorny issue is that the "underlying belief structures intrinsic to HE (such as independence of thought and critical thinking) may conflict with the attitudinal implications of the sustainability message" (p. 382).

Papers in this strand of scholarship often attempt to propose ways of addressing these communication problems. Some proposed solutions—for example, the advocacy of clear leadership [24] (p. 57) or that research scholars aim to provide accurate information within their own institutions [33] (p. 11)—draw attention to the roles of particular individuals in promoting particular understandings of sustainability issues. Others highlight the necessity for communication breaking out of silos; for example, by supporting ongoing interdisciplinary collaboration [35] or different forms of institutional "networks" [24]. Owens and Legere [28] note the importance of framing sustainability concerns within wider systems rather than as "magic bullet" solutions (p. 380). We agree that collaboration across silos is a potentially promising approach, but the processes by which such collaboration might address communication problems for sustainability and frame institutional solutions systemically remain poorly understood in this literature.

2.2. Strategic Approaches for Embedding Sustainability in Higher Education Institutions

The second area of scholarship we address with this paper concerns strategic approaches for embedding sustainability in particular institutions. We analyse this area by disaggregating it into two related strands of debate concerned, in turn, with the character of the change process and the strategic aims of organisational initiatives.

The first of these strands addresses the *character of the change process* used when attempting to inculcate sustainability [18,21]. This issue is typically understood as important not only because of its impact on organisational outcomes but also as fundamental in its own right; as Djordevic and Cotton [1] argue, Education for Sustainable Development *is* a process of learning.

Papers focused on process issues typically discuss the people who should be involved in sustainability-related change [24,32,33]. Discussion especially focuses on the recruitment

of pivotal individuals: typically, those in specific organisational roles or who are actively leading sustainability work in the institution. A strong emphasis is placed on finding "the right leader" because, as Appleton [9] argues, "it is vital to have sponsorship at the top, without which there is the risk of the agenda being seen as weak, and potentially dispensable" (p. 26). Appleton also discusses the need for leadership at "all levels" and suggests appointing, throughout an organisation, a variety of people as 'champions', 'sponsors', and 'academic leads'. A similarly strong emphasis is placed on domain specialists, with Wesselink and Wals advocating for the important role of environmental educators in institutional processes [32]. Other writers discuss the need for "grassroots action", by which is typically meant addressing existing work: for example, Verhulst and Lambrechts [21] discuss the need to map and understand those sustainability projects in the institution which are already being undertaken, at small scale, by enthusiasts and then recruiting those people by offering sources of funding (p. 198). Overall, such work typically suggests recruiting those who are existing carriers of authority and expertise within an institution and does not address how people might develop and change as a result of participation in the change process.

Papers in this strand also typically differentiate between 'top-down' and 'bottom-up' change processes, a distinction "based on the placement of agents of change in the hierarchy of authority" [18] (p. 340). This dichotomy is portrayed as problematic: both types of process are seen as inadequate for connecting to actual practice across an institution [18] (p. 343), and yet attempts to coordinate between processes of each type have demonstrated that achieving "a true fit between bottom-up and top-down" is difficult [21] (p. 198). For this reason, some authors advocate for processes of 'middle-out change' or "middle leadership" [18] (pp. 346–348). This conception is understood as the process of empowering "social intrapreneurs" within the institution who will create "positive change through entrepreneurial solutions" [18] (p. 344). Such discussions usefully highlight the issue of agency, but that agency is conceived individualistically, and the processes by which desirable agency might be fostered remain vague.

A number of authors have proposed change process models based on various principles, such as "integrative development" [24] or an "evolutionary perspective" [2]. Such a process view is useful as a guide to action and a way of analysing desirable change. Yet a key factor in such models is to imply a linear relationship between different stages, thereby tending to separate moments of conceptual decision-making from change implementation. Verhulst & Lambrechts [21], for example, use as the basis of their work a process model which differentiates between "a preparatory stage, a change stage with different intervention cycles, and a consolidation stage" (p. 193). They acknowledge some debate on whether the preparatory stage (where significant conceptual work happens) should be "completed first", but their alternative to doing so involves allowing "small, individual projects" which proceed "without too much planning in advance" (p. 193). In other words, it is somehow assumed that ongoing conceptualisation in change processes is incompatible with the idea of advance planning.

The character of the change process is also discussed using the vocabulary of partnership, collaboration, and networks [17,18,33]. Collaborative approaches are seen as useful for "breaking down the silo-mentality" in institutions, so as to "extend horizontal reach across business areas that might otherwise remain independent of each other" [9] (p. 27). A variety of collaborative approaches are considered in this literature. For example, Mader [24] differentiates between several kinds of networks, including information networks, which spread a vision as widely as possible via one-way communication; knowledge networks, which exchange knowledge and develop trust, typically via committees and working groups; and innovation networks, which engage those with a shared vision and on this basis undertake

transformational processes, typically via establishing institutional centres and projects. Appleton's [9] (p. 26) discussion of consulting students in the context of work on the UK's National Student Survey would count as a network according to such definitions. We find such ideas useful for drawing attention to the possibilities of collective working across organisational structures. Yet existing discussion seems tacitly to restrict many stakeholders to passive forms of 'consultation' and only to recruit others to active engagement on the basis of their prior agreement with some given vision.

The second strand of literature on strategic approaches we wish to address is concerned with the *strategic aims* of sustainability initiatives in organisations. Such aims are commonly addressed in this literature by demarcating them in relation to the institutional areas being addressed, setting out the underlying 'drivers' behind the work, and/or suggesting success factors which should be nurtured.

A common approach in this literature is to differentiate sustainability initiatives by their institutional points of focus [12,16,25]. Doing so has been common currency for decades: as Lozano et al. [7] note, the 2005 Graz Declaration for the Decade of Education for Sustainable Development asked university leaders to promote actions in three areas: learning and teaching, research, and internal and external social responsibility (p. 16). The actual categories of focus are not consistent between papers. For example, Ralph and Stubbs [25] suggest demarcating between operations, teaching, and research (pp. 77–78), while Berchin et al. [16] differentiate further between strategies for research, teaching, campus operations, outreach, and knowledge dissemination (p. 759). Yet such work regards categorisation as important, for the reason that "different factors contribute to the success of the integration in each of these areas" [25] (p. 78). In our view, such work is valuable for recognising that organisational change dynamics are not uniform across an institution but brings drawbacks of arbitrarily categorising sustainability initiatives from the outset and thus tacitly constraining their conceptual remits.

Strategic aims are also often discussed in relation to their 'drivers' [3,12,21], on the basis that sustainability change initiatives should be understood as "driven processes" [12] (p. 32). Many such drivers are recognised, sometimes presented as detailed lists. Cheeseman et al.'s [33] review of the policy literature highlights a "myriad" of drivers (p. 2), and suggests that common drivers include policy creation, forging partnerships, reporting requirements, responding to stakeholder pressure, the use of sustainability as a tool for institutional marketing, a progressive political situation, and pedagogical approaches (pp. 8–9). Other authors suggest that drivers are so numerous that they require higher-level categorisation. For example, Ralph and Stubbs [25] suggest that it is useful to differentiate between external drivers, such as national policy directives, and internal drivers, such as the ethical obligation for universities to provide leadership to wider society (pp. 73–74). While such work furnishes a useful sense of motivation for strategic approaches, we agree with Cheeseman et al. [33] that such work generally omits a sense of how sustainability initiatives are enacted as a process (p. 2).

Strategic aims are also discussed in terms of recognising and nurturing a range of factors seen as likely to lead to success for sustainability initiatives [24,34]. For example, Ralph and Stubbs [25] suggest that key success factors include the identification of committed individuals, the provision of dedicated resources, senior management leadership and support, and institutional funding (p. 86), while Verhulst and Lambrechts [21] focus on individual commitment, external funding, and an accurate assessment of the current situation in the organisation (p. 195). Dlouhá et al.'s [2] discussion of 'transition factors' has a more detailed character: emphasising the prior embeddedness of environmental education, the presence of individual initiatives, the vitality of inter-institutional networks, an understanding of ESD as a term, the existence of ESD policy documents, the matu-

rity of ESD policy implementation, the degree of transdisciplinary working, stakeholders competencies for innovative pedagogy, the existence of Green Campus initiatives, and the prevalence of sustainability research within an institution (pp. 676–678). While this variety of factors doubtless captures important issues, the discussion typically positions them as prerequisites for success rather than a *product* of sustainability initiatives.

2.3. Our Core Critiques of the Literature

Our critical engagement with the literature on sustainability in higher education, above, focused on two areas.

Our overview of the area of literature on sustainability terminology emphasised stands concerned with lack of clarity, value tensions, and communication problems. Such work is useful for drawing attention to the importance of concepts and conceptualisation, identifying that value tensions are often challenging, and noticing the importance of communication across silos. Yet we critique the existing work in this area for assuming that concepts are created by domain specialists (and that institutional stakeholders must merely understand concepts clearly), for lack of consideration of how value tensions are actively worked through by stakeholders, and for underemphasising how work across institutional silos might be addressed by using new concepts.

Our review of the literature on strategic approaches emphasised strands concerned with the character of the change process and the distinct strategic aims of sustainability initiatives. We judge such work valuable for highting the importance of stakeholder input, issues of agency in integrative development, and the need to work across institutional structures; and for recognising that change dynamics are not unform across an institution, that initiatives are motivated by a range of drivers, and that stakeholder recruitment is important for the success of specific initiatives. Yet, in our view, such work has a range of shortcomings. These include a focussing mainly on leveraging the input of existing carriers of authority and expertise rather than on how people develop within change initiatives; an individualistic, rather than collective or group, understanding of agency in sustainability change; a tacit suspicion of ongoing conceptualisation (which is sometimes seen as a barrier to project planning); a focus on recruiting stakeholders who already agree with a predetermined agenda (and relegating others to being 'consulted' less intensively); and focussing on the reasons and factors in place at the outset of a sustainability initiative, but less so on how such initiatives unfold as a process.

Our overarching view, in summary, is that these areas of literature have important shortcomings when it comes to understanding the links between sustainability concepts and change initiatives, and to understanding sustainability-related change as a process. In this paper, therefore, we commit to analysing the potential for conceptual development to occur within higher education sustainability initiatives, and to understanding such development processually. It is for this reason that we pursue the specific research question stated in Section 1.

3. Theoretical Framework

The theoretical framework for the present study is situated in the activity theory tradition [36], from which we derive an understanding of both human activity and how change in that activity can be nurtured and studied [37,38]. We selected and honed this framework because of its general alignment with our underpinning epistemological positions—for us, it is crucial to understand sustainability in higher education as an issue of activity, and 'promoting' sustainability as a process of *changing* activity—as well as its specific utility for designing and analysing particular change initiatives.

Below, we briefly provide some necessary background information about, in turn, *activity theory* itself, which furnishes a way understanding human activity, including the roles of various artefacts within it; *expansive learning*, a framework for understanding the processes by which radical changes in particular activities are accomplished; and *transformative agency by double stimulation* (TADS), which provides an approach to designing tasks that aim to develop the agency of those participating in attempts to radically change their activity. We then consider, in more detail, how to understand the nature and role of *concepts* within such a framework.

3.1. Activity Theory

Activity theory (sometimes branded Cultural-Historical Activity Theory, or 'CHAT') is an extensive and sophisticated theory for understanding human practice. It draws considerably on the heritage of Lev Vygotsky's Marxist programme of developmental psychology from the 1920s–30s and has been substantially further developed and expanded over several decades [39–41]. The theory has been used, in varied ways, across many academic disciplines—including psychology, computer science, engineering, organisational studies and educational research—and in disparate global contexts [42,43]. Such disparate uses, of course, have generated substantial contestation between scholars and ongoing development of the theory (sometimes into competing interpretations). In recent times, activity theory has become a prominent theory used for studying higher education settings, where researchers have valued how the theory helps them grasp complex situational dynamics, its emphasis on locating phenomena in cultural–historical context, and its staunch focus on change and development [44]. For similar reasons, it has also been used to study sustainability education more specifically [45]. Elsewhere, it has been used to examine sustainability practices outside educational systems, such as in farming [46,47].

In the wider, underlying research-intervention project, activity theory was used in various forms to conceptualise the change the project was trying to achieve (for example, by using activity system diagrams), to assist participants to analyse their activity (and put forward ideas for future activities), and to structure the research analysis of data [12]. Given that the present paper focuses specifically on issues of conceptual development, however, we sketch the key principles of the theory only briefly. These [38,48] are as follows:

- *Activity–action distinction:* The word *activity* has a technical meaning which we can summarise as "sustained, collective projects of human subjects", which is differentiated from *action*, which means "subjects' time-bound pursuit of *goals*"; furthermore, the theory emphasises that the meaning of subjects' *actions* can only be understood by locating them in the context of the wider *activities* in which they take place;
- *Object–orientation:* Activities are understood to be *oriented* towards *objects*, which means that activities involve 'working on' material items and that those involved in the activity derive collective motivation and make meaning from doing so;
- *Artefact–mediation*: Human subjects are not understood as working directly on their objects, but instead as being "equipped" [49] to do so, with a variety of artefacts *mediating between* subjects and objects in tripartite relationships in which subjects use artefacts when pursuing their work on objects;
- *Historicity:* The theory emphasises that activities develop their own structures (including rules, divisions of labour, and constellations of artefacts) historically, with the current form of any given activity having arisen out of antecedents and tending to develop into new forms;
- *Contradictions*: Activities are understood as taking forms that unavoidably encompass a range of structural oppositions and tensions, which are an ongoing driver of change and development because subjects, who experience aspects of these contradictions when

enacting the activity, try to overcome them and thereby transform the activity—albeit with wide-ranging outcomes and in ways that lead to further contradictions emerging.

3.2. Expansive Learning

Expansive learning is a notion developed within the activity theory tradition to describe instances of qualitative rupture and radical change within activities. The associated theory, initially put forward by Yrjö Engeström in the late 1980s [36], suggests that such ruptures emerge when the accumulation of contradictions in a particular activity becomes sufficiently acute that subjects are provoked into re-imagining and re-mediating the entire activity. Where expansive learning occurs successfully (which is not a foregone conclusion), a necessarily collective process will involve subjects constructing culturally novel ideas and practices that result in the object of activity being transformed ('expanded'). Engeström [36] argues that societal challenges, including those related to sustainability, increasingly require forms of learning that go beyond internalising established knowledge and towards actively producing new ideas and forms of being, which makes expansive learning an important phenomenon to study and nurture.

In analytical terms, the theory of expansive learning foregrounds *process*: chains of different actions are understood to occur in cyclical rhythms. Engeström's [36,50] work suggests that, where expansive learning is achieved successfully, subjects will have undertaken a range of actions whose goals will fall into the following categories:

1. *Questioning*: rejecting or criticising established aspects of activity or current proposals for change;
2. *Analysis*: investigating, representing, and explaining (a) the structure of the present activity and (b) the earlier activities that have led to the present ways of working;
3. *Modelling*: devising explanatory yet simplified models of new forms of activity that might overcome present contradictions;
4. *Examination*: exploring the dynamics, potential, and limitations of proposed activity models by debating their application and considering test cases;
5. *Implementation*: applying proposed activity models in practice at a small scale and identifying how they work in concrete terms;
6. *Process reflection*: evaluating the progress of attempts at change and how those attempts align with the motivations of participating subjects;
7. *Consolidation and generalisation*: embedding new activity models as new forms of practice at a wider scale.

Expansive learning has been the topic of extensive prior scholarship over several decades [36]. Studies have concluded, for example, that the actions undertaken, when understood through the above categories, neither occur in a predetermined linear fashion nor are simply random [50]. For this reason, expansive learning is understood as having a cyclical motion, and the process of going through the category stages is sometimes referred to as an expansive learning cycle.

The project we draw on in this paper was a direct attempt to nurture expansive learning in relation to sustainability in higher education. In practical terms, the above categories (such as *questioning*) provided a tool for thinking strategically about how particular moments in the research intervention fitted into the wider project, and about designing workshop tasks aligned with appropriate goals [13]. It should be emphasised, therefore, that project participants did not engage in conceptual development in a vacuum. On the contrary, their ongoing conceptualisation both (a) responded to particular stimuli (for example, being presented with a task whose goals correspond to some form of *modelling* invites a certain kind of work on concepts) and (b) influenced how the project unfolded (for example, some particular instance of conceptual development might necessitate moving

from one kind of action to another, for example from *modelling* to *questioning*, thereby influencing how the expansive learning cycle unfolded).

3.3. Transformative Agency by Double Stimulation

Transformative agency by double stimulation (TADS) is a framework, emerging within the activity theory tradition and spearheaded by Annalisa Sannino, focused on how subjects can be helped to "intentionally break out of conflicting motives and change their circumstances" [40] (p. 16). Work on transformative agency explores how people come together to form joint subjectivities, while double-stimulation refers to a long-established principle, first used by Vygotsky, of understanding how people propel their volition using specific artefacts and a corresponding research programme exploring how such processes might be nurtured [51]. TADS, therefore, provides us with a framework for understanding how to construct tasks that assist subjects not only to pursue difficult goals but to do so in ways that express their own developing subjectivity [52].

In the underlying project, the above ideas provided a principled approach for designing particular tasks in workshops [12]. Such an approach has been used before in comparable projects [52,53]. Participants are provided with a *first stimulus* which describes some particular goals for the task (cf. Section 3.2), yet these goals cannot be addressed in obvious ways, and so a *second stimulus* is provided, comprising a framework for thinking about how to break down the task. Participants are also confronted, where applicable, with examples of the kinds of problems being discussed (in the form of documents, images, video footage, etc.), and may be asked to work in particular ways (for instance, in subgroups) and document their findings in particular formats. Importantly, resources from earlier workshops are often reused in later ones—for example, a diagram developed by participants might be reintroduced in a later task as a *second stimulus*, in a way that aims to support a process of cumulative knowledge building and the ongoing re-examination of earlier discussions.

The present paper does not focus extensively on the design of particular workshops. Yet it is important to note that working within this framework involves participants in a wide variety of actions in which concepts are likely to be put forward and debated, tested and refined, and deprecated in favour of new ideas. To provide only a few examples, participants' *modelling* work might involve developing a concept they think helps them analyse current problems, their *implementation* might test new models of activity using some concept as a yardstick, and their efforts at *implementation* might show that a concept is inadequate and needs to be replaced. Participants are also likely to develop a range of competing ideas, or to put forward several ideas and choose to take forward only a subset of them.

3.4. Concepts

The idea of a 'concept' has been contested between different scholarly traditions over extensive periods of time, with cognitive psychologists and linguists, for example, understanding the nature of concepts in very different ways [54]. For the purposes of this paper, we understand concepts from a *practice* perspective, and, in particular, adhere to a view derived from activity theory.

In the activity theory tradition, *concepts* are understood as a particular kind of artefact that mediate between subjects and their objects [14]. Concepts vary widely in their character—they are positioned and understood, for example, as more or less scientific, culturally established, stabilised in meaning, ephemeral, partial, contested against other concepts, and so on [54]. What concepts have in common, however, is that they are developed to be *practical*, in the sense of providing a way of "handling" an object of activity, and

future-oriented, by which is meant accommodating visions of problems or solutions that help organise action [14]. The extent to which a concept is practical and future-oriented is seen as related to how it captures the 'essence' of some given problem or solution. A distinction is sometimes made between 'true' concepts, which do capture the essence, and "general notions", which fail to do so—usually, these latter merely provide abstract definitions or mechanical lists of attributes [54].

Adopting this view of concepts for the present work is useful not only because of its commensurability with the activity theory framework used in the research intervention, whose data we draw on, but also because of its recognition that attempts at conceptualisation pervade social practice, with important consequences. As Engeström [14] writes, "culturally novel concepts are not only created by scientists but also by people struggling with persistent problems and challenges in all walks of life" (p. 100). The view that certain concepts are a priori 'correct' or 'authoritative', which seems assumed in much of the literature reviewed in Section 2 (and which has also underpinned much educational research on school classrooms), is alien to the activity theory tradition. Actual social practice involves not only striving to master a range of existing concepts but also challenging or rejecting them and forming new ones. One influential activity theory study, for example, documents how support workers and residents in a homecare setting for the elderly developed a new concept to address care encounters [55]. Rather than starting from a policy checklist or formal definition, their collective concept formation grew from an apparently simple reference to an everyday action (a homecare resident moving from being seated in a chair to a standing position), which was fraught with difficulty in the practice context. From that beginning, workers and residents together developed a series of word meanings and artefacts, eventually leading to the implementation of a "mobility agreement" approach, subsequently implemented in the setting.

Compared with the previous aspects of our framework, activity-theoretical understandings of those processes which Engeström calls "concept formation in the wild" [14] are relatively tentative, although a recent book has highlighted their increasing practical and theoretical significance [56]. However, based on our reading of several studies which have addressed the issue [14,54,55], we propose to address collective conceptual development in this paper by focusing on the following aspects:

1. *Conflict of motives*: subjects experience and articulate conflict about some issue, arising from underlying contradictions in their activity, which cannot be mediated by established artefacts (including the existing concepts transmitted from past activity, and those they have hitherto developed themselves);
2. *Abstract projection*: subjects project a simple idea that expresses their will to mediate the predicament in a particular way, attaching to it some external representation (often by creating a new word or giving new meaning to an existing word);
3. *Consideration*: subjects explore how their abstract projection can help them understand or address their conflict of motives;
4. *Embedding*: subjects relate the abstract projection to their actual activity, clarifying and contesting its connections with other aspects of activity, including the contradictions in that activity;
5. *Objectification*: subjects attempt to draw together some material artefact that represents their projection in a sufficiently comprehensive, stable, and intelligible way for their own later use, and potentially for use by others.

Figure 1 provides a model of this conceptual development process. The figure, which is our own formulation, highlights how conceptual development passes through stages, with each stage of development represented as a different column in the figure's notation. A stage of development proceeds from the foundation of a conflict of motives, which arise

from underlying contradictions in activity, and which become expressed as the *poles* of the conflict, with this being shown at the bottom of the column. As we have explained above, the poles of this conflict cannot be mediated by established artefacts, whether those transmitted from past activity or any that subjects might already have been working on themselves.

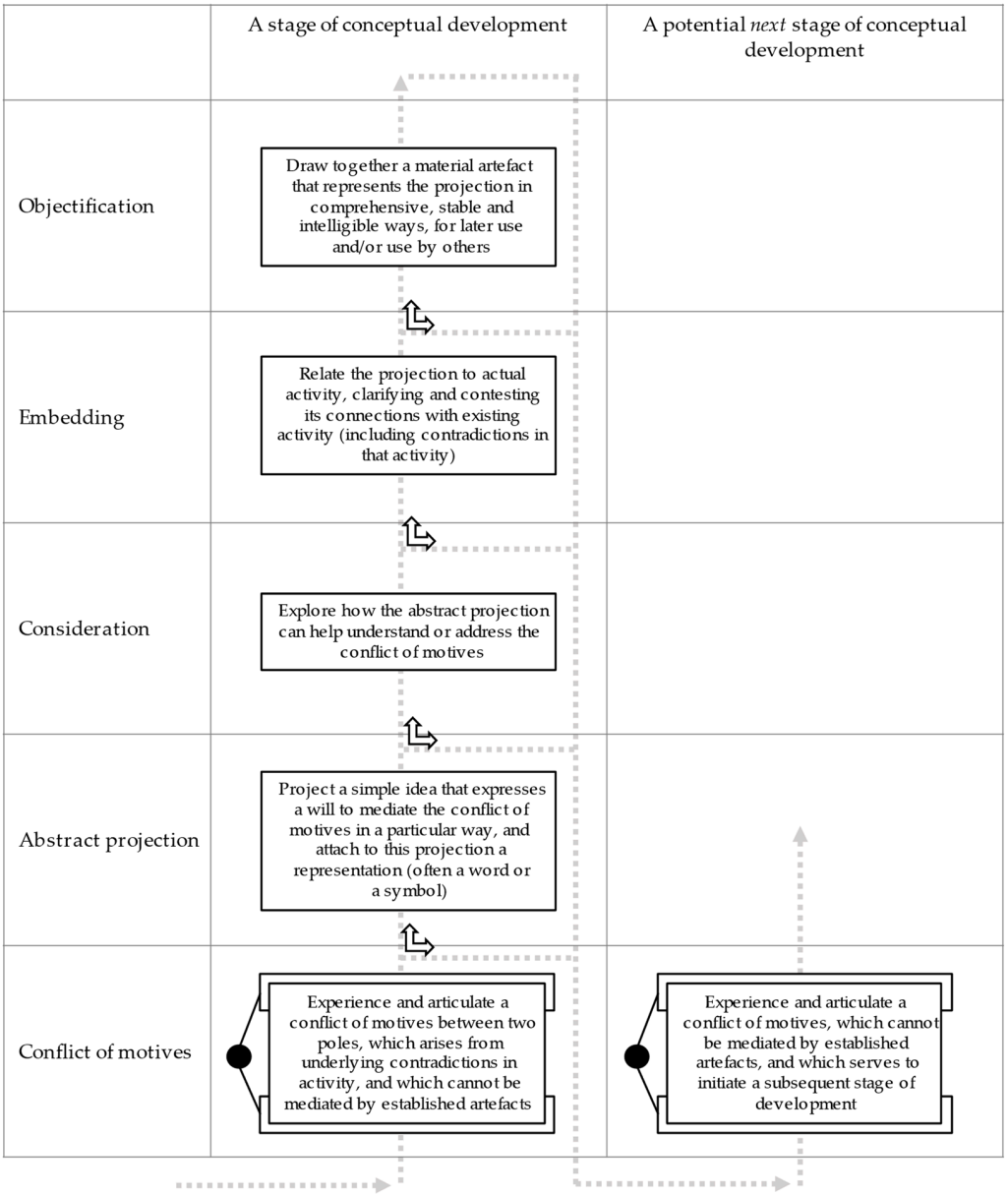


Figure 1. The conceptual development process.

It is understood in this model that stages of development may proceed through a sequence of actions whose goals constitute attempts at abstract projection, consideration, embedding, and objectification, as these have already been defined above. This is indicated in the figure by the cumulative building of actions in these rows, from the bottom of each column upwards. Yet these stages may also be abandoned, as their inadequacies become evident to the subjects working on them, with the action being truncated in such cases as subjects return to a conflict of motives. This is indicated in the figure by the grey dotted line indicating multiple potential paths of work, and the angled arrows indicating that these paths may diverge after any aspect of conceptual development.

As for other aspects of our framework, we intend that these are used to capture cyclical processes of development, by which we mean that conceptual development will encompass considerable contestation and often require re-visiting earlier decisions, but will not proceed in an entirely arbitrary way (for example, we contend that the starting point for a new stage of conceptual development will differ each time, but *will* nonetheless constitute a conflict of motives). In our analysis below, we outline how conceptual development in the sustainability intervention we document passed through several stages of development and explore the extent to which the above aspects were manifest at each of those stages. Figure 1 forms the analytical basis of this work, and an illustration of the specific conceptual development process undertaken by subjects working on the Campus Sustainability Statement is presented in Section 6.1 using this same notation.

4. Research Design

The present paper draws on data from a project in which a range of institutional stakeholders came together in workshops over a period of several months to address sustainability issues [12,13]. The project was based on an approach called the Change Laboratory, an established interventionist research methodology used by researchers in the activity theory tradition since the 1990s [37,57].

The purpose of Change Laboratory projects is to facilitate deep transformation in work practices while generating research knowledge within the change effort. The approach places great emphasis on how participants reconceptualise the nature of the problems they confront (sometimes several times) as the project proceeds, generate their own solutions, and develop their collective agency to implement those solutions. The Change Laboratory approach makes extensive use of the theoretical framework outlined above in Section 3. Projects are designed for the explicit purpose of stimulating expansive learning in real activities by using double stimulation tasks to nurture the transformative agency of the participants [36,53]. That purpose is addressed by hosting a series of workshops in which participants work on tasks designed according to these principles [58]. To our knowledge, the work we draw on was the first such project undertaken to confront sustainability challenges in a university, though the approach has been used to address other challenges in higher education, including the design of new curricula, services, tools and platforms [15,38,52]. It has been used to address sustainability challenges outside of academia, such as in agricultural settings [47].

As the sections below elaborate, the project was conducted by recruiting around twenty stakeholders from across an auxiliary campus within a multi-site higher education institution. Participants came together to discuss sustainability-related issues in nine workshops over approximately six months. The fundamental purpose of the project was to explore the creation of "a sustainable campus".

4.1. Research Site

Undertaking Change Laboratory projects involves selecting an intervention unit as the site for the initiative [37,38]. That intervention unit should serve as an "authentic professional backdrop" for the issues the project aims to study [59] (p. 9). Moreover, since the project attempts to explore the potential for future development of work in the intervention unit, selecting the unit is consequential. Change Laboratory researcher interventionists often attempt to select an intervention unit which has an organisationally strategic position and where there is already some recognition of a need for change.

For the present work, the intervention unit was an auxiliary campus of a multi-site university in the west of the Republic of Ireland. At the time of the project, the auxil-

iary campus served around 1000 students from a wider university student population of about 12,000.

The campus serves as an academic centre for the provision of a number of programmes, ranging from Nursing to Construction Management, and as a workplace for staff from a wide range of academic disciplines. It was selected as the intervention unit for several reasons. Firstly, the campus has a strong track record on environmental issues. It has long been successful with the Green Campus programme and, since 2008, it has been awarded a number of Green Flags, including for Energy, Waste and Water, Biodiversity, and Transport. Secondly, a number of programmes running on the campus, including those of outdoor education, social care, and construction, had already made links to issues of the environment and/or sustainability. Thirdly, the first author was a member of staff working on the campus. He had already been involved with the Green Campus work and was familiar with the staff, the management structures and programme operations on campus (for a discussion of conducting Change Laboratory projects in one's own workplace, see the work of Miles [60]). Yet it was increasingly recognised that most sustainability work on campus had arisen from bottom-up initiatives, resulting in a lot of work being carried out in isolated and uncoordinated ways; among other things, this recognition had prompted some staff to set up an (informal) environmental and sustainability group on campus.

The project proceeded from the conviction that this existing (albeit fragmentary) work, together with a perceived groundswell of support for sustainability, could serve as a starting point for an effort to deeply transform work practices on the campus.

4.2. Participants

Two important criteria for selecting participants for a Change Laboratory project are, firstly, trying to ensure that there is an appropriate range of voices (including, in this case, a range of roles from senior management to frontline staff) and, secondly, that these participants "are dealing with the same object in their daily work and are involved in realizing the same final outcome despite differences in their occupation, task or hierarchical position" [37] (p. 65). The first author already knew, from working on the campus, that there was a widespread interest in both sustainability issues and in recruiting students to the campus, which is located some distance from the larger institutional campuses. Thus, an attempt was made to recruit participants who would be aligned with these objects.

Participation in the CL process was made open to everyone working on the campus. An email was circulated to all campus staff, requesting expressions of interest in taking part in a project about sustainability and ESD across the campus. Some participants were also contacted individually, on the basis that they were members of the Green Campus Committee or the (informal) environmental and sustainability group, were teaching subjects directly related to the environment, or had a previous record of related work on the campus.

The project followed published guidance for sampling in Change Laboratory research interventions, which states that 20 participants who meet the above criteria is a typical figure for such projects [37], and so recruitment efforts ceased once 22 participants had agreed in principle to participate. In actuality, 19 staff attended some of the subsequent workshops, with 15 of these participants being interviewed about their experiences subsequently. In addition to management and administration staff, there were participants from staff working on programmes in Business, Construction, Outdoor Education, Heritage and Environment, Social Care, Nursing, and Digital Media/Information Technology. Table 1 summarises the backgrounds of the participants, their attendance at the workshops, and their participation in subsequent semi-structured interviews. The table also shows which participants were also members of the Green Campus group, which focused on facilities issues such as the provision of recycling bins and reducing the use of pesticides on campus.

Table 1. Project participants, professional backgrounds, and workshop attendance.

Participants		Workshops										
No.	**Background**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total** [1]	**SSI**
P1	Information Technology		✓	✓		✓	✓	✓			5	✓
P2	Information Technology *		✓	✓	✓		✓	✓	✓	✓	7	✓
P3	Information Technology	✓		✓		✓			✓		3	✓
P4	Outdoor Education *		✓			✓	✓		✓	✓	5	✓
P5	Outdoor Education *	✓	✓	✓	✓	✓					4	✓
P6	Social Care		✓		✓		✓		✓		4	
P7	Social Care *	✓		✓	✓	✓	✓	✓	✓	✓	7	✓
P8	Social Care	✓							✓		1	✓
P9	Social Care	✓	✓	✓	✓	✓	✓			✓	6	✓
P10	Business	✓	✓	✓	✓		✓	✓	✓	✓	7	✓
P11	Nursing	✓	✓				✓	✓		✓	4	✓
P12	Heritage *	✓	✓	✓	✓	✓			✓		5	✓
P13	Heritage *	✓	✓	✓	✓	✓			✓	✓	7	
P14	Environment *	✓	✓		✓	✓		✓		✓	5	
P15	Construction	✓	✓	✓	✓	✓	✓	✓	✓		7	✓
P16	Management *		✓		✓	✓	✓			✓	5	✓
P17	Management *	✓	✓	✓		✓	✓	✓			5	✓
P18	Admin *	✓			✓						1	✓
P19	Admin *	✓	✓		✓			✓	✓		4	
P20	Researcher-interventionist	✓	✓	✓	✓	✓	✓	✓	✓	✓	8	
	Total [1]	15	16	12	14	13	12	11	13	11		

[1] Totals refer to attendance at Workshops 1–8. ✓Refers to attendance in a workshop or interview. * Refers to membership of the Green campus group. SSI refers to a semi-structured interview.

4.3. Timeline and Workshop Design

The main phase of the project, comprising the workshops, took place over an approximately six-month period, with the first workshop (Workshop 0, an introductory information session) taking place in December 2015 and the final workshop (Workshop 8) occurring in May 2016.

Following published guidance from Virkkunen and Newnham [37], we attempted to schedule the workshops so that the project maintained a sense of urgency and momentum, while also providing participants with time for reflection and investigation in between. Most workshops were scheduled 2–3 weeks apart, although there were larger gaps of around 4 weeks in two instances to accommodate the institutional calendar. Workshops were scheduled for Wednesday afternoons to maximise the opportunities for staff attendance; this afternoon is normally reserved for staff meetings and student sports activities on the campus, and so lectures are not typically scheduled at this time.

The design of the workshops for the project has previously been documented in detail elsewhere [12,13]. The workshops were designed using the framework of the expansive learning cycle (Section 3.2). For example, the tasks in Workshop 1 were specifically designed to stimulate actions of *questioning* current practices, while those in Workshop 4 were oriented towards *modelling* new solutions [13] (p. 112). As for other Change Laboratory projects, this planning structure was taken as a starting point only, and significant deviations from the plan were encountered in practice and actively nurtured [50].

Tasks within the workshops were designed using double-stimulation principles (Section 3.3), in which participants were given problem definitions (first stimuli), potential solution frameworks (second stimuli), and evidence to consider (mirror materials). Workshops made use of a variety of computers and projected screens, floor-standing flipcharts and felt pens, and printed materials—including policy documents and published research articles. Participants' conceptualisation was, therefore, deliberately equipped and

resourced, and we refer to relevant task elements from the workshops when reporting our findings in Section 5.

4.4. Methods for Generating Data

Data are generated within Change Laboratory projects in a variety of forms, with the aim being to support both the progress of the intervention and later research analysis [37,38,61]. In this case, the project generated a range of different kinds of data (see Figure 2 for a sample):

- Video recordings of all eight workshops. These were produced using two tripod-mounted video cameras, positioned at angles which aimed to capture who was speaking at any given moment, their expressions and gestures, and the reactions of others to their speaking turns. The workshops totalled 777 min in duration, resulting in around 1554 min of footage from across both cameras, although footage from the first camera was mainly used for analysis since that from the second proved less useful.
- Transcripts of workshops. These were produced from the video footage by the first author and were used alongside the video recordings during analysis.
- Flip-chart materials and other public notes. These were generated within the workshops and collected and photographed at the end of each session.
- Minutes from each workshop. These were produced by the first author. They were circulated to all project participants shortly after each meeting, as an aide memoire, and later used for research analysis.
- Transcripts of 15 semi-structured interviews (with those interviews being conducted with the participants indicated in Table 1). These interviews were conducted approximately six months after the final workshop and audio recorded specifically to support transcription.

4.5. Data Analysis

Our priority for the current paper involves tracing the extent to which conceptual development is evident in the project dataset described in Section 4.4. Data analysis in Change Laboratory workshops, it should be emphasised, is a cumulative product of an ongoing process [13] which, in this case, involved three different kinds of analysis:

1. Intra-workshop analysis: conducted jointly by all participants in the project when meeting together, who together analyse materials and generate new knowledge in a way that influences how the project unfolds subsequently;
2. Inter-workshop analysis: conducted by the researcher-interventionist (the first author) between workshops, to allow for knowledge produced in workshops to influence subsequent ones;
3. Post-intervention analysis: conducted by the research team (both authors), to construct narratives for the purposes of research publication.

It is the post-intervention analysis (step 3) that will be most visible in this paper, but it is important to remain aware that this analysis was built on top of the preceding work, whose traces and influence are evident in the underlying dataset. Additionally, as explained at the beginning of Section 4, reconceptualisation is central to the purpose of Change Laboratory projects, and so all three aspects of the above data analysis were concerned with conceptual development in some way (see [12]). Yet the explicit framework we describe in Section 3.4 was used only for the post-intervention analysis.

Our approach to the post-intervention analysis is informed by several sources in the relevant methodological literature. Firstly, we are influenced by researchers like Virkkunen and Newnham [37] and Morselli [61], who emphasise the value of analysing different kinds of Change Laboratory data, including video footage and artefacts from within workshops, together in complementary ways. For this reason, we did not privilege the transcripts

alone; instead, we based our analysis on watching the video footage from camera 1 and relating this to the other sources of data. Doing so proved difficult to accomplish using the software we were familiar with, and so we instituted more manual forms of analysis, which made use of handwritten notes, highlighted pages, and spreadsheets. Secondly, we are influenced by scholars such as Haapasaari et al. [62], who emphasise the value of work in which the "data of an entire CL [Change Laboratory] process is analysed in great detail and with the help of elaborate categorical frameworks that seek to reveal the epistemic and interactional dynamics" [62] (p. 240). Such work encouraged us first to address the dataset from the entire research intervention and afterwards to trace how particular interactions emerged *within* the broader context of the project. Thirdly, we are influenced by researchers like Engeström and Sannino [63], whose work sensitised us to understand how short interactions (such as speaking turns) can be related methodologically to the complex theoretical frameworks offered by activity theory.

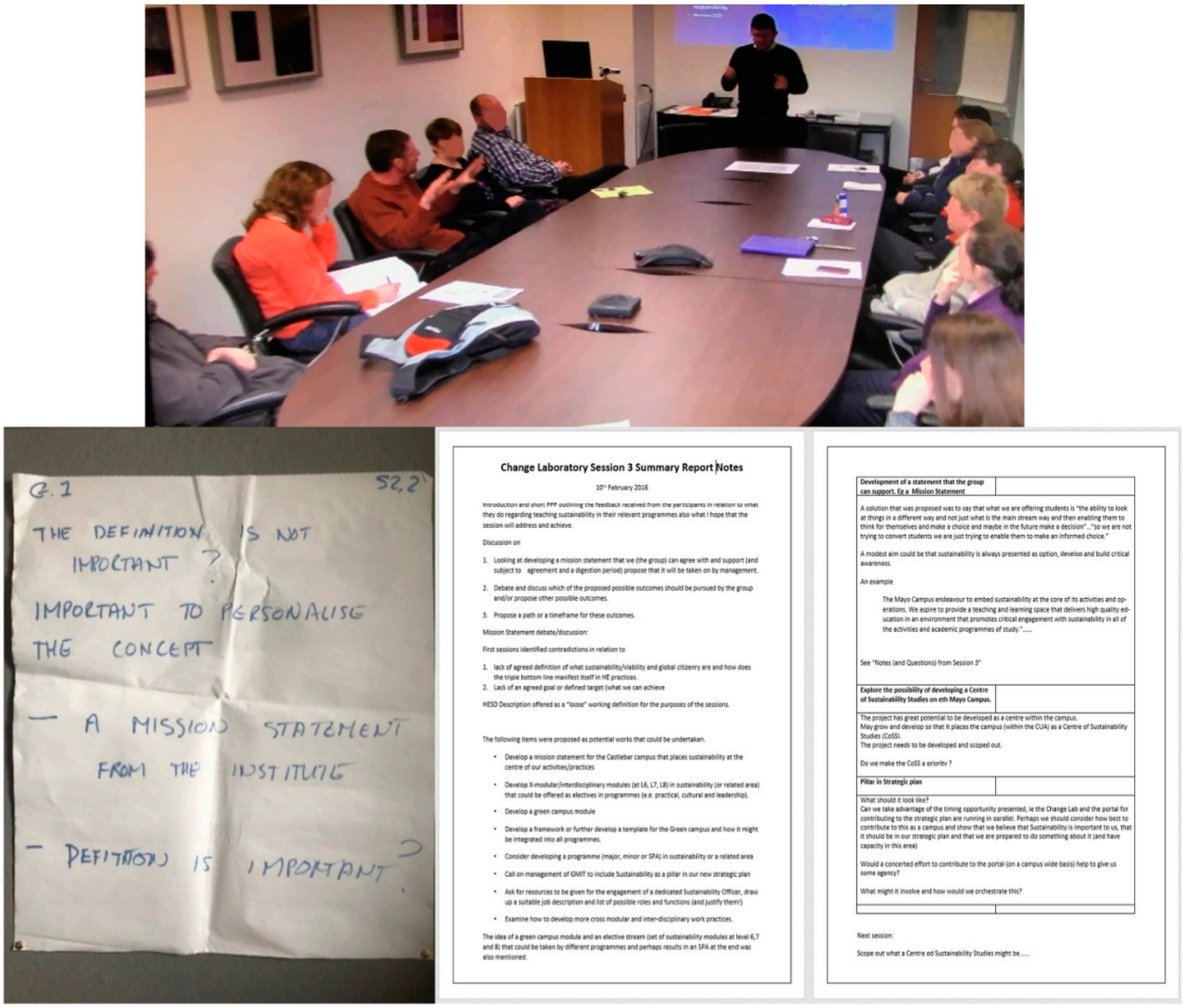


Figure 2. Sample of dataset showing examples of workshop video footage (frame grab from first camera, with second camera visible on lectern next to monitor), flip-chart materials, and project minutes.

To accomplish the post-intervention analysis in a manner consistent with the above precepts, we undertook our work using a Dialectic Thematic Analysis approach [64], which we conducted in the following stages:

1. Exploring the conceptual products of the research intervention. To undertake this work, we considered the entire dataset from all data sources on an initial pass, although, in practice, the workshop minutes and semi-structured interview transcripts were particularly useful in establishing the most important concepts. Our work at this point took the form of deductive qualitative analysis (DQA) [65], sensitised by the concept of *objectification*, which was discussed as part of our theoretical framework (Section 3.4). To be regarded as a conceptual product, we did not regard it as sufficient for an idea (abstract projection) to be discussed in speech turns alone. Instead, participants must have attempted to draw together a material artefact to represent the projection in a way intended to be sufficiently comprehensive, stable and intelligible for their own later use and/or for use by others. As Section 5 will make clear, this work identified four such conceptual products.
2. Tracing the evidence for conceptual development across the project. To undertake this work, we explored the data from the workshops, and, in particular, the video recordings, transcripts, flipchart materials, and minutes. Once again, our work at this stage used a DQA approach, but this time sensitised by the four conceptual products we had already identified. We mapped the evidence for each of these concepts being developed longitudinally through the successive workshops. As Section 5 will make clear, this process led us to conclude that conceptual development had been distributed across all workshops, but in a way that was highly uneven between the different concepts. The development of one concept had been addressed in 7 of the 8 workshops; two had been developed in four each; and one had been worked on in only three workshops. It was at this point that we decided to focus on the CSS for the subsequent analysis.
3. Bounding the conceptual development of the CSS within the dataset. Having decided to focus on the CSS, we wished to conduct an in-depth analysis of that subset of our data which addressed this concept. Doing so involved using the DQA approach to highlight the relevant subset of data. This was an active and careful process, since actions which might appear irrelevant to the CSS in isolation could be identified as important in the context of prior or subsequent actions, thereby necessitating a process of traversing backwards and forwards between the data from different workshops.
4. Delineating the stages of development of the CSS. At this stage, we used the DQA approach on our bounded dataset, sensitised by the full range of constructs in our theoretical framework as summarised in Figure 1. As Section 5 will make clear, we were able to identify four stages of development which were important in the development of the CSS, and to assign data to the different types of actions our model suggests may be present at each stage.
5. Naming and describing the actions comprising each stage of development of the CSS. Undertaking this work was a largely inductive process undertaken for those chunks of data which had already been closely delineated at the previous point in our analysis—an analytical approach sometimes called the modular method [64]. Undertaking this work allowed us to qualitatively categorise and describe the actions of conceptual development that we later present in Sections 5.1–5.4. For instance, it allowed us to understand that there were three key actions undertaken by participants which involved *consideration* within the first stage of development: participants identifying aspects of their own teaching practices, highlighting that some important campus activities were not related to teaching, and noticing that existing sustainability activities

were 'piecemeal'. A long chain of 32 such actions in the conceptual development of the CSS is synthesised and categorised in Section 6.

The above work was carried out by the authors in a collaborative process, in which the work at each point was discussed critically and next steps considered, in regular online meetings over a period of around six months. Our approach aimed to avoid interpretive bias by triangulating between different sources of data, by being explicit about which concepts were guiding our analysis, by maintaining detailed records of the analysis process within spreadsheets, and through discussions between the two members of the research team (cf. [66]).

Our findings below summarise an account of conceptual development throughout the project. To accomplish this, we analyse our data using the theoretical framework set out in Section 3.4 and structure the account to consider how this conceptual development occurred as the project proceeded through successive workshops. Doing so builds on our previously published analysis of how transformative agency emerged across this same project [13], where we identified and analysed five "turning points" in that agency occurring in Workshops 1, 2, 3, 5, and 8 (p. 115).

4.6. Ethics

Our approach to research ethics in this project aimed to be both relational and reflexive, an approach used for other comparable projects [67]. We drew inspiration from the work of Nodder [68], who usefully highlights the importance of explaining the ethos and arrangements of the Change Laboratory methodology to participants, from the beginning, in a respectful, open, and professionally appropriate way. We were also mindful of the analysis of Nuttall [69], who draws attention to complex issues, such as agency, relationality, and decision-making, which arise across the process of Change Laboratory projects. Our approach at all times was to attempt to be open about the purpose and process of the project, and to display a nuanced understanding of the unanticipated ethical dilemmas which might arise. While this approach involved regularly reiterating the ethical approach we aimed to use, it did not involve claiming to be 'neutral' about the project's processes or outcomes. As Virkkunen and Newnham [37] make clear, those undertaking a Change Laboratory project are interventionist researchers who combine a range of project management and administrative roles with those of being a participant in the project itself. Such a stance is entirely conversant with the "activist" approach, which has been associated with activity theory research over many decades [70].

In terms of institutional approval, this study was approved by the University Research Ethics Committee (UREC) of Lancaster University (date of approval: 16 December 2015, approval code UREC-15-12-16-DK1). The approach we took to documenting the project was consistent with that suggested by Yardley [71].

5. Findings

The analysis we present in this section addresses the research question set out at the start of this paper: What is the potential for conceptual development to occur, as a process, during a higher education sustainability initiative?

Our focus on addressing this question leads us, in this section, to trace the development of the concept that eventually became known as the Campus Sustainability Statement (CSS). We focus on this strand of work from within the wider project because doing so allows us to challenge many preconceptions in the literature about the status of sustainability-related concepts; because it emphasises the centrality of conceptual development to change processes; and because this particular concept has had a substantial impact on local campus practice subsequently. In what follows, we trace this conceptual strand through the various

stages of development evident in the empirical data. We use the framework outlined above to structure our exposition, with each evident return to a conflict of motives in the data taken as indicating the commencement of a new stage.

It should be emphasised, as a precursor, that *several* new concepts were developed during the broader research intervention, with the strand of conceptual development we trace in this paper interwoven with several others. The four main concepts that arose from the project are as follows:

- *Campus Sustainability Statement* (hereafter 'CSS'; the core focus of this paper): A statement of purpose for the specific campus on which the work was carried out, eventually objectified in a plaque on public display;
- *Centre for the Study of Sustainability*: A research centre on the campus, which would serve as an interdisciplinary hub for work related to sustainability from across the institution;
- *Sustainability paragraphs*: A mechanism for embedding issues of sustainability into existing academic programmes, across all disciplines and areas of study (whether or not those programmes are 'obviously' related to sustainability concerns);
- *Interdisciplinary programmes*: New programmes of study explicitly focused on sustainability, leveraging existing campus interdisciplinary expertise and enthusiasm.

Table 2 illustrates how these four strands of conceptual work are manifest in the recorded and transcribed data from the eight workshops that formed the backbone of the research intervention; the table focuses on identifying qualitative developments in relation to each concept, rather than quantifying the amount of time each issue was discussed.

It can be seen from Table 2 that the *name* "Campus Sustainability Statement" was only put forward in Workshop 5, yet that development built on an underlying thread of conceptual development which had, by that time, been underway for several workshops. Furthermore, the circumstance that gave rise to participants' recognition of the need for a "shared framework" arose in the very first workshop. From Workshop 2 onwards, such "framework" issues were discussed in every session, accounting for 23.7% of the time spent on speaking turns in Workshops 2–8. Apart from in Workshop 7 (when participants' discussion of the issue mainly concerned waiting for feedback from a wider array of stakeholders), qualitative conceptual development for this strand can be discerned in the transcript for every workshop.

Table 2 also highlights the possibility of different strands of conceptual work influencing each other. For example, the groundwork for the concept of a *Centre for the Study of Sustainability* proceeded from a contention, in Workshop 2, that *this campus* already had a strong ethos of sustainability, which could be further leveraged by positioning those on the campus as leading discussions on the issue within the wider institution. Subsequently, in Workshop 3, it was suggested that the "shared framework" that had previously been discussed might be oriented towards *this campus* specifically. While the dataset contains no direct acknowledgement by participants of links between these two specific points of discussion, we do wish to highlight in our account, to the extent that this is possible, the ongoing parallels between different conceptual strands of work.

In what follows, we trace the development of the CSS concept through four stages of development, drawing on the framework set out in Section 3.4. In each case, we denote the stage based on the *abstract projection*, the simple idea being put forward, because it was this aspect about which participants pivoted their discussion. These abstract projections are concerned, in turn, with a purposeful definition of sustainability, identifying a shared framework, a mission statement, and a Campus Sustainability Statement.

Table 2. Key stages of concept development during the research intervention.

	Workshop							
Concept	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Campus Sustainability Statement	Discussing definition of 'sustainability'.	Identifying shared framework.	Mission statement framed specifically for the campus.		From mission statement to Campus Sustainability Statement.			Wording adjusted to express concept.
	Exploring meaning of 'sustainability' in relation to own practices.	Mission statement concept suggested as alternative to definition.	Wordings proposed, reviewed and revised.		Draft wording agreed and issued to all staff for comment and feedback.			(Statement adopted at subsequent all-staff meeting.)
Centre for the Study of Sustainability		Suggestion of sustainability as central focus of this campus within institution.		Sub-committee formed to work on proposal for study centre			Discussing sub-committee proposal. To be presented to Governing Body.	Discussing that formal feasibility study has been approved.
Sustainability paragraphs				Need to highlight sustainability across programmes. Paragraphs suggested to highlight 'linkages'.	Discussing and developing example paragraphs.		Five programmes have agreed to use sustainability paragraphs.	Five programmes have a definite paragraph. How to ensure that all include one?
Interdisciplinary programmes			Need for developing a sustainability-focussed programme.			Sub-committee formed to investigate potential for programme development		Sub-committee to look at interdisciplinary potential of modules.

5.1. A Purposeful Definition of 'Sustainability'

This first stage of conceptual development coincided with Workshop 1. The design of this workshop aimed to involve participants in expansive learning actions of *questioning* [12] (pp. 118–122). Specific tasks asked participants to discuss their opinions about sustainability in higher education, their existing practices and personal passions related to the topic, and their feelings about how sustainability was currently being addressed within the institution.

At this stage, a *conflict of motives* centred on the issue of 'clarity of definition' led to an *abstract projection* based on re-defining the term 'sustainability' in a purposeful way, based on a 'social and cultural' framing of the term within existing teaching activities. Subsequent *consideration* highlighted the overall fragmentation of the existing activities related to sustainability, leading to the conclusion that the abstract projection was insufficient for challenging that fragmentation. Participants did not reach so far as *embedding* or *objectification* at this stage.

5.1.1. Conflict of Motives

The initial *conflict of motives* driving this first stage of development was concerned with the need for conceptual clarity. One motive was to establish a clear definition and thereby provide a firmer footing for the project, while the other was to avoid excluding some campus practices (and some participants) from the process.

One participant exposed this conflict very quickly, at the start of Workshop 1, by posing the following question:

> P16: Are we all starting with a common definition of sustainability?

The participant suggested that, in order to make progress and develop coherent plans, it was necessary to have a common starting point. The researcher interventionist tried (unsuccessfully) to assist this discussion by drawing attention to some specific resources made available within the workshop materials. Those materials referred, in particular, to a widely used definition, based on the work of the United Nations Brundtland Commission [72], of the related term *sustainable development*:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

This contribution, contrary to the researcher interventionist's expectation, failed to resolve the query. The Brundtland definition was considered insufficiently 'clear' as a starting point for a specific project of institutional change, and participants strove for alternatives.

Subsequent contributions emphasised that 'sustainability' has different meanings in different disciplines. One participant (P16) highlighted that, in business settings, the word often refers to the question of whether a business will be in existence at some point in the future, whereas a more holistic view might question the nature of the future itself. The researcher interventionist suggested that the narrower (business) definition be referred to as "viability", which was accepted by participants. Yet establishing this distinction provoked an acknowledgement that more "ambitious" discussions of sustainability were often associated with specifically *environmental* issues, and that adopting such a perspective might run the risk of the initiative being seen as irrelevant for some disciplines (or by some practitioners from those disciplines) within the institution.

Participants acknowledged that this issue was difficult to resolve and that the discussion had developed a repetitive character. The dominant view in the group, at this point, was that it was important to have a definition that could support collaboration. That was considered difficult to achieve because narrower definitions (including environmental ones) might be perceived as irrelevant by some stakeholders, while broader definitions might

effectively sidestep the issue and restrict the development of what one participant called "shared goals or visions".

This *conflict of motives* eventually reached a (temporary) resolution, after one participant suggested that the focus should be on the *purpose* of the definition adopted:

> P13: I am not keen on taking the idea of sustainability as a box-ticking exercise, in order to achieve targets and look good and all the rest of it. I think you need to have a deeper purpose beyond that to make a contribution.

5.1.2. Abstract Projection

The *abstract projection* put forward at this stage of development was an attempt to encapsulate purpose and passion. The word 'sustainability' was taken as projecting a useful idea, *if* it could be imbued with a specific meaning understood by those involved, as related to their teaching work.

That specific meaning was, in turn, generally framed in 'cultural' or 'social' terms by the participants:

> P13: In terms of applying it to myself, I am aligned with environmental sustainability. And there are things I teach specifically such as the idea of cultural sustainability—traditions and crafts and the importance of built heritage—and I think there are a lot of lessons to be learned from the past in terms of understanding sustainability too.

> P6: I suppose the passion I would have is, I just think the universe is so absolutely incredible, so I teach on community and sustainability. We take the three strands 'environment', 'economic', and 'community', and I really think that if we were looking at the programme as a whole, a lot of it is around compassion rather than passion, and I think that is very much the social element, or the 'community' element. And we try to include that in the whole programme.

In the above transcript extract, it can be seen that P13's initial statement concerning their personal views is subsequently modified by their discussion of what they *teach*. That focus on teaching is then taken up and generalised in the subsequent contribution.

This *abstract projection* was highly tentative. Yet, participants were eager to explore its potential for mediating their *conflict of motives*. (The researcher interventionist speculated in their workshop notes whether this eagerness was perhaps because participants had been frustrated by the sense of repetition in their earlier discussion).

5.1.3. Consideration

Participants quickly engaged in *consideration* using this new *abstract projection*. The idea of applying a 'cultural' or 'social' understanding of sustainability was considered in relation to the *conflict of motives* around conceptual clarity. Doing so, in practice, involved highlighting a range of existing activities and practices that the project would need to engage with, and examining how this understanding of sustainability could be related to them.

This process of *consideration* initially involved many participants identifying sustainability-related aspects of *their own* existing activities. Examples articulated included 'environmental awareness' components in a programme on outdoor education, 'theories of sustainable development' in a heritage programme, and 'sustainable building technologies' in a construction programme. One participant commented the following:

> P16: I teach on operations management. In a case study we were looking at the implications of the supply chain in the fashion industry, on both the environment and on climate change.

Participants also referred to other existing initiatives that were not directly concerned with teaching. For example, there had recently been an implementation of a printer cartridge scheme; the institution's estates office had discontinued the use of artificial pesticides; and the campus had been the first in Ireland to achieve a "Green Flag" award. A number of participants referred to the work of the "Green Campus group", who were responsible for a number of these latter initiatives (as noted in Section 4.2, some participants were also members of that group).

Yet this discussion, while positive for a time, quickly reached obvious limits. Participants noticed that much of the teaching activity they had identified was being performed on a piecemeal basis—"by individuals"—rather than being generated by a plan or supported by a structure. The Green Campus group, meanwhile, had pursued very specific actions, most of which were not really linked to specifically *educational* activities. Listing these activities had prompted participants to notice their practical fragmentation. The current *abstract projection*, however, was not helpful for addressing this situation.

Focusing on the word 'sustainability' and framing it in 'social' and 'cultural' terms had allowed participants to discuss and critique a range of current activities, but it did not help them understand how the present situation could be changed. In terms of expansive learning, this concept could mediate various actions of *questioning* and *analysis*, but was an inadequate basis for *modelling*.

The above *consideration* occurred in the later moments of Workshop 1, and the discussion had not been resolved when that workshop concluded. As detailed elsewhere [12,13], the researcher interventionist left Workshop 1 feeling that the proceedings had been difficult, and that a new basis would be required moving forward, starting from recognising the lack of a sustainability framework or policies in the institution. This early period of consideration was also consequential, as subsequent sections will highlight, in sensitising participants to the problematic and charged nature of 'definitions' for the project.

5.2. Identifying a Shared Framework

The next stage of conceptual development was largely bounded within Workshop 2. The design of this workshop aimed to involve participants in expansive learning actions of *questioning* and *analysis* [12] (pp. 123–128). Specific tasks asked participants to discuss how they would identify a 'sustainable campus'; suggest which aspects of sustainability should be brought to the fore on their campus site; and identify actual current levels of progress and barriers. Participants had access to various resources, including the flipchart sheets they developed in the previous workshop. Yet the overall aim was to encourage them to focus on an institutional object rather than on abstract definitions.

At this stage of development, the *abstract projection* of a shared framework was suggested as a way to mediate a *conflict of motives* concerned with incorporating sustainability into teaching. Subsequent *consideration* elaborated the potential for passivity in the framework approach, and the undue narrowness of a focus only on 'teaching'. Once again, this stage of development did not persevere to attempt either *embedding* or *objectification*.

5.2.1. Conflict of Motives

The *conflict of motives* driving this second stage of development was concerned with the challenge of incorporating sustainability into teaching. One motive was to ensure that sustainability was incorporated across all teaching activities in a coherent way, while the other was to avoid imposing a prescriptive definition of sustainability. Both motives were clearly informed by the outcomes from the preceding stage of conceptual development.

An early discussion in Workshop 2 reinforced the importance of incorporating sustainability into *all* programmes, rather than seeing it as relevant to only a particular subset

of disciplines offered by the institution. Revisiting this issue prompted participants to consider the difficulties associated with discussing sustainability in some disciplines. The following is an example:

> P7: That could end up leaving you with some tension between irreconcilable concepts, between trying to teach business students, for example, sustainability, and trying to teach them a certain type of economics, at the same time.

Contributions such as that provided by P7 were indicative that the drive towards *a purposive definition of sustainability* (Section 5.1) retained some degree of attraction, notwithstanding that the conversation was now oriented towards more specifically institutional matters. Yet other participants were keen to recall that this approach had been previously found to be unproductive. The following is an example:

> P1: We were saying that the definition of sustainability is not important. You would be reducing it by defining it in one sense, it's a very broad term.

5.2.2. Abstract Projection

The *abstract projection* put forward at this stage was an attempt at 'contextualising' different practices. The word 'framework' gained currency at this stage, sometimes paired with sustainability ('sustainability framework') but most often as a 'shared framework'. To some extent, this concept was a more 'pragmatic' variant of the previous *purposeful definition* approach, however, and some participants did persist in using the term 'definition' (as the quotation below illustrates).

The essence of this *abstract projection* was an attempt to develop a coherent approach across campus teaching activities. Yet the idea was not to provide a prescriptive definition. Instead, the priority was to allow practitioners to see how their activity, and its particular focus, with regard to sustainability, was situated *within* a wider context. One participant emphasised the following fairly early in Workshop 2:

> P15: I would certainly need some sort of definition of sustainability. Bigger than just what we see from a building construction aspect, because that is the only bit of it that I know. I'd like to see where that fits into the bigger picture.

As for the preceding stage of development, this abstract projection was highly tentative. Yet participants were motivated to explore how the idea could be made more concrete because it seemed to offer a way of addressing the focus on the campus as a whole:

> P15: When we talk about a sustainable campus, what do we mean? What are we looking for? What do we expect it to look like? And until we can articulate that then. . . [tails off]

5.2.3. Consideration

Participants subsequently engaged in *consideration* using this new *abstract projection*. The idea of applying a shared framework, which would contextualise specific foci within a "bigger picture" of sustainability, was considered in relation to the *conflict of motives* around incorporating sustainability into *all* campus teaching practices. Doing so quickly highlighted difficult problems, including the potential for passively receiving such a framework and, given that the university is a site for more than just 'teaching', its lack of applicability to all campus activities.

The most immediate issue that participants highlighted with this *abstract projection* was that it could serve a mainly descriptive role: to contextualise existing practice, rather than challenging it. Indeed, it might even serve to provide a vocabulary to justify the status quo. It was felt important, however, that "lecturers" should have more than a passive role in embedding sustainability into their practice and should also be actively encouraging

their students to think critically about related issues. One participant framed such concerns in the following way:

> P13: We talked about interacting with the outside world and integrating the campus as a community. In a sustainable campus it should work critically with the outside world, and it should look critically at itself and what it does—transport, diversity, biodiversity. . . [tails off]

Soon afterwards, another participant affirmed this point in a more specific way:

> P2: In an institute of technology, technology should be a driver for making stuff more sustainable. We talk about the paperless office, but we don't really strive toward that. We still photocopy and use paper a lot. Technology should be explored more and used as a driving force for sustainability. [. . .] Lecturers should be getting students to think more critically and alternatively in relation to sustainability.

In further discussion, the group reached a consensus that any framework would need to be something that would become personalised and made relevant to one's own practices in the institution, as well as helping to contextualise that practice. This discussion served briefly to reignite the preceding debates about the role of prescriptive definitions in the project.

The other key issue raised in *consideration* of this abstract projection was that a focus on 'teaching' was problematic. While participants wanted to retain the broader *educational* focus of this project (and they acknowledged once again the existing work of the "Green Campus group", focused on issues such as recycling bins and campus pesticide use), it was felt that the group was in danger of defining its remit too narrowly. One participant commented the following:

> P13: Students learn from the totality of their experience, it's not just from the curriculum, and so it's not what they learn in class here, it's also the whole experience they have here.

Another contribution to the *consideration* of a shared framework came in the form of suggesting a better alternative. One participant, reporting back from some small group work, used the phrase "mission statement" for the first time in the project, in the following way:

> P5: We felt that there should be a mission statement. It would be useful in that it would provide a framework, by which we are the individuals that drive it, and you are open to interpret that mission in terms of your own practices.

The perceived advantage of a mission statement, at this stage, was that it could encourage individuals to interpret sustainability while still avoiding being prescriptive. For a short period of time, the discussion positioned a mission statement as a form taken by the shared framework idea. Subsequently, however, given its apparent potential and the nature of the other problems identified, the idea of a mission statement became a core focus of the project in its own right.

5.3. A Mission Statement

The next stage of conceptual development was evident in the actions from across Workshops 3 and 4.

The design of these workshops aimed to involve participants in expansive learning actions of *analysis* and *modelling* [12] (pp. 129–138). Specific tasks in Workshop 3 asked participants to cluster and prioritise the widely varied issues raised in the previous workshop, and to formulate a framework they would be willing to take to management for support. Those in Workshop 4 focused on the title and wording of the emerging "mission

statement" idea; elaborating a previous proposal for a Centre of Sustainability Studies; developing interdisciplinary modules; and engaging with institutional strategy to ensure that sustainability became a 'pillar' of institutional activity, rather than an 'add-on'.

At this stage, an *abstract projection*, an idea for a mission statement focused on what the institution could offer to students, was worked up as a way of mediating a *conflict of motives* concerned with communicating content with genuine meaning. Subsequent *consideration* affirmed that the idea accurately reflected differing views (including among teaching staff), conveyed something achievable, and could guide real decisions. Actions of *embedding* involved proposing forms of wording, which highlighted the need to offer a simple promise to students, ensure relevance to all campus operations, and find synergy with existing initiatives. This stage of development reached as far as *objectification*, since three wording options were "put on the table" for subsequent discussion.

5.3.1. Conflict of Motives

The *conflict of motives* driving this third stage of development was concerned with the challenge of communicating content with genuine meaning. One motive was to put forward something with genuine meaning, while the other was to support clear communication.

Some aspects of this conflict were expressed as an immediate reaction against the very idea of a 'mission statement':

> P7: This is the kind of corporate stuff that has been popular for the last 15 years, "mission statements". The question is, what actual function do they serve? Are they emblems that one presents to the public as a statement of virtue? But whether that actually means anything, that's an entirely different thing.

For several subsequent turns of speech, other participants attempted to explore the potentially positive role of a mission statement, while P7 responded in each case by noticing more cautionary implications. With regard to the issue of 'genuine meaning', for example, P7 offered the following observation:

> P7: This causes a problem, because if we are going to have conceptual clarity, we either have a concept of sustainability so tame and so co-opted that Donald Trump will agree with it. Or we have a concept of sustainability that is so subversive and unsettling to the status quo, that it is very troubling, and it renders our capacity to continue doing and the way we do it disabled.

Exploring this conflict of motives not only took the form of putting forward different viewpoints, however. Because it was becoming clear in the discussion that members of the group had different views, P7 also offered some observations about how such conflicts are often resolved in a negative way:

> P7: There are the two polarities, the natural thing in group dynamics is that we move somewhere into the middle, so we end up with a bit of a thing that's a little bit dangerous and a little okay, and then it's a mission statement, and then we've done the mission statement, and we say we are committed to sustainability, and we all feel virtuous, and we have a virtuous statement, but it's not actually transformative at a radical level.

5.3.2. Abstract Projection

The *abstract projection* put forward at this stage was an attempt to focus the mission statement idea on what the participants thought the institution could realistically offer to students, rather than on the participants' own individual opinions or beliefs. More specifically, the focus was on offering students the ability to look at issues in a different way. This *abstract projection*, once put forward, generated much discussion, suggesting it coincided

with what we have elsewhere identified [13] as a 'turning point' in the transformative agency of the group. The basic idea was a germ cell for the future conceptual development of the project.

The abstract projection was initially posed by one participant as a response to the challenge of 'group dynamics' identified by P7 (see Section 5.3.1):

> P18: I am not a fan of mission statements, but it might be something that might focus the group. But the other side of it is, instead of saying we are on one extreme or the other... [pauses]. It's just to say that what we are offering students, is the ability to look at things in a different way, and not just in what could be the mainstream way, but enabling them to think for themselves and make a choice, and maybe in the future, make a decision. So we are not, like, trying to convert them to one way or the other, but enabling people to make an informed choice.

One early indication that this idea had some traction in the discussion was that P7, who had commented so actively on the attendant *conflict of motives*, responded positively to the suggestion:

> P7: I agree with that. What is good about that, is that it is more realistic. It's actually more accurately saying what we would do. It's not making a claim that we are going to be sustainable, that we are going to commit ourselves to sustainability education. We are not. But we could do that, it's more realistic and more modest. I suppose this is as good as it gets.

5.3.3. Consideration

Participants' subsequent engagement in *consideration* using this new *abstract projection* involved exploring how a mission statement focused on offering students the opportunity to think in a different way might address the *conflict of motives* concerned with communicating genuine meaning. Doing so had, at this stage, a more positive character than in the previous stages. In particular, participants noted that this *abstract projection* accurately reflected differing views among teachers and students; did not appear to promise actions that could not be achieved; and yet could guide decision-making rather than simply justifying the *status quo*.

One theme of *consideration* affirmed the genuine way in which the abstract projection *accurately reflected differing views among teachers and students*. It was emphasised that not only students but also the teaching staff of the institution had such heterogeneous views. Notwithstanding this variety of personal beliefs, the broad consensus was that, as a teaching institution, there is an inherent responsibility to present alternative views and thus to promote critical engagement; the latter being quite distinct from any attempt to impose a definite worldview. The following is an example:

> P18: That is the way it is though, there are different beliefs among the lecturing staff. You are going to be informing people about different things in different ways. By doing that, you are enabling people to make their own decision about what their beliefs are. But you have to give them opposite views, and a variety of views, in order for them to be able to make an informed decision.

A second theme of *consideration* noted positively that the discussed idea *did not appear to promise actions that could not be achieved*. The participants expressed, in this regard, the importance of being honest and realistic. As the contribution below highlights, it was understood that being "modest" comes with certain risks, but these were not seen to invalidate the *abstract projection*:

> P7: We should be quite rigorous about our concepts and make sure that they are meaningful. Now, I think a modest one [mission statement] makes perfect sense

> to me. Instead of a big mission we have a tiny little mission, with a really modest claim. Our claim is modest, but the mission is a dramatic concept. Another contradiction, but it can also be a signal of aspiration.

Consideration at this stage also involved exploring how the *abstract projection* could *guide decision-making rather than simply justifying the status quo*. Doing so involved reprising the theme of passivity from consideration of the previous framework idea (see Section 5.2.3). Yet, where the previous framework's focus (on contextualisation) was seen as permitting such passivity, by contrast, the focus of this mission statement on offering different perspectives to students was seen as offering a common purpose:

> P16: Whatever it is, it has to be meaningful, and guide decision making and guide what we do, in the sense that values guide the decisions we make. But it does mean, as well, that it's more than just a sense making of what we do here. There will be some difficult decisions, and things won't fit neatly. If we got a common purpose that we could agree on—forget if it was a mission, or a goal, or whatever it is, if it was just a common purpose.

5.3.4. Embedding

This third stage of development was the first to engage in that aspect of conceptual development we call *embedding*. Such *embedding* involves participants exploring how their *abstract projection* relates to actual activity, rather than merely their initial *conflict of motives*. At this point, doing so involved proposing wording for the mission statement and exploring the potential consequences. We consider this initial proposal of wording to constitute *embedding*, rather than *objectification*, because it was put forward to stimulate discussion, rather than with any intention of stability or longevity.

Both the wording and exploration we elaborate in this section remained hypothetical, encapsulated in the workshops, rather than guiding action elsewhere in the institution. Participants anticipated embedding this mission statement in more practical ways, but that did not eventually happen at this stage of development. Actions of embedding at this stage were oriented towards goals of offering a single promise to students, anticipating staff support and resistance, making the mission statement relevant to all campus operations, and finding synergy with existing Green Campus initiatives.

One theme of embedding was related to offering a *simple promise to students*. That discussion commenced when one participant verbally suggested a hypothetical form of wording for the mission statement:

> P7: "All our students will critically engage with sustainability in their programme of study"? Achievable, modest, but radical.

For the moment, this suggestion was received positively. One participant highlighted that the word "will" suggested a "promissory tone"—yet this was considered to be acceptable, because the 'promise' was aligned with participants' beliefs and could be plausibly achieved. Another participant affirmed that the focus should indeed be on "programmes" of study rather than individual modules, stating the latter would have made the promise less plausible, it was suggested, since not all members of the teaching staff would feel compelled to engage.

A second theme related to *staff support and resistance*. While the broader aim was to provide a tool to drive an institutional sustainability agenda and critique ongoing actions, for this to be effective, the mission statement would first need to gain traction. Participants suggested that the mission statement would be less likely to meet resistance at the level of programme boards if staff found it reasonable and straightforward, and if they did not perceive it to be forcing an "ideology". Thus, it was felt that the key was to keep

any mission statement general, as well as simple. This thread of discussion, it should be noted, involved participants relating this strand of conceptual development with that on the developing notion of *sustainability paragraphs* (see Table 1).

A third theme concerned the necessity of *making the mission statement relevant to all campus operations*. One participant recalled an earlier discussion (Section 5.2.2), which had established that students experience education holistically. It was suggested, as a consequence, that the mission statement should be amended to emphasise consistency between "what is taught in the classroom and what is done on the ground in the institution". As a consequence, a "second line" for the statement was suggested, as follows:

> P10: There's just one question I might ask. Do we need a second line, not to do with our programme, but to do with our processes? I just think maybe is it something to do with our... [pauses] that we should kind of be pushing our processes as well as, around how we run things, or is that something we want to engage in or introduce into this?

Another theme of *embedding* was related to *finding synergy with existing Green Campus initiatives*. Those initiatives were acknowledged as an important underpinning for existing sustainability activities being carried out on campus. Considering the current direction of development, two workshop participants who were also members of the Green Campus working group agreed that some synergies could probably be found. One participant felt that the development and adoption of a mission statement might encourage the wider institution to follow the campus's lead and pursue a strategy of obtaining green flags (which relate to priorities such as reducing energy usage and waste) at its other institutional sites. The forms that this synergy would take remained somewhat abstract by the end of the workshop, however.

5.3.5. Objectification

Subsequently, this stage of development involved some action of *objectification*: participants put together a material artefact, which attempted to capture some aspect of their emerging concept, for later use. Doing so, in this case, involved putting forward a number of wording options.

The idea of having a mission statement for the campus had, by the end of Workshop 4, been developed quite considerably and gained traction within the group. Yet, while previous discussion had set out a basic idea, the content of the mission statement was still understood in only a fairly abstract way. Participants had (as set out in Section 5.3.4) put forward fragmentary formulations to stimulate discussion, but the group had decided on nothing intended to be permanent. Cognisant of the impending end of the workshop, participants decided to put forward three *wording options* which represented the existing threads of discussion while these were fresh in their minds. The aim was to return to consider these options in more detail in the subsequent workshop.

The three options which were considered to be "on the table" (a phrase used in the workshop by several participants) were as follows:

1. "The Mayo Campus endeavours to embed sustainability into the core of its activities and operation. We aspire to provide a teaching and learning space that delivers quality higher education that promotes critical engagement with sustainability".
2. "We aspire to provide a teaching and learning space that promotes critical engagement with sustainability".
3. "The Mayo Campus endeavours to embed sustainability into the core of its activities and operations. We aspire to provide a teaching and learning space that promotes critical engagement with sustainability".

5.4. A Campus Sustainability Statement

The next stage of conceptual development was evident within the actions from Workshops 5, 6, and 8, and continued for a period after the final workshop. Beforehand, there was a gap of three weeks between Workshops 4 and 5, with participants asked to reflect during this time on the three wording options that had been put forward. The designs of Workshops 5 and 6 were closely interrelated; the overall aim was to involve participants in expansive learning actions of *examination* [12] (pp. 139–145). Specific tasks asked participants to consider relationships between the underlying purposes of the project and the four core ideas being worked up (see Table 2), including the mission statement, and to propose and map out concrete future steps by which the models could be further developed and implemented within the institution. The design of Workshop 8—the final workshop—aimed to involve participants in actions of *process reflection* and *consolidation*, with specific tasks asking participants to reflect on the artefacts being put forward in light of the group's motivations for working on the project.

At this stage, an *abstract projection*, a Campus Sustainability Statement (CSS), was put forward as a way of mediating a *conflict of motives* concerned with communicating at the correct institutional 'level' while retaining a firm focus on sustainability. *Consideration* at this stage involved re-visiting the previous wording options; relating the CSS to existing policy priorities; inviting ownership by a wider layer of stakeholders outside the project; and informally canvassing campus management. Actions of *embedding* consisted of attempting, with limited success, to obtain meaningful input from a wider array of stakeholders. *Objectification* involved making some specific final amendments to the wording of the CSS, taking the CSS for approval at a staff meeting, and eventually embedding it in a wooden plaque for public display, which was unveiled at a public launch event.

5.4.1. Conflict of Motives

The *conflict of motives* driving this fourth stage of development was concerned with the challenge of communicating clearly about sustainability within the institutional structure. One motive was to put forward an artefact that clearly prioritised sustainability as a distinct issue, while the other was to frame communication at the correct 'level' within the institution.

The motive to *frame communication at the correct 'level'* arose because of concerns about whether the proposed mission statement would really achieve the underlying purposes of the project. A number of participants mentioned that they had already been through the process of formulating mission statements in the institution before, in relation to other institutional development activities, and said that they had not experienced doing so as an effective process or outcome. One participant noted the following:

> P1: I've gone through about five mission statements for this college at this stage. They've been put through, you know. . . [tails off]. We have a mission statement appearing and then life goes on as normal.

This and similar observations served to undermine the group's previous confidence in the previous *abstract projection* of a mission statement. Participants had spent considerable time in previous workshops discussing their idea for a mission statement, and yet, before this point, nobody had previously thought to mention that *other* mission statements existed in the institution. That was taken as evidence, in itself, that mission statements typically failed to capture the attention of institutional stakeholders. Participants also began to question how the mission statement they were in the midst of developing would relate to other, existing mission statements, and whether it was appropriate to develop their own mission statement for one specific campus, when existing mission statements were invariably framed at the level of the *institution*. As a consequence, some participants voiced

views that the mission statement needed to be developed in some way that would make clear its place in the context of the existing strategy of the institution, with explicit reference to the "strategic thematic areas" which were assigned to this specific campus within that strategy. Others suggested different names for the statement that could adequately convey the 'level' within the institution that was being aimed for (for instance, by using the word "charter" as something that would convey a more limited focus on the specific campus).

The motive to *put forward an artefact that clearly prioritised sustainability* arose out of these exchanges about framing communication, but soon developed into a distinct theme within the discussion. The focus on framing the mission statement in different ways to adapt to the structures of the institution reminded some participants of concerns, expressed in previous workshops (see Section 5.3.1), that mission statements were inherently a corporate tool. One participant stated their objections, and another continued the same chain of thought in the following way:

> P2: To be honest I think it's kind of a red herring, the whole "mission statement", "charter", you know. Let's put a working title on it. And if the big wigs, those who are further on up, decide that it's not what we call that then . . . [tails off]. It needs to be a vision of sustainability.
>
> P1: A "sustainability statement"?

This theme within the conversation developed around this basic point. It was felt that the artefacts being produced by the project should clearly address *sustainability* and that the group should avoid becoming sidetracked or diluting the focus by engaging with other issues.

5.4.2. Abstract Projection

The *abstract projection* put forward at this stage was an apparently modest amendment of that transmitted from the previous stage of development: the reframing of the *name* of the concept from a "mission statement" to a "Campus Sustainability Statement". In doing so, participants were affirming that their priority remained a focus on the *campus*, rather than the institution as a whole, even if this meant that they should abandon the name "mission statement" to avoid conflict with the wider institutional constellation of artefacts. This new abstract projection also aimed to be what P2, above, had called "a vision of sustainability", rather than an artefact that could be misconstrued as encompassing a wider range of issues. One participant voiced both of these priorities in the following way:

> P17: I'm happy to go with "sustainability statement for the Mayo campus", I mean, that's fairly firm.

This proposal received broad agreement from within the group, and, from this point forward, participants referred variously to a "sustainability statement" and "sustainability statement for the campus" before the formulation "campus sustainability statement" came gradually into common use.

5.4.3. Consideration

Participants' *consideration* using this new *abstract projection* involved exploring how a Campus Sustainability Statement, which focused specifically on sustainability issues and on one particular campus, might address the *conflict of motives* concerned with communicating clearly about sustainability within the institutional structure. Doing so had, at this stage, a more exploratory character than the previous stages: participants were comfortable with what was being proposed but understood that taking their idea forward would need to be handled with care. In particular, this consideration involved participants in reconsidering the wording options that had previously been tabled, relating the abstrac-

tion to existing policy priorities, discussing how to invite ownership by a wider layer of campus stakeholders (outside the project group), and informally gauging the views of the campus management.

One theme of this *consideration* concerned *reconsidering the wording options* that had previously been put forward (Section 5.3.5). Participants' move from a 'mission statement' to a 'Campus Sustainability Statement' did not immediately involve them in developing new wording but instead led them to re-examine their prior work from Workshop 4. The group's recent decision to focus distinctively on the campus and on sustainability issues served, in the event, to make one of those previous options seem preferable. Wording option 1 referred to constructs, such as "quality higher education", which were felt to be in danger of addressing unrelated matters, while wording option 2 did not refer specifically to the campus. Thus, by a process of elimination, the group came to favour wording option 3. Yet, as elaborated below, these discussions were not seen as conclusively deciding the issue.

A second theme of *consideration* at this stage concerned *relating the abstraction to existing policy priorities*. The underlying issue was that the campus already had a specific position within the institutional policy landscape; for example, it was positioned as leading the institution's work on specific "strategic thematic areas". The argument was that the Campus Sustainability Statement could be formulated in such a way that it referred explicitly to these areas. This thread of conversation had a fairly minor eventual impact on the direction of the discussion; it was mentioned in a few isolated turns of speech by the same few participants before being replaced in the discussion by the themes described below.

A third theme of this *consideration* concerned the need for *inviting ownership by campus stakeholders*. Initial recruitment to the Change Laboratory project had been fairly open, and many participants were involved in ongoing campus discussions with other stakeholders. Nonetheless, participants were aware that the Campus Sustainability Statement had, thus far, been developed by themselves and had not involved all stakeholders. The idea to engage wider layers of stakeholders, and the necessity for doing so, were discussed in the following way:

> P12: So, I'm thinking of the people outside of this group here, and how we can engage them more. So, if we had any ideas of how to engage people outside of this group. Ensure that there are opportunities for buy in for people that are outside of this group as well.

> P4: If someone turns up [at a staff meeting] then and says, "well, that's only from one small faction, I'm not in favour of this so why not. . . I don't think we should adopt this", and that gets carried. Back to stage one then.

Subsequently, this thread of conversation was taken as the basis for particular actions of embedding, as elaborated below in Section 5.4.4.

Consideration at this stage also involved *informally exploring the views of management* about the various concepts that were being developed within the project. The parallel development of the concept for a *Centre for the Study of Sustainability* (see Table 2) was already necessitating ongoing discussion with management, outside the workshops, by members of the project. Now, the idea was expressed to "informally" gauge the likely reaction of management to the proposed content of the Campus Sustainability Statement.

5.4.4. Embedding

At this stage of development, the main actions of *embedding* were oriented towards obtaining input from a wider array of stakeholders. Doing so was motivated by a desire to go beyond participants' own conflicts of motives and to engage with the experiences and

activities of other campus stakeholders. In practice, such engagement was undertaken by requesting feedback from campus stakeholders by email.

Participants' prior consideration of their abstract projection had emphasised the issue of inviting ownership by campus stakeholders (see Section 5.4.3). Because the emerging concept was now to be a Campus Sustainability Statement, the main theme of embedding at this stage concerned *making the abstraction available to a wider set of campus stakeholders for comment and feedback*. One participant voiced that concern in the following way:

> P16: I'm suggesting that we have a way of sharing it with all staff, allowing them to contribute to it, and maybe just at the staff meeting closing it out as to. . . [tails off]. Well, what does this mean, what are we doing with it and are we going to take it forward?

The subsequent discussion briefly emphasised which stakeholders should be targeted when inviting comment and feedback. Overall, the group felt that "campus staff" should be the main target, because the Campus Sustainability Statement would challenge them to change their practices. Participants remained concerned about the potential for staff resistance, and also felt that staff might be best placed to offer new suggestions when expressing their resistance. The agreed course of action was that the researcher-interventionist would issue a brief email containing a short statement about the project's intentions, all three wording options, and an invitation to comment with a stipulated deadline. That action was taken by the first author shortly after Workshop 6.

Unfortunately, this action provoked neither the quality nor quantity of feedback that the group had hoped for. At the start of Workshop 7, the researcher interventionist reported that he had received a number of verbal comments (campus staff had certainly seen the email, because they brought it up in conversation when they saw him in corridors and the catering area), but only two email responses by the deadline. Furthermore, the feedback received, whether by email or verbally, expressed passive forms of support, rather than either resistance or new suggestions. While participants were relieved at the absence of active resistance, they were otherwise disappointed by the lack of engagement.

In Workshop 7, therefore, they turned their attention to the other strands of their work, only returning to reconsider the Campus Sustainability Statement again in Workshop 8.

5.4.5. Objectification

This stage of development—the last we consider in this paper—was finalised with some work of *objectification*. Participants worked on material artefacts for later use, which would capture and represent the essence of their conceptual work. Doing so, in this case, involved amending the wording of the Campus Sustainability Statement to express commitment to action, clarifying that the group of Change Laboratory participants would not own the statement, and (later) suggesting that the statement itself be embedded into a plaque for public display.

By the time of Workshop 8, participants had reached a firm conceptual understanding of what they hoped to achieve. In the discussion, several participants felt that the artefact they were working on was broadly in line with the group's aspirations, but that the statement expressed their ideas in an inadequate way. Thus, suggestions were made to *amend the wording* of the Campus Sustainability Statement.

Discussion at this moment hinged on the meaning conveyed, to readers of the statement, by words such as "endeavours" and "aspire". Such words were felt not to express sufficient commitment to action. One participant voiced this view in the following way:

> P4: There's a commitment, whether people act on it or not, that's why "commit" would be better.

Such suggestions provoked a new dilemma among participants. While many agreed with the points being made, they worried whether changing the wording again, after having already consulted staff, could be justified procedurally, since the participants present should no longer consider themselves the sole owners of the text. The potential emergence of a new conflict of motives (between meaning and ownership) was quickly mediated, however. Consensus was quickly reached that changing the wording *was* acceptable, since the existing version had been distributed for feedback with the intention of further modification. The Campus Sustainability Statement was still at a draft stage, and participants agreed that it could still be modified so long as any new version was subject to formal approval:

> P14: I prefer "committed" of course, but it has to be passed at an academic meeting or a staff meeting as well. I far prefer "committed".

Participants now agreed that they were working on a resource for others, and that they would not own the eventual Campus Sustainability Statement; it might be subsequently amended by people outside the participant group.

Two changes were made to the wording of the Campus Sustainability Statement in the final session, whose significance was to express a definite commitment to carrying out sustainability-related activities. The final agreed-upon wording is given below, with the changes indicated using italics for additions and strikethroughs for deletions:

> "The Mayo Campus *is committed to embedding* ~~(endeavours to embed)~~ sustainability into the core of its activities and operations. We ~~(aspire)~~ *endeavour* to provide a teaching and learning space that promotes critical engagement with sustainability".

The first word change, from "endeavours" to "is committed to", was intended to represent a change in agency of the group: moving from an emphasis on effort towards a pledge to carry out relevant tasks. The second change, from "aspire" to "endeavour", was intended to indicate a corresponding shift from general hope towards efforts at achievement. The new Campus Sustainability Statement was now seen as a promising commitment to action on campus activities and operations, and a commitment to effort in relation to a pedagogical engagement with sustainability in a critical way.

Another action of objectification was taken after the final workshop. This action did not, as the participants had anticipated, involve further amending the wording of the statement. On the contrary, when the Campus Sustainability Statement was presented at a campus staff meeting, it was accepted without modification and officially adopted for the campus.

Instead, subsequent objectification involved suggesting that the statement itself be embedded into a plaque for public display. This action was taken in the context of subsequent institutional meetings about establishing the Centre for the Study of Sustainability, another concept from the research intervention (see Table 2), which was also taken forward. Several research intervention participants, including the first author, subsequently participated in establishing this centre alongside other institutional stakeholders. As part of that work, it was discussed how it could be made visible to the public that the campus was a hub of sustainability, and the idea of mounting the Campus Sustainability Statement on a public plaque was put forward.

Work on this artefact was undertaken in collaboration with the National Centre of Excellence in Furniture Design and Technology (NCEFDT), associated with the university but located on a different campus. The head of that centre (who had not been a participant in the Change Laboratory) offered a piece of timber from a tree which had fallen in the grounds of *Áras an Uachtaráin*, an important national location and official residence of the President of Ireland. The working group felt that using a piece of wood recycled from a

culturally important location was a suitable manner of objectifying the meaning of the statement itself. The plaque (Figure 3) was subsequently manufactured and engraved at the NCEFDT. As documented elsewhere [12], the Campus Sustainability Statement, as objectified in the plaque, was officially unveiled by national television presenter and environmentalist Duncan Stewart at a campus launch event.



Figure 3. Public plaque objectifying the Campus Sustainability Statement.

6. Discussion

In this section, we synthesise our findings and demonstrate their distinctive contribution. Having traced a strand of conceptual development in a university sustainability initiative in close detail, we now seek to draw out an overall picture. We do so, firstly, by interpreting our findings with reference to our theoretical framework and, secondly, by highlighting the contributions our findings make to the areas of debate in the literature we reviewed earlier.

6.1. A Theoretical Synthesis

Our analysis aims to foreground conceptual development as an important aspect of sustainability-related change in higher education, rather than a distraction from the 'real' work. To do so, we draw on a framework which emphasises that concepts, understood through an activity theory perspective, are artefacts developed in an ongoing way by people struggling with problems in their practice, and subsequently used to influence human activity in consequential ways. Viewed through this lens, several aspects of the conceptual development documented in our findings are worth elaborating specifically.

Figure 4 provides a map of conceptual development for the Campus Sustainability Statement (CSS). The figure, which uses the notation introduced in Figure 1, synthesises the actions which developed the CSS, as previously described at length in Sections 5.1–5.4; it can be read alongside the earlier summary of conceptual work in the overall project provided in Table 2. The dotted grey line indicates the path of work undertaken by participants, through multiple stages, when developing this concept. That path commences from an initial conflict of motives, between needing a clear footing for the project and avoiding excluding some participants (in the bottom left). It moves, through an intermediate tapestry of disparate work, to the eventual embedding of the CSS into a plaque for public display (at the top right).

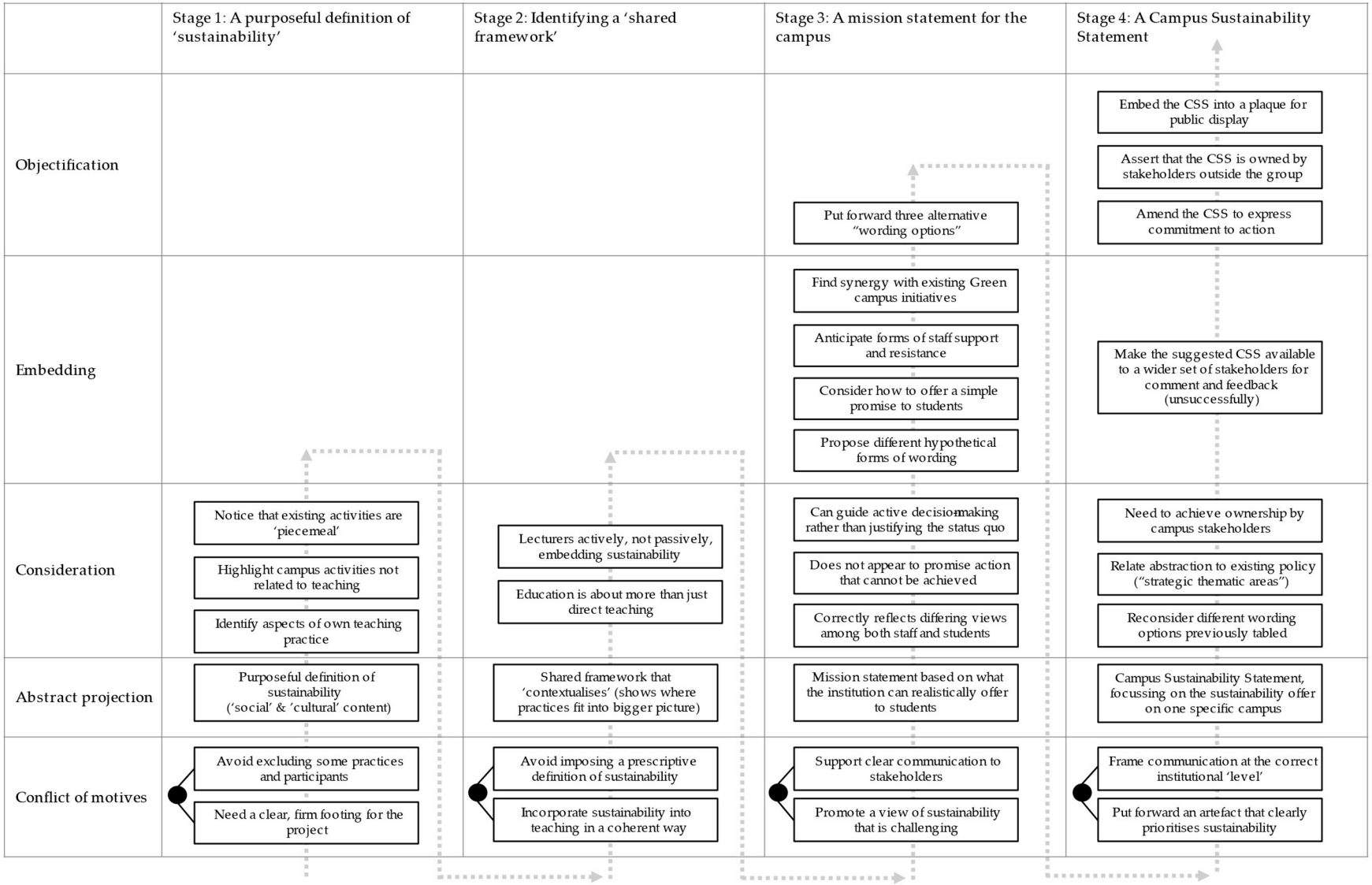


Figure 4. Conceptual development map for the Campus Sustainability Statement.

The rows in the figure, which should be read from the bottom upwards, are derived from the framework described in Section 3.4. They delineate a stagewise movement stimulated by a conflict of motives (with, in each case, two poles), reaching towards actions of abstract projection, consideration, and (in later stages) embedding and objectification. The columns within the figure represent four successive stages of development, with each proceeding from an initial conflict of motives. These stages are concerned, in turn, with a purposeful definition of 'sustainability', identifying a shared framework, a mission statement for the campus, and a Campus Sustainability Statement. The first three stages are shown as becoming deprecated by participants due to their conceptual inadequacies, with stages 1 and 2 doing so after actions of consideration and stage 3 after some early work at objectification. In each case, participants' realisation that their abstract projection is inadequate stimulates them to attempt a new stage of conceptual development. Stage 4, unlike the preceding stages, persists through to the end of the work analysed in this paper. As for any concept, however, this objectified work may later be modified further, adapted for different practice settings, or simply abandoned.

Our framework affirms that concepts are developed to be practical and future-oriented, by which is meant providing a means to handle the object of activity and help organise action (Section 3.4). That understanding holds in this case. The CSS was developed to be practical in this sense because participants worked on it, alongside three other concepts (Table 2), for the specific purpose of pursuing their objective (changing campus activity systems to make the campus into a hub for sustainability work). They did not engage in this work for the purpose of debate about the meaning of sustainability; on the contrary, their early actions in the project (during Stage 1) specifically sensitised them to the danger that doing so would prove inadequate for their work. The CSS was developed to be future-oriented because it specifically aims to guide future action—based, among other things, on an understanding of what the institution can actually offer to students, a principle of challenging rather than merely contextualising existing practices, a publicly visible commitment to action, and an acknowledgement that a wider set of stakeholders are the owners of the statement.

The framework also emphasises that, while concepts can be categorised theoretically (differentiating between true concepts, which grasp the essence of a situation, and general notions, which fail to do so), they are also positioned culturally (as part of existing constellations of artefacts, in which concepts are socially understood as having various forms of status). Our analysis reinforces that developing new concepts to address specific situations requires an act of volition—breaking away from existing cultural artefacts, even those which have considerable standing. Participants did not develop the CSS in a cultural vacuum; they were propelled to do so by the inadequacies of their attempts to apply existing artefacts, such as the United Nations Brundtland Commission definition, which they understood to be scientific and established. Given the nature of the discussion about sustainability in higher education (discussed in Section 2.1), it was unsurprising that participants turned to address foundational definitions early in their work. Indeed, the sense of obligation to do so was shared by the researcher interventionist (first author), who drew attention to the Brundtland definition (Section 5.1) to address questions about the project having a firm footing (one pole of the Stage 1 conflict of motives). Yet this early work with definitions proved both inadequate and frustrating, and sensitised the participants not only to the need for conceptual development but also to forms of conceptual work they wished to avoid. Subsequently, participants strived to grasp the essence of the situation. They settled on an image of *a student being offered the ability to make a conscious and informed choice about sustainability issues*, which other participants recognised as realistic and modest (Section 5.3.2). This simple image served as the basis for subsequent work and was also,

as our analysis elsewhere has indicated, an important turning point in developing the transformative agency of the participants [13].

Our analysis also attests to the cyclical nature of conceptual development. Our framework (Section 3.4) highlights how five aspects of conceptual development work are recurrently revisited in successive *stages* of such work. Each stage of development we analyse in this paper encompasses a conflict of motives being addressed via work such as abstract projection and consideration, and also, in stages 3 and 4, via embedding and objectification. Yet concept development is cyclical rather than circular, in the sense that work strives to build on and respond to earlier stages of development. The conflicts of motives from which each stage proceeds, for instance, are not identical; they are developed, in each case, as a consequence of participants' earlier work. Similarities between the poles of conflict at each stage are discernible and can be understood as a recurrent conflict between priorities for clarity of principle and organisational contextualisation. Yet a conflict of motives between (a) putting forward an artefact that clearly prioritises sustainability and (b) framing institution communication appropriately (the conflict stimulating Stage 4, in Figure 4) is not reducible to that between (a) having a firm footing for the project and (b) avoiding excluding some participants (the conflict stimulating Stage 1). In other words, even the fundamental conflict of motives stimulates participants' work changes as a consequence of their developing understanding and the layers of meaning and artefacts accreted across previous stages of development. Other lines of development can be discerned, such as in the abstract projections put forward at each stage, which reflect how participants strive to construct projections that build on their earlier ideas and respond to identified inadequacies with those ideas. As the project proceeds, it develops its own local history, and moments of work explicitly draw on artefacts established at previous stages. For example, the work of embedding and objectification at Stage 4 explicitly builds on artefacts already put forward during Stage 3. Participants, moreover, explicitly seek to *avoid* repetition or circularity in their work. Indeed, the fact that their early work in Stage 1 had started to become repetitive is viewed as frustrating (Sections 5.1.1 and 5.1.2), leading participants to express reluctance to revisit the same issues again (Section 5.2.1). In other words, our analysis highlights that, while conceptual development is cyclical, those undertaking it actively strive to avoid it becoming circular, which they sense as a sign that development is not occurring.

It remains important to attest that concepts are but one form of artefact, which mediate human activity as part of a wider constellation of other artefacts. The CSS is no exception. We have highlighted earlier that the CSS was not developed as an end in itself but instead to address the objective of transforming campus activity systems. Yet it is also necessary to understand that participants did not conceive the CSS alone as sufficient for pursuing that object—they were aware that the mere existence of the CSS would hardly transform campus activity systems. Instead, they perceived the CSS as one artefact, useful for their work. Some of the artefacts mediating such work, such as tools for distributing online questionnaires and the equipment in the meeting rooms, were already part of the institutional and cultural infrastructure of artefacts. Yet others, such as those set out in Table 2, needed to be developed by participants within the project. At some moments, the strands of conceptual development crossed over and influenced each other. Examples include the navigation of staff resistance that occurred during the work of embedding in Stage 3 (Section 5.3.4), where work on the CSS intertwined with work on the sustainability paragraphs; and the canvassing of management (Section 5.4.3), and the development of the public plaque in Stage 4 (Section 5.4.5), where work on the CSS dovetailed with the development of the Centre for the Study of Sustainability.

Overall, participants worked from the belief that it was the overall constellation of artefacts—including the CSS, the Centre for the Study of Sustainability, the sustainabil-

ity paragraphs, and a suite of interdisciplinary programmes, as well as more established artefacts—which would equip them to pursue their object of making the campus a sustainability campus.

6.2. Contributions to Debates in the Literature

In this section, we set out five core contributions to the literature on sustainability in higher education, with particular reference to the strands of the literature we reviewed in Section 2.

One contribution made by this paper is to *clarify the process of developing sustainability concepts within an institution*. We referred at the outset to a major review which concluded that "the key to success is for a university or college to define sustainability for itself and build a unique strategy and structure" [9] (p. 2). Yet the literature, as Section 2 makes clear, does not explore *why* such work is "key to success" or the processes by which such strategies are developed. Instead, as Section 2.1 demonstrates, the literature on sustainability terminology typically positions concepts as something appropriated from external sources, with attendant difficulties understood as frustrations to be overcome by domain specialists providing more standardised definitions and further 'clarity'.

Our analysis, by contrast, takes an institutionally influential concept and traces the process by which it was produced through four successive stages of development. Our findings acknowledge that project participants proceeded from a professed interest in clarity and found their attempts to engage with an external definition frustrating (Section 5.1.1). Yet they resolved such frustrations by breaking away from official definitions and working on something more relevant to their institution. Doing so, moreover, involved qualitative conceptual development rather than mere refinement towards a precise definition. The very idea of a "purposeful definition of sustainability" was abandoned in favour of a shared framework, then a mission statement, and, eventually, a Campus Sustainability Statement. It is the institutional relevance of the CSS which was important for its later influence, and we specifically do *not* claim that this CSS concept should be the outcome of sustainability initiatives in other institutions. Instead, we suggest that future research should focus less on the proliferation of competing concepts put forward by domain specialists and more on the processual importance of developing concepts specifically for each institution.

Another contribution is to *illustrate the benefits of explicitly addressing value tensions* within sustainability initiatives. The relevant literature, as we outline in Section 2.1, discusses value tensions extensively, with points of contention including the pre-eminence of specifically *environmental* concerns, any legitimation of economic growth, and a broadening of focus towards equity issues. The attendant communication problems, it is suggested, can be addressed by the provision of more accurate information about Education for Sustainable Development and/or Environmental Education, and by breaking out of silos and supporting ongoing interdisciplinary collaboration.

The findings of this paper reinforce the value of ongoing interdisciplinary collaboration. Several participants' early verbal contributions involved relating workshop discussions to their own disciplinary teaching (Sections 5.1.2 and 5.1.3). The subsequent move towards attempting to identify a "shared framework" (Stage 2 of the conceptual development) attests to their motivation to move away from such a specific focus, while the concentration of the eventual CSS (Stage 4) on the *campus* achieved this aspiration. Yet this triumph was not achieved by the provision of 'accurate' information about developments in ESD, which might have served to close down the discussion and suggest a tacit primacy to certain disciplinary voices. Instead, people argued out their points of view forcefully, especially in Workshop 3 (Section 5.3.1), and in doing so reached towards genuine solutions and sought to avoid the pitfalls of tokenism or paying mere lip service to sustainability commitments.

We suggest that researchers on this topic place more emphasis on the creative potential of addressing value tensions explicitly within initiatives of this kind.

A further contribution is to *explore how a sustainability project can help stakeholders communicate across silos*. Both areas of the literature we reviewed earlier in this paper contain existing recognition that the issue of silos is important. The literature on approaches to embedding sustainability (Section 2.2), for instance, identifies a silo 'mentality' as a barrier to integrative development, and suggests striving for horizontal reach as an antidote. The literature addressing sustainability terminology (Section 2.1), on the other hand, sees the siloed structure of many universities as a barrier to clear communication between stakeholders about sustainability.

Our analysis sheds light on the mechanisms by which communication between stakeholders about sustainability can develop and initial 'mentalities' can shift. Unlike other documented approaches, our project neither assumed that stakeholders would have compatible visions at the outset nor that certain stakeholders would be receivers for information from established experts or activists. Instead, the structure of the project was based around the expansive learning cycle (Section 3.2), meaning that participants were asked *together* (among other things) to actively analyse their own circumstances and to propose and iteratively refine their own solutions. Communication developed as part of a process of building new knowledge, in which successive stages built on the products of earlier ones, and participants could see how their inputs had contributed to the products of the project, which were under continuing development. We suggest that scholars working on sustainability transformation focus more on how communication between silos can be supported and nurtured, rather than on how differences can be overcome or avoided.

Our next contribution is to *affirm the transformative power of developing coalitions*. The existing literature reflects extensively on who should be involved in sustainability initiatives within HEIs. Yet, as our overview in Section 2.2 makes clear, such issues are often viewed through managerial prisms—such as discussions of sponsors, champions, and leads, or of providing incentive structures (such as internal funding) to further nurture the work of established agents of change.

The account presented in our work differs from such perspectives in valorising joint endeavour and understanding the associated potential to generate new forms of agency. Participants for this research intervention were recruited, as explained in Section 4.2, on the basis of trying to represent a broad cross-section of stakeholders. While these stakeholders were understood to have an interest in the objects of the project, they varied in their levels of institutional seniority, disciplinary and professional background, prior activism on sustainability issues, and agreement with the project's initial aims. Yet this was not seen as an obstacle to the project's work, but rather a starting point for nurturing a new coalition. A core aim, rather than leveraging the existing work of individuals, was that this new coalition would develop its own joint agency. The associated process involved participants developing their own individual identities within the project, such as the devil's advocate role of P7 (a lecturer in Social Care) in Workshop 3. Yet it is also evidenced *collectively* in the shift in focus of discussions: from personal beliefs (especially about sustainability), to individual practices (especially in relation to teaching duties), to the experience of students of the whole institution (rather than only of their taught programme), and onwards to the wider ownership of the products of the project. This process of coalition building dovetails with our own earlier analysis of the shifting transformative agency evident in the research intervention [13]. We suggest that researchers working on this topic direct more attention in future papers towards nurturing new and collective agency rather than only toward leveraging existing and individual agency.

A final contribution is to *insist on the potentiality deriving from sustainability projects setting their own agenda*. We referred, in our literature review, to an emphasis on differentiating sustainability initiatives by their institutional point of focus. Doing so emphasises correctly that sustainability change is not uniform and that particular initiatives will have different dynamics depending on the object of their activity. Projects focused on teaching, research, campus operations, or external social responsibility, for instance, will often have their own distinct drivers, dynamics, and challenges. However, such ways of thinking also bring forth potential hazards, such as arbitrary categorisation and placing artificial constraints on particular institutional projects from their outset.

It would be a misreading of our work to imagine that the project we document proceeded from an initial mission to formulate a Campus Sustainability Statement. As set out in Section 4, stakeholders were recruited on the general basis that they would be interested in pursuing "a sustainable campus", with this initial object eliciting a wide variety of personal interpretations, including some related to financial viability. The CSS was developed alongside a range of other initiatives and was only one of four key new concepts put forward by the coalition. Moreover, the CSS was developed from a need identified within the project, with the solution widely debated and the name "Campus Sustainability Statement" not emerging until Workshop 5. We contend that the usefulness of the CSS arose precisely because the need was identified by participants, rather than having been predetermined in the remit of the project. We also suggest that the project overall was successful because it produced a constellation of ideas which mutually influenced each other at important moments. For instance, as Section 5.4.5 makes clear, the impetus to objectify the CSS into a public plaque derived from work on setting up a research centre (Centre for the Study of Sustainability), which was a separate concept derived within the initiative. We suggest that researchers explore further the potential for remits of sustainability projects being something which can develop and progress, rather than merely being defined.

7. Conclusions

We took as our starting point for this paper those vibrant debates occurring internationally about sustainability-related change in higher education. Such debates often hinge on the discrepancy between the leading role that higher education institutions play in research, policy, and public proselytising about sustainability, and the poor record of those institutions when it comes to embedding sustainability in their own organisations. This situation significantly undermines the credibility of the higher education sector with external partners, as well as harming the educational mission of institutions.

Our literature review addressed two areas of focus in the research on sustainability in higher education. One area is concerned with sustainability terminology in the sector. By focusing on this scholarship, we were able to emphasise that vocabulary and language are widely recognised as a crucial issue when pursuing sustainability in the sector, but that they are mainly addressed through lenses such as the clarity of terms created by experts, value tensions, and communication problems. The other area is concerned with strategic approaches for embedding sustainability in higher education institutions. We interrogated strands of work in this area concerned with the character of the change process—for instance, whether it is initiated top-down or bottom-up, and the influence of institutional silos—and the strategic aims of particular initiatives, where a range of drivers are seen as motivating categorically distinct sustainability work in areas such as research, teaching, campus operations, and outreach. Our conclusion was that these areas of the literature have crucial shortcomings with regard to understanding the links between sustainability concepts and change initiatives, and in terms of understanding sustainability-

related change as a process. We, therefore, committed to addressing the following research question: *What is the potential for conceptual development to occur, as a process, during a higher education sustainability initiative?*

To address this question, we analysed the conceptual development which occurred in a successful sustainability initiative in which institutional stakeholders came together in Change Laboratory workshops, over the course of several months, to attempt to create "a sustainable campus". The first stage of our analysis identified that the practical work of the initiative had involved, among other things, creating four novel concepts, whose development we summarised in Table 2. To better understand the conceptual development which occurred as a process, we selected one of these concepts—the *Campus Sustainability Statement* (CSS)—for in-depth study. We chose to focus on this specific concept because it was the one most consistently discussed within the workshops (and was, therefore, the best represented in our dataset of video recordings) and because it had subsequently exerted considerable influence in the local institution. Our analysis, synthesised previously in Figure 4, shows how the CSS emerged from a long sequence of actions in the workshops, which had previously comprised attempts to put forward a purposeful definition of sustainability, a 'shared framework', and a mission statement for the campus. Each of these stages of development arose from a conflict of motives expressed within the coalition working on the project and involved putting forward a simple idea to address the conflict, which, in some cases, was sufficiently promising to be developed further. In various ways and for distinct reasons, the three preceding ideas were judged inadequate for the purposes of the project and were thus superseded as new conflicts of motives were expressed. Figure 4 provides an overview map of this conceptual development process, which synthesises our answer to our research question using a diagrammatic notation derived from our theoretical framework. Having documented, drawing on excerpts from transcripts, this sequence of conceptual development in Section 5, we then discussed the theoretical implications using activity theory in Section 6.1.

Based on our preceding, in-depth analysis, we put forward the following synthesis as a summary response to our research question:

- There is considerable potential for conceptual development to occur within higher education sustainability initiatives. In the project we studied, four key concepts were put forward (Table 2). These concepts had not been proposed prior to the project and nor were they explicitly borrowed from external sources.
- The concepts are developed to be practical and future-oriented. The four concepts developed in the project we studied were not created for conceptual or theoretical ends, and, indeed, participants became increasingly sceptical about endlessly debating the minutiae of sustainability (such as definitions) (Section 5.1). Instead, they were developed through attempts to realise and work on the object of their activity: developing a sustainable campus.
- Conceptual development processes in higher education sustainability initiatives are propelled by the inadequacies of existing artefacts. These inadequacies spur participants to break away from their existing frames of reference, generating new concepts as part of developing their own agency in relation to the situation they face. One instance of this, in the project we studied, arose from an abortive attempt to rely on the well-established Brundtland definition (Section 5.1.1). This definition is authoritative and globally renowned. However, it proved inadequate to mediate the conflict of motives already arising within the project, even at a very early stage. Participants thereafter started a process of conceptual development of their own.
- Conceptual development processes in sustainability initiatives are cyclical. Our analysis of the development of the CSS showed that it arose out of four successive stages

of development. Each commenced from a conflict of motives and involved putting forward and considering an abstract projection, and the more successful later stages also involved attempts at embedding and objectifying a conceptual artefact (Figure 4). Yet the process was not circular, with the actions taken in later stages of development building on or reacting against earlier ones rather than repeating them. Indeed, some participants voiced irritation if the work of the group seemed in danger of becoming repetitive (Section 5.2.1).

- Conceptual development processes are challenging and may be unsuccessful. From a narrow perspective, even the *eventually* favourable development of the CSS came only after three previous stages of development had been abandoned by participants, for reasons including inadvertently facilitating passivity, being too narrowly focused on teaching, and communicating at the wrong level within the institution. Yet our analysis highlights that even apparently 'failed' work may provide a useful basis for development when picked up again later, as is evident in the traces from earlier stages, which can be found in the CSS (Section 5.4.5). Even where conceptual work is abandoned and not taken up again later, the attendant actions can also provide the basis for stimulating participant agency [12,13].
- Conceptual development occurs as part of wider efforts to transform activities, rather than being undertaken in isolation or as an end in itself. Many existing concepts and other forms of artefacts will continue to be used in sustainability initiatives. Moreover, any new concepts which are developed will need to somehow work within constellations of artefacts used within local activity, or they will not be effective. In the project we analysed, participants undertook actions specifically aimed at embedding concepts into existing activity, including anticipating staff support and resistance and finding synergy with existing Green Campus work (Section 5.3.5). Doing so was far from straightforward, but, without such effort, it seems doubtful that the eventual CSS would have been realised in the form that later proved so influential (Section 5.4.5).
- The potential for conceptual development is not identical for each sustainability strategy or initiative. It is for this reason that we put forward, below, suggestions for future research and recommendations for those planning sustainability strategies or initiatives in higher education.

Section 6.2 argued in some detail for what we consider our five core knowledge contributions to the scholarly literature on sustainability in higher education. One contribution is to clarify the process of developing sustainability concepts within an institution, which we suggest is a valuable new perspective standing in contrast to dominant views of institutions adopting existing concepts from outside (a practice widely understood as frustrating and often unproductive). Another contribution is to illustrate the benefits of explicitly addressing value tensions within sustainability initiatives. Our work illustrates the potential for such value tensions to be resolved in creative ways, which drive forward sustainability integration, rather than as something to be feared or circumvented. A further contribution is to explore how a sustainability project can help stakeholders communicate across silos. We suggest that this contribution is valuable because it draws attention to how, with appropriate support, the initial positions adopted by stakeholders might develop and shift within sustainability initiatives rather than becoming entrenched. Another contribution is to affirm the transformative power of developing coalitions for sustainability-related change in higher education. We suggest that the stakeholders develop into a transformative coalition, which works together for change, as a consequence of developing concepts together in the project. This perspective contrasts significantly with more typically expressed views about recruiting institutional stakeholders, which tend to focus on their pre-existing roles or activism and to understand their agency individualistically. A final contribution is

to insist on the potentiality deriving from sustainability projects setting their own agenda, which we suggest is valuable given a tendency in the literature to categorise projects and, on this basis, for institutions to circumscribe the remit of many initiatives from the outset.

We emphasise that the above contributions point towards new possibilities for scholarship that researchers (including ourselves) need to further interrogate in future work. Our findings cannot be generalised to all sustainability initiatives in higher education, and we do not attempt to stake such a claim. Our own work, as reported in this paper, has a number of limitations, which we readily acknowledge. The project was conducted in a single higher education institution in Ireland, whose internal dynamics and external policy terrain will be quite different from those of many other institutions around the world. Moreover, it was conducted on a single campus, where there was already some existing degree of stakeholder support for sustainability agendas prior to the project (albeit on a somewhat fragmentary and disorganised basis). The project we report did not benefit from input by students, which is a major opportunity for future work (another Change Laboratory project on sustainability, which does involve students, is currently being undertaken in another institution, at the time of writing, with input from the second author [73]). In terms of our analysis, we acknowledge a greater need for scrutiny in future of the cross-fertilisation *between* different lines of conceptual development, and for more longitudinal studies of how concepts become established and exert ongoing influence. We also acknowledge that the use of the Change Laboratory approach is novel in this area and does not reflect how other sustainability initiatives have been conducted, although we do recommend that other researchers and institutions actively pursue this approach in the future, given its abundant potential.

Based on the findings and contributions of this paper, discussed in detail in Section 6.2, we suggest that future research should place more emphasis on the following:

- The processual importance of developing concepts specifically for each institution (rather than merely appropriating the many concepts being developed by domain experts);
- The creative potential of addressing value tensions explicitly within sustainability initiatives;
- How communication between silos can be supported and nurtured (rather than on how differences can be overcome or avoided);
- Stimulating new, collective agency for sustainability-related change rather than leveraging existing, individual agency;
- The potential for remits of sustainability projects to develop productively, rather than being closely circumscribed.

We also recommend that those planning sustainability strategies or specific initiatives in higher education should consider the following:

- How to forge new transformative coalitions across a strategy, and within particular initiatives, rather than only relying on the pre-existing activism and sponsorship of key individuals.
- How to draw out and explicitly address value tensions and different voices within the institution, rather than imposing a single perspective and suppressing opportunities for dissent.
- How to provide structured opportunities for different professionals, and those with divergent disciplinary backgrounds, to *build new knowledge together*, with such opportunities being crucial for overcoming siloed thinking as well as valuable ends in themselves.
- How to set a remit for particular initiatives so that it provides a clear rationale for people to come together to work, while not overly narrowing what kinds of discussion are permitted within the process.

Author Contributions: Conceptualisation, J.S. and B.B.; data curation, J.S.; formal analysis, J.S. and B.B.; investigation, J.S.; methodology, J.S. and B.B.; supervision, B.B.; writing—original draft, B.B.; writing—review and editing, B.B. and J.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: This study was approved by Lancaster University's University Research Ethics Committee (UREC) (date of approval: 16 December 2015, approval code UREC-15-12-16-DK1).

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: The original contributions presented in the study are included in the article; further inquiries can be directed to the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Djordjevic, A.; Cotton, D.R.E. Communicating the sustainability message in higher education institutions. *Int. J. Sustain. High. Educ.* **2011**, *12*, 381–394. [CrossRef]
2. Dlouhá, J.; Glavič, P.; Barton, A. Higher education in Central European countries—Critical factors for sustainability transition. *J. Clean. Prod.* **2017**, *151*, 670–684. [CrossRef]
3. Omazic, A.; Zunk, B.M. Semi-Systematic Literature Review on Sustainability and Sustainable Development in Higher Education Institutions. *Sustainability* **2021**, *13*, 7683. [CrossRef]
4. Wu, Y.-C.J.; Shen, J.-P. Higher education for sustainable development: A systematic review. *Int. J. Sustain. High. Educ.* **2016**, *17*, 633–651. [CrossRef]
5. Findler, F.; Schönherr, N.; Lozano, R.; Reider, D.; Martinuzzi, A. The impacts of higher education institutions on sustainable development. *Int. J. Sustain. High. Educ.* **2019**, *20*, 23–38. [CrossRef]
6. Johnson, S. Higher education and sustainable development: Paradox and possibility. *Environ. Educ. Res.* **2011**, *17*, 281–284. [CrossRef]
7. Lozano, R.; Lukman, R.; Lozano, F.J.; Huisingh, D.; Lambrechts, W. Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system. *J. Clean. Prod.* **2013**, *48*, 10–19. [CrossRef]
8. Wang, J.; Yang, M.; Maresova, P. Sustainable Development at Higher Education in China: A Comparative Study of Students' Perception in Public and Private Universities. *Sustainability* **2020**, *12*, 2158. [CrossRef]
9. Appleton, E. *Next Generation Sustainability Strategy and Structure: Whole-Institution Approaches to Sustainability in Universities and Colleges*; Environmental Association of Universities and Colleges: Cheltenham, UK, 2017.
10. Strategy Group. *National Strategy for Higher Education to 2030*; Department of Education and Skills, Republic of Ireland: Dublin, Republic of Ireland, 2011.
11. Green Campus Ireland. GMIT Living Willow Outdoor Classroom. Available online: https://www.greencampusireland.org/wp-content/uploads/2016/08/GMIT-Willow-Classroom-case-study-1.pdf (accessed on 6 January 2025).
12. Scahill, J. Concept Development and Transformative Agency in the Forging of a Campus Sustainability Statement: Insights from a Change Laboratory Research-Intervention. Ph.D. Thesis, Lancaster University, Lancaster, UK, 2021.
13. Scahill, J.; Bligh, B. Developing Stakeholder Agency in Higher Education Sustainability Initiatives: Insights from a Change Laboratory Research Intervention. In *The Wiley Handbook of Sustainability in Higher Education Learning and Teaching*; Gamage, K.A.A., Gunawardhana, N., Eds.; John Wiley & Sons, Inc.: Hoboken, NJ, USA, 2022; pp. 99–131.
14. Engeström, Y. Concept formation in the wild: Towards a research agenda. *Éduc. Didact.* **2020**, *14*, 99–113. [CrossRef]
15. Bligh, B. The Change Laboratory as a collaborative approach to designing tools and activity systems for learning. In *Design for Education: Reimagining Spaces and Tools for Learning*; Costa, A.R., Cooper, R., Eds.; Routledge: London, UK, 2024; pp. 233–246.
16. Berchin, I.I.; Sima, M.; de Lima, M.A.; Biesel, S.; dos Santos, L.P.; Ferreira, R.V.; de Andrade Guerra, J.B.S.O.; Ceci, F. The importance of international conferences on sustainable development as higher education institutions' strategies to promote sustainability: A case study in Brazil. *J. Clean. Prod.* **2018**, *171*, 756–772. [CrossRef]
17. Bien, C.; Sassen, R. Sensemaking of a sustainability transition by higher education institution leaders. *J. Clean. Prod.* **2020**, *256*, 120299. [CrossRef]
18. Brinkhurst, M.; Rose, P.; Maurice, G.; Ackerman, J.D. Achieving campus sustainability: Top-down, bottom-up, or neither? *Int. J. Sustain. High. Educ.* **2011**, *12*, 338–354. [CrossRef]

19. Brundiers, K.; Barth, M.; Cebrián, G.; Cohen, M.; Diaz, L.; Doucette-Remington, S.; Dripps, W.; Habron, G.; Harré, N.; Jarchow, M.; et al. Key competencies in sustainability in higher education—Toward an agreed-upon reference framework. *Sustain. Sci.* **2020**, *16*, 13–29. [CrossRef]
20. Hallinger, P.; Chatpinyakoop, C. A Bibliometric Review of Research on Higher Education for Sustainable Development, 1998–2018. *Sustainability* **2019**, *11*, 2401. [CrossRef]
21. Verhulst, E.; Lambrechts, W. Fostering the incorporation of sustainable development in higher education. Lessons learned from a change management perspective. *J. Clean. Prod.* **2015**, *106*, 189–204. [CrossRef]
22. Evangelinos, K.I.; Jones, N. An analysis of social capital and environmental management of higher education institutions. *Int. J. Sustain. High. Educ.* **2009**, *10*, 334–342. [CrossRef]
23. Lozano, R. Proposing a Definition and a Framework of Organisational Sustainability: A Review of Efforts and a Survey of Approaches to Change. *Sustainability* **2018**, *10*, 1157. [CrossRef]
24. Mader, C. Sustainability process assessment on transformative potentials: The Graz Model for Integrative Development. *J. Clean. Prod.* **2013**, *49*, 54–63. [CrossRef]
25. Ralph, M.; Stubbs, W. Integrating environmental sustainability into universities. *High. Educ.* **2013**, *67*, 71–90. [CrossRef]
26. Wright, T. University presidents' conceptualizations of sustainability in higher education. *Int. J. Sustain. High. Educ.* **2010**, *11*, 61–73. [CrossRef]
27. ECO-UNESCO. *Research Project on Education for Sustainable Development in Ireland: Report Commisioned by Comhar Sustainable Development Council*; ECO-UNESCO: Dublin, Ireland, 2007.
28. Owens, K.A.; Legere, S. What do we say when we talk about sustainability? *Int. J. Sustain. High. Educ.* **2015**, *16*, 367–384. [CrossRef]
29. Hesselink, F.; van Kempen, P.P.; Wals, A.E.J. (Eds.) *ESDebate: International Debate on Education for Sustainable Development*; IUCN The World Conservation Union: Gland, Switzerland, 2000.
30. Breiting, S. Issues for environmental education and ESD research development: Looking ahead from WEEC 2007 in Durban. *Environ. Educ. Res.* **2009**, *15*, 199–207. [CrossRef]
31. Kopnina, H. Revisiting Education for Sustainable Development (ESD): Examining Anthropocentric Bias Through the Transition of Environmental Education to ESD. *Sustain. Dev.* **2014**, *22*, 73–83. [CrossRef]
32. Wesselink, R.; Wals, A.E.J. Developing competence profiles for educators in environmental education organisations in the Netherlands. *Environ. Educ. Res.* **2011**, *17*, 69–90. [CrossRef]
33. Cheeseman, A.; Sharon Alexandra Wright, T.; Murray, J.; McKenzie, M. Taking stock of sustainability in higher education: A review of the policy literature. *Environ. Educ. Res.* **2019**, *25*, 1697–1712. [CrossRef]
34. Figueiró, P.S.; Raufflet, E. Sustainability in higher education: A systematic review with focus on management education. *J. Clean. Prod.* **2015**, *106*, 22–33. [CrossRef]
35. Gale, F.; Davison, A.; Wood, G.; Williams, S.; Towle, N. Four Impediments to Embedding Education for Sustainability in Higher Education. *Aust. J. Environ. Educ.* **2015**, *31*, 248–263. [CrossRef]
36. Engeström, Y. *Studies in Expansive Learning: Learning What Is Not Yet There*; Cambridge University Press: Cambridge, UK, 2016.
37. Virkkunen, J.; Newnham, D.S. *The Change Laboratory: A Tool for Collaborative Development of Work and Education*; Sense Publishers: Rotterdam, The Netherlands, 2013.
38. Bligh, B.; Flood, M. The Change Laboratory in Higher Education: Research-Intervention using Activity Theory. In *Theory and Method in Higher Education Research*; Huisman, J., Tight, M., Eds.; Emerald: Bingley, UK, 2015; Volume 1, pp. 141–168.
39. Blunden, A. *An Interdisciplinary Theory of Activity*; Brill: Leiden, The Netherlands, 2010.
40. Engeström, Y.; Sannino, A. From mediated actions to heterogenous coalitions: Four generations of activity-theoretical studies of work and learning. *Mind Cult. Act.* **2021**, *28*, 4–23. [CrossRef]
41. Nicolini, D. *Practice Theory, Work, & Organization: An Introduction*; Oxford University Press: Oxford, UK, 2012.
42. Engeström, R.; Batane, T.; Hakkarainen, K.; Newnham, D.S.; Nleya, P.; Senteni, A.; Sinko, M. Reflections on the Use of DWR in Intercultural Collaboration. *Mind Cult. Act.* **2014**, *21*, 129–147. [CrossRef]
43. Kaptelinin, V.; Nardi, B.A. *Acting with Technology: Activity Theory and Interaction Design*; The MIT Press: Cambridge, MA, USA, 2006.
44. Bligh, B.; Flood, M. Activity theory in empirical higher education research: Choices, uses and values. *Tert. Educ. Manag.* **2017**, *23*, 125–152. [CrossRef]
45. Aguayo, C. Activity Theory and Online Community Education for Sustainability. In *Activity Theory in Education*; Gedera, D.S.P., Williams, P.J., Eds.; Sense Publishers: Rotterdam, The Netherlands, 2016; pp. 139–151.
46. Mudokwani, K.; Mukute, M. Exploring Group Solidarity for Insights into Qualities of T-learning. *Sustainability* **2019**, *11*, 6825. [CrossRef]
47. Mukute, M. *Developmental Work Research: A Tool for Enabling Collective Agricultural Innovation*; Wageningen Academic Publishers: Wageningen, The Netherlands, 2015.

48. Moffitt, P.; Bligh, B. Video and the Pedagogy of Expansive Learning: Insights from a Research-intervention in Engineering Education. In *Video Pedagogy: Theory and Practice*; Gedera, D.S.P., Zalipour, A., Eds.; Springer: Singapore, 2021; pp. 123–145.
49. Leontyev, A. *Activity and Consciousness*; Marxists Internet Archive: Pacifica, CA, USA, 2009. Original text published 1978.
50. Engeström, Y.; Rantavuori, J.; Kerosuo, H. Expansive Learning in a Library: Actions, Cycles and Deviations from Instructional Intentions. *Vocat. Learn.* **2013**, *6*, 81–106. [CrossRef]
51. Sannino, A. The principle of double stimulation: A path to volitional action. *Learn. Cult. Soc. Interact.* **2015**, *6*, 1–15. [CrossRef]
52. Moffitt, P.; Bligh, B. Online tasks and students' transformative agency: Double-stimulation as a design principle for synchronous online workshops. *J. Vocat. Educ. Train.* **2024**, *76*, 1–24. [CrossRef]
53. Sannino, A.; Engeström, Y.; Lemos, M. Formative Interventions for Expansive Learning and Transformative Agency. *J. Learn. Sci.* **2016**, *25*, 599–633. [CrossRef]
54. Blunden, A. *Concepts: A Critical Approach*; Brill: Leiden, The Netherlands, 2012.
55. Engeström, Y.; Nummijoki, J.; Sannino, A. Embodied Germ Cell at Work: Building an Expansive Concept of Physical Mobility in Home Care. *Mind Cult. Act.* **2012**, *19*, 287–309. [CrossRef]
56. Engeström, Y. *Concept Formation in the Wild*; Cambridge University Press: Cambridge, UK, 2024.
57. Engeström, Y.; Virkkunen, J.; Helle, M.; Pihlaja, J.; Poikela, R. The Change Laboratory as a Tool for Transforming Work. *Lifelong Learn. Eur.* **1996**, *1*, 10–17.
58. Bligh, B. *Designing a Change Laboratory Outline Plan*; Bureau de Change Laboratory: Lancaster, UK, 2023. [CrossRef]
59. Moffitt, P.; Bligh, B. Video-Based Information Mediating Opportunities for Professional Development: A Research Intervention with Teaching-Focused Lecturers in Higher Education. *Information* **2025**, *16*, 156. [CrossRef]
60. Miles, R. The insider Change Laboratory in practice. *Stud. Technol. Enhanc. Learn.* **2022**, *3*, 1–29. [CrossRef]
61. Morselli, D. *The Change Laboratory for Teacher Training in Entrepreneurship Education: A New Skills Agenda for Europe*; Springer: Cham, Switzerland, 2019.
62. Haapasaari, A.; Engeström, Y.; Kerosuo, H. The emergence of learners' transformative agency in a Change Laboratory intervention. *J. Educ. Work* **2014**, *29*, 232–262. [CrossRef]
63. Engeström, Y.; Sannino, A. Discursive manifestations of contradictions in organizational change efforts. *J. Organ. Change Manag.* **2011**, *24*, 368–387. [CrossRef]
64. MacCarthy, M. Using Dialectic Thematic Analysis in dark tourism: Combining deductive and inductive reasoning in a modular method. *J. Hosp. Tour. Manag.* **2021**, *48*, 468–478. [CrossRef]
65. Fife, S.T.; Gossner, J.D. Deductive Qualitative Analysis: Evaluating, Expanding, and Refining Theory. *Int. J. Qual. Methods* **2024**, *23*, 16094069241244856. [CrossRef]
66. Mackieson, P.; Shlonsky, A.; Connolly, M. Increasing rigor and reducing bias in qualitative research: A document analysis of parliamentary debates using applied thematic analysis. *Qual. Soc. Work* **2019**, *18*, 965–980. [CrossRef]
67. Moffitt, P.; Bligh, B. The Collaborative Redesign of 'Authentic' Technology-Enhanced Learning: Analysis of a Change Laboratory Research-Intervention in Engineering Higher Education. *Trends High. Educ.* **2024**, *3*, 1149–1174. [CrossRef]
68. Nodder, J. *Explaining the Principles of Cultural Historical Activity Theory and the Change Laboratory to Participants in a Research Intervention*; Bureau de Change Laboratory: Lancaster, UK, 2023; Volume 1. [CrossRef]
69. Nuttall, J. Formative interventions and the ethics of double stimulation for transformative agency in professional practice. *Pedagog. Cult. Soc.* **2022**, *30*, 111–128. [CrossRef]
70. Sannino, A. Activity theory as an activist and interventionist theory. *Theory Psychol.* **2011**, *21*, 571–597. [CrossRef]
71. Yardley, S. *Explaining Change Laboratory to Research Funding and Ethical Review Panels: Examples from Studies in Palliative Care and Healthcare*; Bureau de Change Laboratory: Lancaster, UK, 2023; Volume 1. [CrossRef]
72. Brundtland Commission. *Our Common Future: The World Commission on Environment and Development*; Oxford University Press: Oxford, UK, 1987.
73. Obexer, R. *Tools for Transformation: Selecting a Suite of Digital Tools for an Online Change Laboratory*; Bureau de Change Laboratory: Lancaster, UK, 2024. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.