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Re-Visiting Design Thinking for Learning and Practice: Critical Pedagogy, Conative Empathy

Tazim Jamal [1], Julie Kircher [1,*] and Jonan Phillip Donaldson [2]

[1] Department of Recreation, Park and Tourism Sciences, Texas A&M University, College Station, TX 77843-2261, USA; tjamal@tamu.edu
[2] Texas A&M University Center for Teaching Excellence, Texas A&M University, College Station, TX 77843-2261, USA; jonandonaldson@tamu.edu
* Correspondence: jmkircher@tamu.edu

Abstract: This paper argues for the importance of design thinking as a creative, collaborative activity to equip students, instructors, and practitioners with important skills to address "wicked problems" that are transforming tourism and hospitality in a (post-)COVID-19 Anthropocene. Design Thinking (DT) and Design Thinking for Engaged Learning (DTEL) are becoming increasingly popular to incorporate in practice and in courses offered across various fields of study, including tourism and hospitality. The paper reviews some of their applications and uses, drawing on a range of cross-disciplinary literature. A small case study conducted over the Summer of 2020 in an undergraduate tourism course helps to reflect on existing weaknesses in DT and the original DTEL model, which the revisions reported here seek to address. Although the model engaged learners in developing innovative solutions to real problems, the incorporation of a critical, decolonizing pedagogy is needed to help learners break free of deeply entrenched assumptions, and intentionally develop pluralistic, relational solutions to address injustices and suffering. The previous emphasis on perspective taking through a dominantly cognitive (mind) empathy approach (in traditional DT models) is balanced with affective (heart) and conative (action) empathy, as aspects of care ethics that facilitate *epistemic justice* and *praxis*.

Keywords: design thinking; tourism; epistemic justice; conative empathy

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1. Introduction

The tourism and hospitality industry has faced enormous pressures since the World Health Organization declared a global pandemic on March 11, 2020. The UN World Tourism Organization forecast a loss of 850 to 1 billion tourists, US $910 billion to US $1.2 trillion in export revenues from tourism, and 100 to 120 million jobs at risk [1]. Adjusting to the pandemic has resulted in socioeconomic and societal changes that are anticipated to cause deep-seated structural changes in travel and service delivery. The race is on towards digital transitions, integrated technologies drawing on big data, SMART Tourism for value co-creation and enhanced service delivery, along with service robots and other forms of automation [2,3]. Systemic changes had already been foreshadowed and disruptive technologies add further complexity to the accelerating climate crisis and global threats to planetary sustainability in the Anthropocene. It is a brave new world that awaits rebuilding ecological, social, and cultural resilience and sustainable post-pandemic futures.

The transformations and structural changes anticipated along with rapid techno-logical shifts call for rapid response from practitioners as well as hospitality and tour-ism training programs and education providers. New methods, new principles, and new approaches are needed to enable 'just' transitions from service jobs which are anticipated to become redundant, adding to deep systemic unemployment in the service sector from COVID-19 [4]. Among the tools for redesigning service and facilitating much needed 'critical thinking' is design thinking, a well-established approach in industrial design that has extended over

time to architecture, urban planning, management, and other areas in practice and in the educational and research context [5,6]. A close look at the published research literature in tourism and hospitality reveals an important need and opportunity to draw on using design thinking to equip students and practitioners with important skills to address the rapid changes that are trans-forming tourism and hospitality futures. However, it is also vital to cast a critical lens on tools and methods that are steeped in western, Eurocentric perspectives and see how well they meet the needs of equitable, fair and just approaches to tourism development and hospitality practices. Have existing "western" approaches been more concerned about rational, scientific legitimacy and eschewed difficult to "measure" values like care, love, empathy, such as may be embodied in a feminist ethic of care (e.g., [7–9])? Surely a holistic approach to design thinking as a cross-disciplinary approach to address complex "wicked" problems is inclusive of affective aspects like emotions, care and empathy?

The main purpose of this paper is to examine the use and potential of design thinking in hospitality and tourism education as well as in practice, and to offer new critical and caring, empathetic directions for the challenging (post-)COVID-19 Anthropocene that awaits. This is done through a review of a rich cross-disciplinary literature to see how design thinking is being used and applied in this area (e.g., [5,6,10]). It includes examining how users of design thinking address two key aspects of design thinking: designerly thinking (DT) and designerly ways of knowing (DWK), as explained by Donaldson and Smith [11]. We also identify useful examples that illustrate design thinking principles (implicitly and explicitly). In addition to examples from the published literature, we provide a specific case example of an in-class exercise undertaken that illustrates both DWK and early steps in DT. Building on this, we bring together insights from the previous sections into a theoretically informed decolonizing and empathetic design thinking approach, as well as a practical model in the form of a revised design thinking and engaged learning (DTEL—[11]) model informed by the critical and theoretical perspectives. As our article shows, greater engagement with the concepts of design thinking and its epistemological assumptions are needed, as well as ensuring that it fosters critical pedagogy, justice (social justice and epistemic justice), and equity for the diverse populations, communities, enterprises and other key stake-holders in the local to global social-ecological systems in which travel, tourism, and hospitality services are undertaken. This means adopting a decolonizing perspective, challenging the Eurocentric and modernist influence on design thinking, and seeking inclusiveness, pluralism, and diversity epistemically and in practice.

The article therefore argues for greater conceptual understanding of design thinking, as well as possibilities for critical, relational, and empathetic action and praxis through the application of DT in hospitality and tourism development, education, and practice. The principles and approaches articulated in the paper are, of course, applicable to a wider domain of learning and practice. For instance, the design thinking approach is particularly suited to addressing "wicked problems" such as setting policy directions to address climate change in the Anthropocene. As Rittel and Webber [12] (p. 155) express:

> The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are "wicked" problems, whereas science has developed to deal with "tame" problems. Policy problems cannot be definitively described. Moreover, in a pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false [. . .] Even worse, there are no "solutions" in the sense of definitive or objective answers.

And so, on we go, to collectively attempt to address "wicked problem" of COVID-19 pandemics and a warming planet that calls for new designs and critical scrutiny of dominant modernist principles. The paper is structured as follows. The next section provides an overview and "critical" review of design thinking, along with examples from tourism studies. This is followed by a course-based case example that was inspired by DT, and as shown below, reveals opportunities to better design affective dimensions and embodied

experiences that are important to facilitating care and action (*praxis*). We address this in the subsequent section where we present a revised theoretical model for DT and detailed step-by-step guidance to implement the DT model in engaged learning (a revised DTEL model). The paper concludes with some summary points for for-ward-thinking and embodied doing of DT in research, development, and critical education.

2. Literature Review

2.1. Designerly Thinking (DT), Designerly Ways of Knowing (DWK)

Design thinking originated in industrial design but spread into business management (particularly in practice first) and other areas like architecture and urban planning, as well as into the educational domain to facilitate creative, collaborative, complex problem-solving skills drawing on design thinking principles (see [6,13,14] for an application of design thinking to tourism innovation and experience design). Not surprisingly then, definitions of design thinking are multiple across inter-disciplinary areas, but they share some common understandings and stages in implementation. At the heart of design thinking is a human-centric, structured, collaborative problem-solving approach that produces innovative products, processes, or experience solutions to address wicked problems. Donaldson and Smith [11] (p. 2) describe the two different but complementary aspects in the design thinking literature—designerly ways of knowing (DWK), and designerly thinking (DT) as follows:

> "Designerly ways of knowing are the cognitive approaches and mindsets characteristic of expert designers such as framing, reflection-in-action, and abductive reasoning. Design thinking strategies are the processes involved in design, including frame creation, ideation, prototyping, iteration, and deploying in real-world contexts (p. 2)".

Guiding design thinking are values such as practicality, ingenuity, empathy, and appropriateness as well as values in humanity (e.g., subjectivity, imagination, commitment, justice) [10]. As Cross [15] explains, human-centered design is socially situated in values and sense making, while theoretical perspectives like Herbert Simon's [16] 'science of design' that emerged in the 1960s during the strong modern movement emphasize a problem-solving activity focused on function and guided by scientific values and principles like rationality, objectivity, neutrality, and truth. Simon's work was a dominant influence on decision making and design thinking in areas ranging from behavioral economics and business management before alternative paradigms like constructivism enabled greater attentiveness to embodied and socially situated epistemologies and processes. So, for instance, framing from a human-centered design perspective, for instance creates and conceptualizes the wicked problem as a set of working relationships, values, and standpoint [17]. Empathetic thinking situates the designer in an embodied, emotional relationship to the problem, generating collaborative design strategies through a structured series of steps of phases formalized as a design thinking process model.

Various process models have emerged over time, such as the IDEO and Stanford models. The IDEO Model consists of Discover, Interpretation, Ideation, Experimentation, and Evolution [18]. The Stanford Model developed by the Hasso-Plattner Institute of Design also has five steps: Empathize, Define, Ideate, Prototype, and Test [5]. While popular in diverse areas ranging from industrial design and business management to urban planning and architectures [5], its adoption in relation to tourism development and education appears to be slow or less well documented. Sandarova et al. [19] found no evidence of DT being used in teaching hospitality and tourism until 2018 when the Stanford model was applied in a regional tourism BA study program in Slovakia as a learning experience and teaching method. Donaldson and Smith [11] proposed a design thinking for engaged learning (DTEL) model that combines DWK and DT to operationalize engaged learning. The model "integrates features from design thinking with aspects which the education literature suggests are important in the facilitation of engaged learning, as well as principles from design thinking theory" and involves five phases: (1) name and frame, (2) diverge and converge, (3) prepare

and share, (4) analyze and revise, and (5) deploy [11] (p. 16). As they explain, abductive reasoning is employed rather than more commonly known forms of inductive reasoning and deductive reasoning, since the designer simultaneously works on the problem and solution instead of trying to understand a highly complex problem and try to find solutions and comes back iteratively and repeatedly to frame the problem, generate ideas (ideate), create a possible solution (prototype, process, experience), and implement (deploy) the solution. It also involves repetition and iterative moves between the various stages of DT. Divergent thinking (brainstorming numerous possible solutions) and convergent thinking (synthesis and integrating potential solutions to identify a potential solution) are an integral part of the highly interrelated aspects of DWK.

DT vs DWK is a problem of definition, on one level. On the other level, these two aspects should be complementing each other. Divergent and Convergent Thinking is one of the DWKs, but it is also happening in every stage of the thinking process in DT—it is in the framing stages and distinctly visible in the ideation stage, for instance. Similarly, Wicked Problem Framing is a very important DWK, but identifying and addressing it emerges through stages in the DT process.

Aside from Donaldson and Smith [11], the published literature does not clearly identify that there are two distinct areas that complement each other (DWK and DT). Yet this is valuable to consider in applying design thinking approaches. It not only helps to clarify the aims of the project, the intended outcomes, but it helps also to recognize that ways of shaping and thinking through the wicked problem in the DT process are influenced immensely by the ontological and epistemological assumptions held by the designer(s) and co-participants invited to collaborate on problem framing, problem solving, and co-creating solutions and outcomes. Understanding the historical antecedents of design thinking in the "western" European and North American tradition, the emphasis on function and empirical, rational approaches (e.g., [16] is especially important here, for it helps to identify the principles and values that weave through DWK and DT to influence inclusiveness, voice and affect in design thinking, as well as intended outcomes (e.g., sense-making and meaning-making, *praxis* and change through the design thinking and implementation process.

The historical evolution of DT from the rationalist, scientific approach of Herbert Simon [16], to Schön's [20] reflexive practitioner, and Krippendorf's [21] focus on *hermeneutics*, and *meaning-making* sets the stage for hybrid perspectives, for example bridging artificial design with experience and sense-making in DT (see case example further below). As such, clearly understanding the two broad but interrelated dimensions of DT and DWK help contribute towards *epistemic justice*: ensuring plurality of worldviews and diverse knowledge forms, as well as nurturing different ways of coming to joint understandings and making sense of complex situations (as in wicked problems). Facilitating embodied, affective experiences and reflection, emotions, empathy and *hermeneutic charity* in critical thinking and *praxis* are integral complements to epistemic justice, enabling possibilities for justice and an ethic of care in design thinking, education and practice [8,20–22].

2.2. DT in Tourism and Hospitality Related Studies

Literature search methodology consisted of broad and specific keyword searches on databases such as Web of Science and EBSCO. From 3 November to 7 December 2020, database searches were conducted, finding few relevant works in regard specifically to DT. Web of Science keyword searches and their corresponding results originally began with design thinking hospitality (90), design thinking tourism (303), then other relevant disciplines were included by searching design thinking urban planning (540), design thinking urban planning and architecture (122), design thinking and art education (734). The final added set of keywords brought in the added concept of design thinking with search terms of design thinking experience design tourism (89), and design thinking experience design hospitality (37). Though the keyword searches showed what looked like promising results, the number of relevant articles in regard to what is actually DT was slim. As the paper progressed and

new themes emerged, additional searches were also added such as co-creation and tourism education (23), co-creation and museum (70), and informal learning tourism (60).

DT usage within tourism and hospitality is becoming more prevalent, though only a few publications exist currently that directly use DT within tourism and hospitality (e.g., [19,23–27]. These authors explicitly use DT within their studies. Bhushan notes DT can be a vital approach within hospitality education and research because of its ability to encourage innovation and creative thinking to solve rapidly changing, industry wide problems [23], as did Lub et al. [26]. Chung and Chung [24] also detail this importance, showing how DT can help strengthen customer experience by making the customer the central focal point of the creative solutions. Zieliński et al. [27] use DT as a medium to improve tourism systems in a similar way to create innovative solutions in tourism services to best suit as many clients as possible. Daniel et al. brings DT into the classrooms of tourism education, and though the small sample size was a limitation, DT was shown to help students understand and utilize more complex tourism theories and apply them to real-word situations [25]. Sandarova et al. [19] take education even further, using DT within a pilot study to educate students on twenty-first century skills to help them not only understand concepts, but apply those concepts to create innovative solutions to real-world problems. Sandarova et al. use DT framework within three tourism courses over the course of a semester, alongside supplemental interviews, to determine whether students were not only receptive to this style of teaching but could comprehend tourism theories and come up with creative solutions for real-world issues [19]. Their results, although limited due to the study size of the pilot study, are positive, and show the potential for DT to be an effective way to teach students within the tourism field [19].

Co-creation and potential application of DT in museum studies published elsewhere in the interdisciplinary domain offers some valuable guidance to the application of design practice approaches as well as DT. Piancatelli et al. [28] and Ozdemir and Duygu [29] both separately study how tourists can co-create their experiences with art and visits to art museums. Piancatelli et al.'s study revolves around selfies, digital devices, and social media and how visitors to art museums can enhance their visits by co-creating their experiences with art, which also falls in line with emotion theory, the theory of planned behavior, and engagement [28]. By allowing visitors the space to co-create their own social media experience and self-expression through selfies and digital media, the authors note that over the course of their field studies and subsequent interviews that visitors felt more empowered, engaged, and open to the idea of using selfies as part of co-creation, even if they were not a selfie-lover beforehand [28]. Ozdemir and Duygu [29] aims to close the gap between cultural heritage and contemporary art, and how to gain more visitor attraction to heritage art installations through co-creation. By allowing visitors to co-create their experiences, and specifically marketing this co-creation, visitors may be further drawn to museums [29].

Tourism researchers are also beginning to address DT in the context of experience design, which is a crucial area as service delivery, travel, recreation and leisure are oriented to providing an *experience*. The 'product' is not the train ticket or booking receipt, it is the *experience* of traveling, i.e., the embodied journey, and arriving at the destination, sharing food in conversation, engaging in various leisure (and learning) experiences, returning home, where the experience continues in different ways. Scholars such as Altukhova et al. [30] use DT to strengthen tourism marketing strategies as well as enhance customer and tourist experiences at the tourist location. Miettinen [31] mostly focuses on service design in regard to tourism and leisure, and their insight on digital experiences and using DT to create solutions to further experiences for visitors, which relates to co-creation within e-tourism, although they never specifically state 'co-creation' in text. Several tourism researchers previously mentioned (e.g., [23,24,26,27]) detailed the importance of using DT to improve experiences within hospitality and tourism fields in regard to customer satisfaction. Tourism scholars such as Sandorova et al. [19] and Daniel et al. [25] took this a step further and brought DT and experience design into the classroom to foster creativity, teamwork, and generate innovative solutions within students in the field of tourism and hospitality.

As the above demonstrates, one area of strong potential for DT application in tourism and hospitality is the area of experience design and the *co-creation* of both products and experiences for visitors and students. Surprisingly, as one might expect to see closer connection to creative engagement by multiple stakeholders, very little connection seems to be made to DT in research that specifically uses *co-creation* and even ties this to jointly working among key stakeholders to enable value creation But as Phi and Dredge's review of co-creation research in tourism shows, none of the systematic reviews they identified "attempt to bridge disciplinary boundaries or consider the diverse relational roots of co-creation" [32] (p. 286). This is not surprising perhaps, for as these authors note, "the relational work through which value is co-produced can be expressed very differently depending on the discipline or field of study, so a systematic review of literature based on 'co-creation' and related terms will yield narrow results" [32] (p. 286) [33].

A number of articles in the tourism and hospitality area show the potential application of DT and design-based practices for co-creative endeavors. Innovation and digital transformations is one example, for instance in the co-creation of service experiences using automation and service robots. Giuliano et al. [34] discuss methods, practices and processes used in design-based research, e.g., participatory design actions, that address form, function, value and meaning. They present a practice-based project using participatory methods to develop an innovative robotic service application for cultural heritage that enhanced the museum experience. Virgil, the telepresence robot, supplemented the efforts of the museum guide and was a multi-stakeholder co-creation that was attentive to social equity, environmental quality, and sustainability [34]. Such co-creative design practice research involving multiple stakeholders (including visitors) is expected to be increasingly important in digital transformations and providing enhanced service experiences, such as through the use of service robots like Virgil.

In the context of tourism and museums, studies like that of Schorch et al. [35] are also addressing *design*, though not applying DT. Important aspects of DT and DWK can be identified nonetheless, as well as a valuable perspective on emotion and affect that plays out in the design process. Their study is set in the museum context of Maori cultural heritage and offers a rare example of how adopting a post-humanist, post-structuralist design lens can yield valuable outcomes for exploring affect and emotion from a non-representational perspective. Focused on understanding embodied performativities, their framing is clear: the interpretive practices and encounters occurring among interlocuters "provide a framework for investigating the ways in which cross-cultural experiences are modulated by affordances that begin with registers of affect" [35] (p. 96). And as they explain in relation to the co-production of meaning (co-creation being another applicable term here):

> It is possible to see visitors' agency as operating in the co-production of meaning at a more-than-representational level: meaning is conceptualized as generated, explored and shared in all manner of ways, drawn as it is from memories and preconceptions, the narratives of overarching discourses and not least the somatic nature of engagement and the emotional. [35] (p. 97)

2.3. Decolonizing DT, Fascilitating Plutalism and Rationality

Design for the Pluriverse by post-development scholar and activist Arturo Escobar [36] is a valuable attempt to challenge the epistemic assumptions that undergird western approaches to design practice. It strives to displace Eurocentric, modernity-driven design practices with pluralistic, relational approaches to development and social justice. Chakraborty's [37] book review critiques Escobar's framing of *autonomous design* "which rests heavily on Latin American struggles for autonomy" but "emerges more as a vision of the relational engagements of 'indigeneity and modernity'" (p. 37). Furthermore, Chakraborty [37] (p. 37) feels that the "modern western university, which is often the stage and conduit through which ideas about how to relate to the world are decided and dispersed, is left unchallenged until the very end." We believe Escobar's [36] book offers

a valuable perspective to inform design thinking and practice, as he strives to decenter a dominant western "monoverse" with a "pluriverse" of diverse ontological and epistemological assumptions and methodological approaches. However, critique of the role of academics and the modern western university is a good reminder of the ongoing task to decenter dominant narratives with decolonizing methodologies and a "pluriverse" of worldviews and knowledges. Espeso-Molinera et al. [38] aspire to re-design the logic of western design thinking in the context of Indigenous Tourism by the Lacandon Mayan Indians of Chiapas, Mexico. Adopting a critical, decolonizing lens to re-envision DT, the design process incorporates strategic management as well as DT principles into a hybrid Indigenous Tourism Product Design (ITPD) Model with four general stages: vision formulation, situation analysis, creative process, and the pilot of the new product (specific product design). The project generated positive synergies between science and traditional knowledge, Lacandon entrepreneurs and community residents, as well as visitors. They engaged collaboratively and inclusively in "knowledge dialogues" that assisted Indigenous entrepreneurs "to design experiential tourism activities incorporating their own resources and cultural values" [38] (p. 1341).

> The model effectively integrated key values and identities of the Indigenous culture which led to additional benefits and outcomes for the Lacandon co-researchers including the revitalization of cultural knowledge. [38] (p. 1341)

The place-based approach and the prototypes that emerged from the application of the ITPD model are community-driven, locally controlled, and co-created. The experience design project used participatory action research to involve university researchers and the disadvantaged Lacandon Maya in creative activities and emic processes. As such, the ITPD model is grounded in a key principle for "good" tourism development: "direct participation in decision making by those who stand to be most impacted by the design, development, conservation, management, and marketing of their cultural heritage." [39] (p. 129). The critical, decolonizing approach implemented through the ITPD model thus facilitated diverse ways of knowing, and the process of collaboration and knowledge dialogue supported "resilience while fostering participation, feelings of accomplishment, cultural pride and recovery, and creative confidence" among the Indigenous co-researchers" [38] (p. 1342). Such decolonizing approaches to DT are crucial to enable social justice, equity, and well-being (individual as well as communal) through inclusiveness of diverse worldviews and ways of being and becoming. The study refers to engaged learning by visitors and participants, and notes that the Lacandon participants are able to engage in designing product that:

> enrich visitors' experiences with their unique symbolism and cosmology of the landscape and furthermore to share their own story on their own terms. Furthermore, through learning and sharing experiences, visitors become knowledgeable about Indigenous issues and concerns, helping them become more respectful tourists and helping advance the political agenda of Indigenous peoples. [38] (pp. 1344–1345)

The above research reinforces our concern about lack of critical perspective(s) on DT to advance epistemic justice and inclusion of pluralistic epistemologies and ontologies, diverse methodologies, and a stronger action-oriented focus in the implementation of DT in designing learning experiences, both in the educational context and in design practice (in the places and spaces of hospitality and tourism development and marketing). There is a need for 'critical' thinking and *co-creation* in student learning. The case example below is an illustrative example of creative "design" thinking to facilitate ways of knowing and sharing of pandemic-related experiences in an online tourism class. It also corroborates the need to re-design the assignment to address the 'critical' gap identified above.

3. Case Example: Pandemic Experiences and Reflections through Creative Writing

During the Summer (June) 2020 academic session, a creative writing assignment was co-developed by the instructor and a graduate student and administered to 22 students

in a five-week, intensive, online international tourism impacts course at a US university. The course was oriented towards justice and ethics, responsibility, sustainability, and well-being (both individual and communal), as key principles in tourism development. Students read articles and cases on diverse communities, regions, and destinations which illustrate both benefits and inequalities, misrepresentation, dependency on modernist development paradigms as well as approaches to reach communities with responsibility and care (e.g., [39,40]). The exercise contained a writing and drawing dimension with dual aim: (i) to understand student experiences of disruptions caused by travel restrictions and shelter in place rules that transformed their college town into a remote learning facility with quiet streets, and (ii) to facilitate reflection and sharing of experiences through a creative design process where students sketched and described their feelings and experiences since the pandemic was declared on 11 March 2020, disruptive their lives, livelihoods and studies. Past research of public engagement with local art and their artists in post-disaster contexts reveals, for instance, opportunities for communal healing and solidarity [40]. The 1000–2000 word writing and creative drawing assignment provided two options: (a) Create one art drawing and writing reflection of their experiences and perceptions of COVID-19, or (b) Create one art drawing and writing reflection of their perceptions and experiences of how COVID-19 is affecting climate change. A one-paragraph description to accompany (frame) the drawing was also requested.

This assignment was similar to a previous semester's assignment which included designing and writing 'postcards home', but this time was modified to include a creative drawing and writing exercise. This was a meaning-making task of hermeneutic phenomenology where students sketched and described their experience of COVID-19 and what it meant to them. Leaving the assignment open-ended enabled the students to construct powerful emotive pictures (interpretations) of what they felt, how the pandemic was affecting them, how they were making their way through it, what strategies they employed, and how the pandemic had transformed their futures.

A Zoom session was offered to discuss the drawing and help FRAME the task. A subsequent task following this exercise a week later was to engage with some aspects in the textbook to further facilitate thinking and reflection on their original drawing and writing, and to re-do the drawing and writing. Readings included healing from art in post-disaster context [41]. Six essays and drawings are presented below, along with some themes, insights, and reflections that offer glimpses of DWK as the students struggled to name and frame a pandemic experience, the strategies they developed to cope (one went on a road trip), and what it meant to their daily lives and studies and careers. The six students described below provided consent for their drawing and writings to be used within publishable articles and are illustrative of how DWK offers a powerful way to facilitate empathy, reflection and relating to a highly complex situation (a wicked problem of a new virus escalating a global pandemic). Students' reflections and drawings demonstrate how they felt, the ways in which they coped, as well as their hopes and aspirations for the future. Quotes bring their voices to their diagrammatic art object and illustrate reflexive and emotional engagement and sense making during this unprecedented' pandemic moment, a highly difficult, complicated, uncertain time of social isolation and shelter in place with little clarity on future directions [21,22]. Figure 1 illustrates various activities being undertaken through snapshot images, like scrolling through a social media feed. Note the environmental images with clean water, the "virtual" engagement with online shows like Netflix, as well as the pile of books, the class ring, and the wine and coffee.

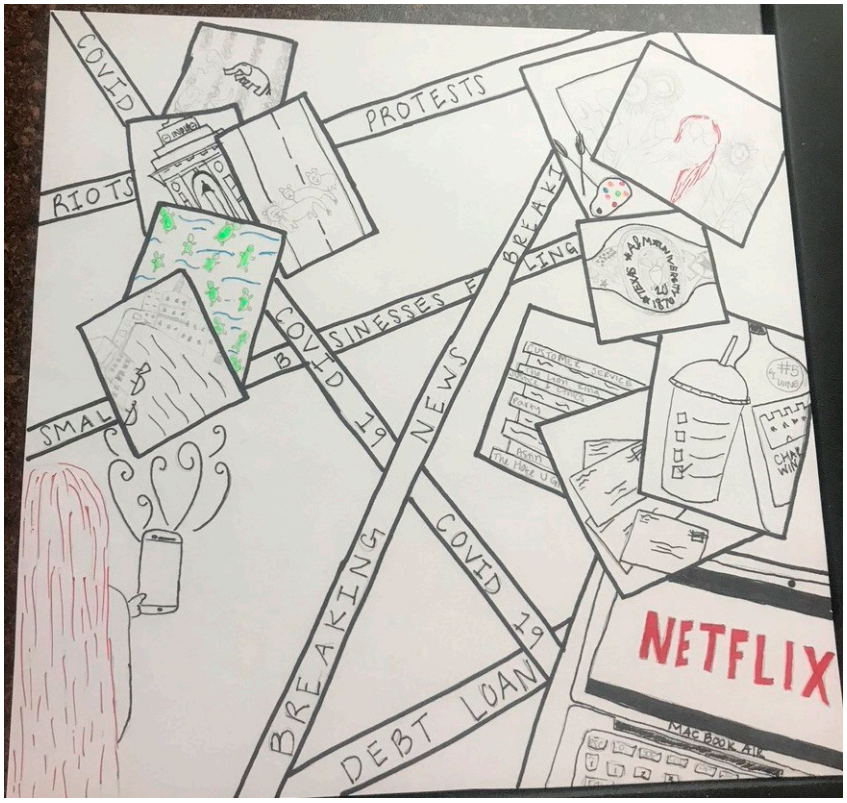

Figure 1. COVID-19 Drawing 1. Source: Student (name withheld to ensure confidentiality).

> In the left-hand corner of my picture is the back of myself holding my phone, it then shows images stacked on top of themselves. The image of the stacked images is my view of what I have seen through social media the last several months . . . For me each of these images hit home, it showed me the impact that we as people have on the world. The pollution that we cause, the over tourism, the negativity we create, COVID-19 created in my mind a break. The entire right side of my creation is my personal perceptions and experiences during the quarantine and now coming out of it . . . a stack of books reflects the required text books I have been reading for my summer classes, the end of Spring semester readings, and personal reading choices, as well as my journal that I write in regularly. Crafting is another way that I release my emotions and for me this entire quarantine created a lot of mixed feelings, which the paint brush and canvas image represent. Finally, across the center of my image words reflecting what the world seems to be screaming at me every time I look. "Breaking News", "Riots", "COVID-19", "Protests", "Small Businesses Failing", all words that I can't escape, each telling someone else's story, each with a vast set of emotions, each seeking attention. (Student's one-paragraph description accompanying the drawing).

Each of the six students mentioned within their essay that they specifically used their own experiences around COVID-19 when creating their drawings, and two of them also stated they felt strong emotions when writing their papers, using their papers to "vent frustrations" and "wrap [their] heads around" their different, personal experiences of COVID-19, with several of them being furloughed from their jobs (two within hospitality) during the pandemic. Nonetheless, they understood the urgency to "flatten the curve" (Figure 2).



Figure 2. COVID-19 Experience Drawing 2. Source: Student (name withheld to ensure confidentiality).

> My drawing depicts my personal experience and perception of COVID-19. I have created a piece that represents the concept of "flatten the curve" which is the reason for self-quarantining and social distancing going into effect. In my drawing, the straight lines represent how life was on a steady trajectory until the pandemic hit. The "flatten the curve" graph can be seen within the piece as well as heart rate depictions. The heart rate depictions are to represent the amount of people who sadly have been hospitalized due to Coronavirus and the uncertainty of the virus causing nervous and racing hearts. The background colors are a blend of yellow and green to represent sickness. Together the piece speaks to the core concept of doing your part for the good of humanity. By everyone self-quarantining and social distancing we can slow the spread of COVID-19 to prevent the shortage of hospital resources. Personally, I believe that to "flatten the curve" means to do your part to keep everyone safe and that is what inspired my drawing. (Student's one-paragraph description accompanying the drawing).

These drawings and creative writing assignments encouraged the students to use creativity to dive into their emotions, feelings, and experiences around COVID-19. While this assignment was not specifically made to be a DT assignment, it did allow the students the space to engage in DWK and some aspects of the DT process. Since the assignment encouraged deep, critical thinking of COVID-19 and their personal experiences, it allowed them to name and frame the disruption and changes brought by the pandemic, one of the stages of the DT process, engage in divergent and convergent thinking (brainstorming ways and themes to present through art, synthesizing and converging on the idea), and then building the "prototype" (drawing and paragraph description) and interpreting it (deploy). The writing assignment allowed the students space for reflection-in-action, as the students all noted not only their growth in their reflection itself, but how they reflected upon their daily activities and living with COVID-19, with excerpts similar to the following paragraph related to Figure 3):

When I read over the subject for this writing assignment, several ideas flowed through my head. I thought to myself, "Perfect, this is my time to vent about how difficult it has been transitioning from in-person to online classes." Then I thought about all the other students and professors that might feel the same way and will probably write about it. I, then, briefly thought of writing about how difficult this quarantine has been for my family, especially my younger brother who struggles with mental health issues, but I figured it was too personal. The effects this quarantine has had on the environment came to my mind. I reflected on all of the photos and news articles I have seen and read about how much cleaner the canals in Venice are, the beaches in the west coast, the pollution levels dropping all across the world, but I could not figure out how to write about it all in my own words without restating what everyone else has written. So, I finally decided to just write about me and what I have been up to in the last few months during this pandemic.



Figure 3. COVID-19 Drawing 3. Source: Student (name withheld to ensure confidentiality).

In my drawing for this assignment I have split it up between two different times of this quarantine. The first half I drew what my life was like during the beginning of the quarantine. I sketched out myself and my roommate, Stephen, sitting in our living room watching TV while drinking wine and eating pizza and popcorn. That is pretty much all we would do every single day for the first few weeks of the lock down. Neither one of us was very productive and we had hit a very low low in our lives. The second half I sketched myself out sitting on the same chair as the first photo, however instead of being on my phone I am reading a book, have the TV off and instead of a glass and bottle of wine next to me I have my water bottle. Below that sketch I drew myself running through Lemon Creek Park because I like to run through there during my morning runs. These sketches show how much my habits have changed throughout these past few

months of the pandemic. (Student's one-paragraph description accompanying the drawing).

All six students said in their short essays that they used the writing and drawing exercise as a way to navigate their emotions and feelings towards COVID-19, their school and careers, and acclimating themselves to the 'new normal' of lockdowns and quarantine. Many of the writing assignments began with more negative emotions, speaking on their fears, loneliness, and uncertainty, with quotes like below from the student who drew Figure 3:

> It was mid spring break when I found out we would not be returning to regular classes for the remainder of the semester. That same week I found out I was being furloughed. I did not know how I felt or what to make from the whole situation. All I could think about was, 'How am I going to pay for all of my bills?'

The students shared their fears as they navigated the pandemic, some of them using phrases like "I did not know what to do" or "I was trying to figure out what to do with myself" which then evolved to phrases such as "I was alone" and "I felt like I got cheated out of my senior year at school." As their essays progressed, a few of the students began to turn those negative thoughts and feelings towards more positive ones, noting that although they faced immense struggles and despair, they "had a new normal" and in some cases were "more productive than [they] had been in years" once they found a rhythm within their "new normal" of pandemic life. Five out of the six students ended on a positive note, that they had "hope that it will all be okay" or "personal growth" full of "self-reflection" and "self-awareness" (see also this expression in Figure 4 below).



Figure 4. COVID-19 Drawing 4. Source: Student (name withheld to ensure confidentiality).

> I drew a picture of a women meditating in the center of the Earth. Meditation is all about relaxing and focusing on the things that you can and cannot control. The women in the middle represent me and my personal journey with COVID-19. The recent pandemic has altered my life in many ways including my social life, my

> school and career, and has left many uncertainties. However, it has also helped me grow in ways I would not have imagined. That is what this picture represents to me. (Student's one-paragraph description accompanying the drawing).

Several of them also noted that the assignment gave them a sense of clarity, realizing "what [they] have is enough . . . nothing compared to what millions of people suffer through every day", or that they "tried to stay positive through [their COVID-19] journey". One mentioned how this assignment made them reflect upon "how difficult this quarantine has been for [their] family" and others. Meaning-making is being undertaken here as per Krippendorf [42]. He described design as a matter of creating meaning, using a hermeneutic approach to situate that meaning making and the intention of the artifact as core aspects of the design process, plus using the artifact or de-signed item as a medium for communicating those meanings [42]. The act of drawing (plus the one-paragraph description accompanying it) helped to name and frame the pandemic, and writing as well as the imagery facilitated meaning making and a powerful way of knowing and coping, of being and becoming, of being able to freely engage in exploring, and finding ways to express the current situation and ways forward.

Rich emotions were displayed, expressed cognitively and affectively. Throughout the six essays in this case example, the students referred back to specific phrases like "emotions" (9) "alone/lonely" (6) "feel/feelings" (18) "uncertain/uncertainty" (7) "struggle" (4) "reflect" (9) "quarantine" (11) "affect/affecting" (4) "fear" (4) "despair" (2) "negative" (5) and "loss of hope/no hope" (4). Many of these words bring forth negative emotions and meanings, furthering the lost, hopeless feelings that many of the students felt at the beginning of COVID-19. Within their drawings, they also showcased negative feelings, using depictions of skulls, copious amounts of alcohol, repeatedly drawing the words 'fear', 'canceled', 'riots', coloring with stark blacks, blood reds, and sickly yellows and greens to further depict negative feelings, emotions, and exemplify the tragedy that is COVID-19 (see Figure 5).



Figure 5. COVID-19 Drawing 5. Source: Student (name withheld to ensure confidentiality).

> The drawing I drew is called Covid Good Covid Bad, and it represents the duality of the situation we are in. There has been unprecedented damage, destruction, and death that has come because of Covid-19. The bad things represented are death, by the skull and crossbones, fear, represented by the mask, cancelled trips and plans, represented by the suitcase, a world that has been hurt, represented by the globe, the separation from society, represented by the people separated by the letters of Covid-19, and the collapse of industry, represented by the falling dominoes. The good things are time, represented by the clock, personal growth, represented by the paintbrush and music notes, rest, represented by the pillow, relaxation, represented by the cup of tea, and most importantly family, represented by the family. Even in the midst of the chaos of corona, there are good things we can put our focus on. That's what I hoped to capture with my drawing. (Student's one-paragraph description accompanying the drawing).

Two students mentioned that the assignment showed them how they express their emotions through crafting and drawing on a regular basis, and this assignment reinforced that. The other four noted that they also felt a release of emotions through the creation of this drawing and writing assignment. While none used the exact phrasing, each student's essay had a paragraph or so where they all spoke about how they worried about their families, friends, and even people they do not know (note the love for the planet in Figure 6). Many expressed empathy for others, and noted that people were joining together to "do something so simple to save the lives of others" like self-isolating and wearing masks, and how "powerful" and "beautiful" that was to them. The students note that even though every person has lost so much, whether they lost trips and experiences, or family and friends, people were still able to join together in the hope they were saving the lives of others. This show of empathy was unanimous across all six essays, with phrases such as "protecting our loved ones", "listening to [my] brother's and mother's struggles and pain . . . broke me knowing I could not be there with them", and "the death[s] . . . weigh heavy on my heart for families I personally know and those I do not". Empathy was encouraged during and after the assignment, allowing further discussions of their drawings over Zoom if they wanted, feedback on their writing and drawings, encouraging critical but empathetic thinking through further readings, such as the article on communal healing through art.



Figure 6. COVID-19 Drawing 6. Source: Student (name withheld to ensure confidentiality).

> Overall, my drawing is meant to experience the joy I find in my daily life, for example, looking up in the sky during the day or the night to see the sun or the stars and realizing that life is truly a gift. My thoughts and the outside world

> may seem as if though they were really negative but I have been taking a lot of important things to me for granted. I have realized more that I have a lot of love and compassion for other people and that honestly, that it almost feels rare. I have surrounded myself with friends and family and reconnecting with those I truly care about. The uncertainty of everything is difficult for me to deal with but I am trying my best. (Student's one-paragraph description accompanying the drawing).

The above shows a humanistic approach and meaning making as per Krippendorf [42], and cognitive empathy as well as affective empathy can be observed. Students showed deep emotions and personal growth within their papers. The process of creating the writing reflection and their art opened possibilities for coming to a better understanding of the pandemic, how they were coping, and what future actions their reflections might inspire. The exercise was designed with cognitive empathy to facilitate humanistic aspects of being and becoming, of understanding and sense making. The results, not surprisingly, showed a great deal of affect and affective empathy (towards family, friends, etc.), but little evidence of students acting upon any affective desire outside of their everyday lives and social relationships. As we learned, cognitive empathy as in traditional DT approaches and affective empathy are insufficient to instantiate wider communal responsibility and enable *praxis*. Re-designing the assignment to facilitate conative empathy and 'critical thinking' is needed to enable critical pedagogy and *praxis*—action and change toward 'just' futures as discussed below.

4. Directions Forward: Design for Critical, Empathetic "Doing" DT

4.1. A Relational Approach towards Conative Empathy

The human-centered design aspect of DT has historically since inception indeed been focused primarily on understanding experiences and involving people. It involves multiple participants and encourages dialogue among them that centers on experiencing the problem and how they might be able to solve it. However, it is apparent from our review of DT that decolonizing, diverse, democratic (already co-creative), justice and equity-oriented approaches are necessary to disrupting the rational scientific, modernist mold in which design thinking has generally been based. The turn away from rationalist approaches such as attributed to Herbert Simon and move towards creativity and reflection as advocated by Schön opened new horizons [43], but it does not go far enough. Disruption of entrenched structural and socioeconomic injustices, for instance, are not clearly evident in existing DT processes. Neither are cognitive and affective aspects of empathy being translated into action (conative empathy). Is it possible to have justice without an embodied and action-oriented ethic of care [7], nurturing empathy and acting on it alongside implementing the "prototype" thing, product or experience designed through collaborative co-creative engagement?

The literature review and various examples forwarded demonstrate that interdisciplinary approaches are needed to strengthen epistemic justice as well as social justice in DT. Critical and pluralistic approaches are especially needed that are inclusive of diverse populations, racialized, gendered, minority and disadvantaged cultural groups and diverse worldviews and knowledge bases (including traditional knowledge, local knowledge, in addition to scientific knowledge as needed). It is a performative and relational ethic, sensitive to issues of self-determination and autonomy (autonomous de-sign as per [36] for instance), and inclusive of a pluriverse of diverse perspectives for facilitating well-being, rather than a monoverse of modernist values [36].

Going forward into a challenging post-COVID-19 Anthropocene, where the pandemic has revealed immense inequities and impoverished millions of people in the service and informal sectors, empathetic and caring design processes are also needed, as the case example above also illustrates. This entails a relational ethic of care that defines the self as a caring being. Noddings [8] (p. 99) argues for such a relational self, i.e., that "the self is a relation, that it is dynamic, in continual flux, and that it is a center of affect and meaning." In her relational approach, care is basic to being human. Feminist contributors to the ethic of

care as well as others like philosopher Nel Noddings and psychologist Carol Gilligan reject dichotomies between reason and emotion, and while there may be disagreement about the normative role of care among various scholars, their work "maintains a commitment to embodied, particular, and gendered experiences" [44] (see also [7,45,46]).

Such an affective and relational ethic in design thinking is useful to contemplate using social entrepreneurship in a tourism context as an example. Developing products and experiences from a social enterprise perspective is grounded in an ethic of care and relationality, embodying empathy, trust and equity too. It:

> challenges universal principles about how we should act and behave, and instead, argues for a relational form of care ethics, wherein caring and responsibility are framed as reciprocal, and deeply embedded in our personal commitments to others (Gilligan, 1982. Furthermore, the intimacy of caring creates bonds that foster relational ecologies, characterized by empathy, trust and equity". [39] (p. 129)

Dianne Dredge (well-versed in using and teaching design thinking, see: [47]) and Eóin Meehan provide an innovative example of a social enterprise, Street Voices, that disrupts trickle-down economics and critically engages with place and people (visitors as well as residents) [40]. Located in Copenhagen, Street Voices works toward capacity building and rehabilitating vulnerable groups that have experienced substance addiction, homelessness, and prostitution. It provides them with training to become street guides, providing collaborative opportunities to participate directly in the framing, development, and delivery of walking tours. Such social enterprise and other models of social entrepreneurship offer alternative modes of provisioning and strengthening the local than promoting instrumental market-based approaches that benefit primarily those who do not own the means of production. Profit in Street Voices is socially motivated, it aims to reduce inequalities among vulnerable and disadvantaged residents.

The example of Street Voices illustrates many social justice and ethical principles, including building capabilities, respect (for others and for human rights), solidarity, recognition, inclusiveness, empowerment, and participation of marginalized and vulnerable groups in civic society through relations of care and concern. In doing so, Street Voices also aims to "empower a social movement that cares for and takes responsibility for others" [39] (pp. 129, 130). Designing for critical engagement and disruption, as Street Voices illustrates, requires more than logical, cognitive empathy to enable critical learning and praxis.

Unfortunately, even the critical pedagogy of Brazilian educator Paulo Freire is subject to criticism here. Paulo Freire uses the Portuguese term *conscientizagao* to describe the process of developing critical consciousness, through a "deepening of the attitude of awareness characteristic of all emergence" from the situation people find themselves in and taking action to change it [48] (p. 109). Freirean praxis is oriented to reflection plus action to change the human condition. But it has yet to shift from cognitive to embodied empathetic action in critical pedagogy, where empathy is a precondition for moral judgement and ethical action [49]. While attuned to cognitive empathy (based on learned information), DT similarly has yet to embrace affective empathy (feelings and emotional responses) that translates into behavior and action-based conative empathy [50,51]. It can be argued that, in addition to a cognitive mode of reflection and consciousness raising, praxis in DT must involve a relational ethic of care where empathy plus action is required to change the situation as needed. This involves affective empathy (feeling) + action empathy (conative empathy). Empathy here is a doing, not just a feeling or thought! Conative empathy for critical pedagogy and learning may be implemented through, for example, "embodied pathways" that facilitate embodied learning. Embodied pathways are courses of action that are "embedded in relational histories and imbued with particular pedagogical and ethical values" [52] (p. 183).

4.2. Implementing the Theoretical into Practice

An important goal therefore arises to refine design thinking approaches for engaged learning and practice to develop designs and outcomes (prototypes, products, visitor experi-

ences, etc.) with a more critical, decolonizing, pluralistic approach that enables epistemic and social justice (e.g., [38,53]). A relational ethic of care and embodied affective action is also crucial. As discussed above, DT has been exclusively focused on cognitive thinking and cognitive empathy. Non-measurable affective values and emotions have been rarely incorporated as vital parameters in the theoretical and practical frameworks forwarded, but research is emerging that recognizes and is beginning to fill this gap [50,52–56]. Future research and practice of DT in tourism and hospitality must therefore attend thoughtfully to these aspects in theory building and in practice (praxis):

(i) Diverse designerly ways of knowing (DWK) which embrace pluralistic worldviews and values. In other words, to address inclusivity not merely in terms of collaborative co-creation but also epistemically with respect to diverse ways of knowing, doing, and becoming, and to outcomes enabling equity and justice.

(ii) Diverse process-oriented approaches to design thinking (DT) that foster relationality and embody affectively values in the practice and implementation of DT, i.e., empathetic engagement with learning in action. Here, empathy is not merely cognitive (in the mind) nor merely affective (i.e., emotions and feelings tugging at the heart), but also conative through acting empathetically (in learning and practice).

We make a start here to offer some guidance for carrying the theoretical aspects into the practical level. Figure 7 sketches a conceptual picture of the affective turn argued for above. Based on our earlier discussion, epistemic justice could be a bridge be-tween cognitive and affective empathy, where embodied feelings and affect dissolve mind-body dualisms to facilitate pluralistic ways of being and becoming, situated in a post-Enlightenment, post-humanist paradigm [57,58]. An ethic of care (referring here to diverse care ethics including feministic ethic of care such as [7–9] may be a bridge to translate affective empathy (feeling) into conative empathy (embodied action) in learning and practice.

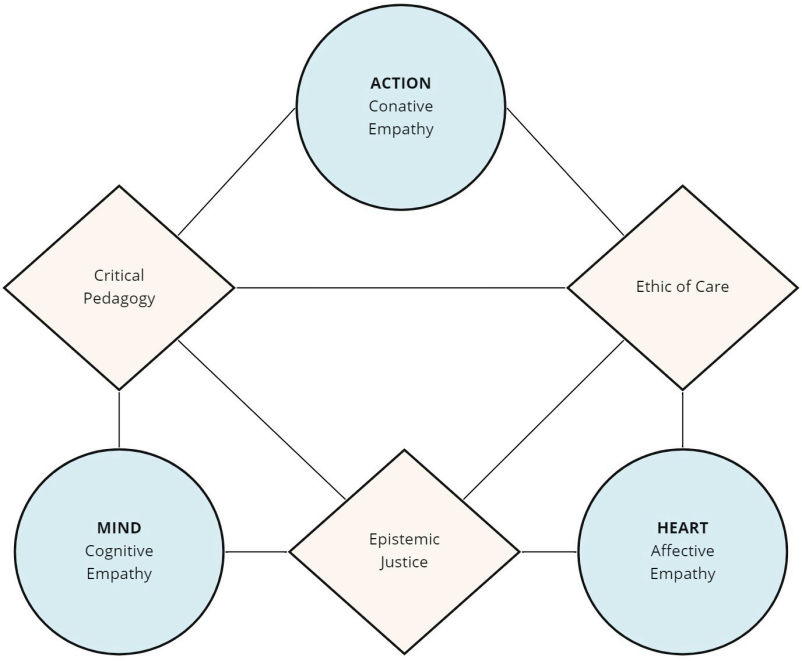

Figure 7. Empathy, Critical Pedagogy, Epistemic Justice, and Ethic of Care. Source: The authors.

Figure 7 can be used to guide DT to develop empathetic research, learning and teaching outcomes. Drawing on the expertise of one of this article's co-authors in the learning sciences, a revision of an existing model called "Design Thinking for Engaged Learning" (DTEL) is undertaken below to guide critical action (*praxis*), informed by Figure 7 and our earlier discussions above.

4.3. Re-Envisioning Design Thinking for Engaged Learning

We revised the Design Thinking for Engaged Learning model [11] to take into account epistemic justice, critical pedagogy, and ethic of care. In the design thinking process portion of the model, the major changes were in the first two steps in which the emphasis was shifted from the original human-centered design work around perspective taking towards more explicit empathy work. The final step of the design thinking process was also adjusted to emphasize the importance of real-world impact. The designerly ways of knowing portion of the model was revised in several important ways. The designerly way of knowing which was called "Empathetic Framing" in the original model was revised to encompass a more robust framing including cognitive (mind), affective (heart), and conative (action) forms of empathy work. Second, the designerly way of knowing described in the original model as "Constructing Prototypes According to the Meanings You Construct" was revised to emphasize not only the construction of meaning, but the co-construction of meaning in which stakeholders and de-signers are co-equal authors of meaning. Third, the "Reflecting on Relevance" designerly way of knowing was revised to encompass epistemic exploration. We will briefly go through the design thinking process portion and then the designerly ways of knowing portion of the DTEL model.

4.4. Design Thinking Process in the Revised DTEL Model

In the revised DTEL model, the design thinking process involves five phases broken down into ten stages (Figure 8).

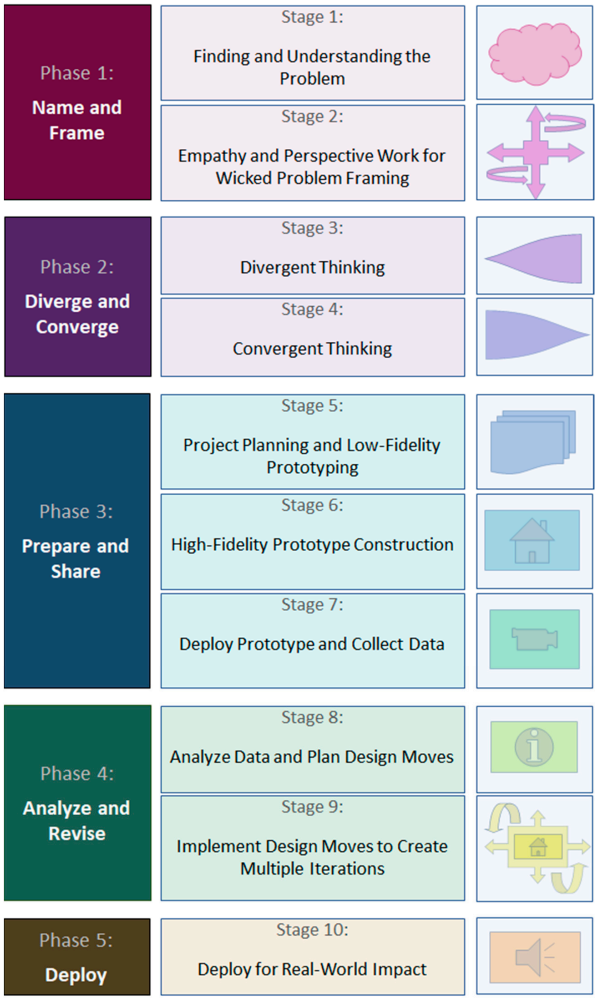

Figure 8. The design thinking process in the design thinking for engaged learning (DTEL) model. Source: The authors.

In phase 1—Name and Frame—learners are guided in finding and understanding a problem. This may involve work with stakeholders as co-constructors of an initial formulation and description of the problem, as well as more academic activities such as conducting literature reviews to consider ways in which similar problems have been framed and addressed in other contexts. At this stage, much of the work is cognitive (mind) empathy. Learners then move into the second stage where they reframe the problem. This reframing involves not only transforming the problem statement such that it is formulated as a wicked problem, but also engaging in affective (heart) empathy and critical pedagogy work. At the heart of critical pedagogy is a focus on analyzing power, questioning one's own assumptions and culturally constructed assumptions, focusing on the margins, and changing social realities [59]. The learning activities at this stage also include epistemic justice work in which learners actively seek to understand beliefs about the nature, positionality, and impact of knowledge through the lens of diverse ways of knowing [60]. The design thinking process should always involve groups of learners (we have found 4–6 learners in each group tends to be ideal), but the timing of group formation is context-dependent. Sometimes the groups form at the beginning of phase 1 with each group working on a unique problem. In other cases, groups form at the end of phase 1 and multiple groups work on the same problem. Because metacognition is essential for powerful learning [61], individual reflective activities and group reflective discussions are used to wrap up and consolidate thinking at the end of this phase, as well as at the end of each of the other phases.

In phase 2—Diverge and Converge—learners start by coming up with as many potential solutions as possible. Whenever possible, this process would involve co-equal participation of stakeholders. Typically, learners work in groups in which they individually write each potential solution idea on a sticky note (physical or digital) and place all the ideas on a surface such as a wall. During this stage, learners are encouraged to be imaginative and stop themselves from self-censorship. After a large number of solution ideas are created, the group of learners gathers and silently reads through all the ideas and re-arranges the ideas with ideas sharing some form of similarity placed near each-other until clusters form. Then they discuss the clusters, perhaps giving a title to clusters, and determine the cluster to which they are most drawn. After determining the solution cluster the group will use going forward, they discuss which of the ideas within the cluster are most promising and are encouraged to synthesize multiple ideas into one statement describing the solution idea.

In phase 3—Prepare and Share—the groups of learners discuss the nature of the solution and determine things such as modality (a physical thing, a digital thing, a process, an environment, etc.) and things needed such as tools, materials, or information. If stakeholder involvement in each group is feasible, this process should involve learners and stakeholders as co-equal participants [62]. Once the group has clarity regarding the nature and modality of the solution, each member individually creates a low-fidelity prototype. A diversity of types of low-fidelity prototypes are encouraged, such as drawings, lists, or flowcharts. Each member presents their prototype to the group, which then discusses ways in which to draw from elements of all the prototypes. As a group, they then construct a high-fidelity prototype—one which is of the nature and modality of the solution they are developing. For instance, if they decide that their solution involves a website, they would create the actual website at this point. Once the high-fidelity prototype is developed enough, they then deploy the prototype in a real-world context with real-world stakeholders to collect data regarding how those stakeholders experience the prototype solution. The form of the data depends on the context and nature of the prototype, but often involves detailed observations, interviews, and occasionally surveys. During the work in this phase the learners are guided in translating their cognitive (mind) and affective (heart) empathy into conative (action) empathy.

Phase 4—Analyze and Revise—starts with analyzing all the data collected when the prototype was deployed in a real-world context in the previous phase. The process of analyzing data will depend on the types of data collected, but learners may need scaffolding in analytical techniques such as coding qualitative data for themes or con-ducting descriptive

statistical analysis of survey data. Guidance during the analysis phase is needed to help the learners engage in critical pedagogy work, particularly in questioning assumptions (their own as well as those of the stakeholders with whom the prototype was deployed), analyzing power in the context in which the prototype was deployed, and keeping their focus on the experience of those who have been marginalized, made invisible, or oppressed [60].

Findings are then translated into design moves in the form of a list of everything that needs to be changed about the prototype. It is important that the design moves are constructed before the learners start making revisions to the prototype. In the next stage the design moves are implemented, usually starting with those which are easiest to implement. After all design moves have been implemented in a second iteration of the high-fidelity prototype, more changes are made to the prototype over multiple iterations. Often the need arises to deploy the prototype, collect more real-world data, analyze the new data, create a new list of design moves, and implement them before the design is developed enough to consider "finished." As in the previous phase, translation of cognitive (mind) and affective (heart) empathy into conative (action) empathy is emphasized. Additional work may be needed throughout this phase to ensure that epistemic exploration leads to an expansion of epistemic diversity [63]. The learning activities in this phase should focus learner's attention on the ways in which their design (including all work on iterations) will contribute to changing social realities toward greater social and epistemic justice [64].

In phase 5—Deploy—the learners deploy their design in a real-world context with the intention of having real-world impact. After the design is deployed, each design group presents to others in the learning context, including their design, experience iterating and deploying, and meanings constructed, followed by reflective discussion. A final individual reflective activity helps learners consolidate their learning and explore how the whole design thinking experience relates to their own personal interests, concerns, identities, and future engagement in professional and community activities.

4.5. Designerly Ways of Knowing in the Revised DTEL Model

The designerly ways of knowing in the revised DTEL model (see Figure 9) are not exhaustive of all designerly ways of knowing identified in the design studies literature but are limited to those of greatest relevance to development of learners as designers and contribute to powerful learning.

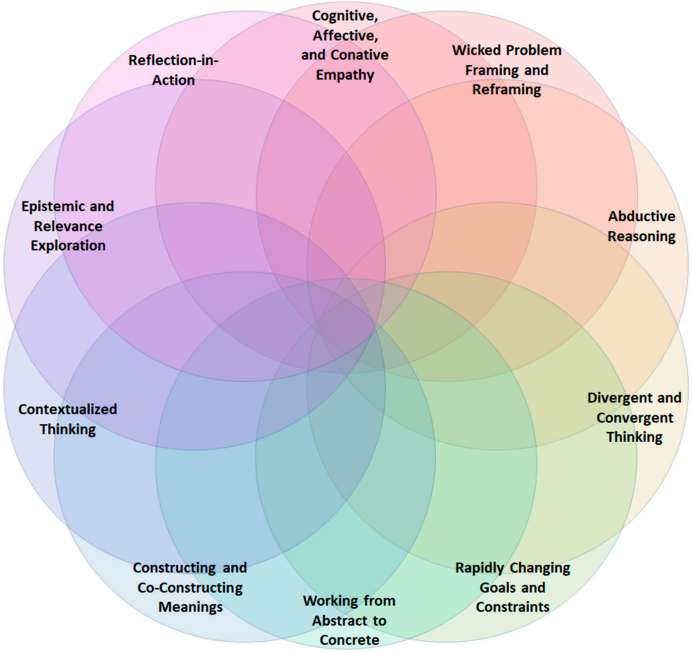

Figure 9. Designerly ways of knowing in the DTEL model. Source: The authors.

All of the designerly ways of knowing are used throughout the entire design thinking process. For instance, in the design thinking process there are distinct diver-gent thinking and divergent thinking stages, but divergent and convergent thinking are developed in the Name and Frame, Prepare and Share, and Analyze and Revise phases. Therefore, when educators use the DTEL model to develop learning activities it is important that the activity instructions and the facilitation strategies integrate designerly ways of knowing. There is no order or hierarchy of designerly ways of knowing.

Wicked Problems Framing and Reframing occurs throughout the entire process, but is most prominent in the Name and Frame phase. Expert designers frame design problems as wicked problems which are characterized by a number of features including multiple good solutions are possible, impossibility of a perfect solution, any solution attempted is imperfect, each solution creates new wicked problems [12]. The framing of the problem is never finalized, and continues to evolve throughout the design process. The problem cannot be defined appropriately until a solution is being developed, but the solution idea cannot be articulated until the problem is formulated. Working in this tension between the continually co-evolving problem and solution requires Abductive Reasoning [17]. Divergent and convergent thinking is also an important designerly way of knowing permeating all stages of the design thinking process and is necessary for working within the tension between the evolving problem and solution, as is Rapidly Changing Goals and Constraints.

In academic settings, learners become habituated in a modality of thinking from concrete to abstract. Therefore, they may need scaffolding in developing the Working from Abstract to Concrete designerly way of knowing. This issue is compounded by traditions in academia in which knowledge is often depicted as abstract entities, and learning as acquisition of knowledge [48]. In the Learning Sciences, learning is often described as individual, collaborative, and collective construction of knowledge [65]. Therefore, engaging learners in Working from Abstract to Concrete goes hand-in-hand with Constructing and Co-Constructing Meanings. Helping learners develop skills in Contextualized Thinking, along with Epistemic and Relevance Exploration, may broaden their epistemological assumptions to go beyond norms in academia they may have become enculturated into such as prevalent beliefs that quantitative studies produce more valid findings due to an assumption that generalizability should be the goal of research [66]. These problematic norms and assumptions in academia contribute to epistemic homogeneity and reproduction of epistemic injustice, but developing the designerly ways of knowing of Epistemic and Relevance Exploration, Contextualized Thinking, Constructing and Co-Constructing Meanings, and Working from Abstract to Concrete may facilitate habits of mind which can serve to counteract the suffering caused by such norms and assumptions [67]. However, these are generally cognitive processes. A more holistic and balanced approach is introduced through the development of the Cognitive, Affective, and Conative Empathy designerly way of knowing which focuses the designer on analytically and emotionally understanding the ways in which people—especially historically marginalized or op-pressed people—experience the problem for which they are designing, and the ways in which solutions they design may be experienced [68]. This is especially powerful when combined with the Reflection-in-Action designerly way of knowing [43].

The design of learning experiences organized by the design thinking process alone is fairly straightforward and easy, but integrating the designerly ways of knowing requires a great deal of deliberate planning. One practice that is particularly helpful is for the educator to simultaneously create two designs: the design of the learning activity, and the design of a facilitation strategy. The learning activity design includes activity instructions given to students for each stage of the design thinking process, instructions for reflective activities, rubrics for students to self-evaluate their work, and so on. The facilitation strategy design includes designerly ways of knowing to emphasize at particular times and feedback to give learners as the educator observes each group.

The current study identified weaknesses in the original DTEL model [11] which the revisions reported here seek to address. The previous emphasis on perspective taking

through a dominantly cognitive (mind) empathy approach has been balanced with affective (heart) and conative (action) empathy. Although the model engaged learners in developing innovative solutions to real problems, the incorporation of critical pedagogy was needed to help learners break free of deeply entrenched assumptions, particularly concerning power and agency, and intentionally develop solutions to address injustices and suffering.

5. Conclusions

This paper argues for the importance of design thinking as a valuable interdisciplinary approach to guide fair, just, and equitable learning and practice (*praxis*) in hospitality and tourism, for example, in product development and marketing, student education (DTEL), as well as engaging visitors as co-equals in the co-creative process of learning, knowledge generation, and product development. As noted earlier, research and implementation of DT can benefit from greater awareness of conceptual aspects, specifically differentiating DWK from DT as per Donaldson and Smith [11]. This will help to better understand the epistemological assumptions that are often left implicit and unchallenged in terms of critical praxis, pluralistic worldviews, and ways of knowing, being, becoming, *and* doing–engaging in critical action to address sustainability, resilience, and communal well-being (of human and non-human others) in the Anthropocene. We offer some guidance towards re-envisioning co-creation of (enhanced) service experiences in hospitality and tourism through an embodied, empathetic practice that must complement critical pedagogy to better enable critical, decolonizing approaches to tourism development, planning, and marketing. The new model presented in this paper shows cognitive and *affective* empathy [11] and includes a new dimension, *conative empathy*. Going forward into post-COVID-19 futures in the Anthropocene, inclusiveness and collaborative engagement in DT and DTEL (learning and practice) is especially important to enable pluralistic worldviews, epistemic justice, and diverse ways of learning and teaching:

- Community-based Collaborative Research for CBT, social enterprises, and businesses must orient design thinking approaches towards *community driven design* vs. externally imposed top-down design (for more on community-driven development, see [69]). *Co-creation*—creating *co-value* as co-equals between visitors and community members—is one aspect, but *co-ownership*, *inclusiveness*, and *co-involvement* in the design of the prototype is crucial if epistemic justice in DWK and communal well-being is to be achieved through the DT process.
- Working as *co-equals* with others in the community and having equal ownership with the designer(s) means being involved right at the start of the DT process, developing the problem, framing, making up the questions, etc. If students are doing the project through DTEL, for instance, then students (designers) must work with resident communities and visitors *early* in the design process to enable a "decolonizing" approach that is fair, equitable, and pursues *epistemic justice*.
- Critical pedagogy and *praxis* as per Freire [48] are simply not sufficient, however, as argued above. Going beyond cognitive empathy, design thinking approaches must include an ethic of care and *embodied empathy* as illustrated by the terms conative empathy in our theoretical framework (Figure 7), in order to facilitate critical action towards inclusiveness, equity and fairness (Figure 7)—advancing communal well-being, resilience and planetary sustainability through just transitions and pluralistic justice in the Anthropocene (see also [70] for more on co-designing for sustainability in tourism);
- Recent emerging post-structural critiques and post-humanist perspectives on affective hospitality may help to further develop pluralistic, relational, non-dualistic approaches to DTEL and DT that advance posthumanistic design and *caring for people and caring about non-human others* (animals and other living things, place and social-ecological systems) (e.g., [56,57,71–73]. As Phi and Dredge [33] point out in their special issue on co-creation:

> The Anthropocene demands that we de-centre our human perspective, to exercise empathy and to acknowledge the rights of Nature. Co-creation has an enormous contribution to make in this regard, because it implores us to

think about the co-design, co-creation and co-production of tourism *with* Nature, and not simply as based on, or exploiting, Nature [33] (p. 283);

- Drawing on cross-disciplinary areas such as the Learning Sciences, and sources like the *Journal of Learning Sciences*, offer valuable guidance to enable transformative learning experiences and relational *praxis*, engaging situated standpoint epistemologies and pluralistic knowledges in affective, human-centered design to enable epistemic justice and responsible practice [74,75].

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