

# Association for Interdisciplinary Studies

Founded in 1979, the Association for Interdisciplinary Studies is the U.S.-based international professional association devoted to interdisciplinarity. Interdisciplinarity integrates the insights of knowledge domains to produce a more comprehensive understanding of complex problems, issues, or questions. For its members and the higher education community in general, the Association

- Promotes the interchange of ideas among a diverse community of scholars, teachers, administrators, and the public regarding interdisciplinarity and integration;
- Advocates best-practice techniques for interdisciplinary teaching;
- Advocates best-practice techniques for interdisciplinary research;
- Advances the exploration of key terms and seeks out new theoretical models that further the understanding of interdisciplinarity and integration;
- Sustains the development of real-world applications of interdisciplinarity and integration;
- Encourages explorations of the relationships between interdisciplinary theory and practice;
- Encourages high quality interdisciplinary curriculum development at both the undergraduate and graduate levels;
- Sponsors the development of standards for interdisciplinary program accreditation;
- Offers best-practice methods for assessing interdisciplinary programs and coursework;
- Encourages the development of administrative structures, personnel policies, and financial models in higher education that support interdisciplinary teaching and research;
- Promotes the scholarship of interdisciplinary and integrative teaching and learning;
- Supports the development of strategies for strengthening the role of interdisciplinarity and integration within (and beyond) the Academy;
- Documents the importance of interdisciplinary and integrative studies for higher education and society in general.

## Membership

Individuals and institutions supporting these purposes are encouraged to join the Association. Annual dues for 2021 are \$300, institutions; \$100, libraries; \$30, students; and \$75, regular members earning less than \$60,000, with voluntary income-based rates of \$100 (\$60,000–79,999), \$125 (\$80,000–99,999) and \$150 (\$100,000+). Amounts above \$75 for a regular membership are fully tax-deductible. The Association publishes a quarterly newsletter and a peer-reviewed journal, maintains a website ([www.interdisciplinartystudies.org](http://www.interdisciplinartystudies.org)), and holds a conference each fall. Applications for membership (with a form available online) should be sent to The Association for Interdisciplinary Studies, Oakland University, 371 Wilson Boulevard, 521 Wilson Hall, Rochester, MI 48309-4452. Dues may be sent to this same address (by check or money order) or paid online with the specified credit cards or PayPal.

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## Editors' Introduction

Perhaps first among the many inter- and transdisciplinarians who would argue for communication and, when possible, collaboration, across boundaries of every kind is Julie Thompson Klein. In words and in action, no one in our field (however variously defined by us and our organizations) has been a more effective champion of productive engagement than she. And it won't surprise you to hear (if you haven't heard already) that she has recently been active in the formation and first endeavors of the Global Alliance for Inter- and Transdisciplinarity (the ITD Alliance). The experience has prompted her to write the first of the articles in this, the 39th volume of *Issues in Interdisciplinary Studies*: "Alliances for Interdisciplinarity and Transdisciplinarity: A Call for Response." In it she reflects on similarities and differences among five of the founding organizations of this new Alliance: the Association for Interdisciplinary Studies (AIS), the Network for Transdisciplinary Research (td-net), the Integration and Implementation Sciences network (i2S), the International Network for the Science of Team Science (INSciTS), and the Center for Interdisciplinarity at Michigan State University (C4I).

In the course of her reflections, she reminds us of an article William Newell wrote for *Issues* in 2013, an article in which he described "The State of the Field," discussing the increasing heterogeneity of those doing interdisciplinary work of some kind and the organizations representing them. Bill used that occasion to issue a challenge to the members of AIS (the organization he founded and led for so long, as readers of *Issues* will know): Should AIS rethink its mission in light of other organizations' theories about and practice of interdisciplinarity (and, of course, transdisciplinarity, so much a part of the ID scene by then)? Julie summarizes what Bill said about the shift away from foci that had characterized AIS concerns from its start (in 1979):

[there had been a shift] from AIS interests in teaching to research, from undergraduate to graduate levels, from humanities and "soft" social sciences to natural sciences and medicine (and to a lesser extent "hard" social sciences), from an individual to a team activity, and from the ivory tower to the real world including participation of non[*sic*]-academics in research and problem solving.

Bill suggested that these trends raised questions about the very identity of AIS—and whether it should perhaps consider expanding its definition of interdisciplinary studies so as to encompass the sorts of interdisciplinary work so many others were busy doing by 2013.

Of course, Julie's discussion of the work others are busy doing now raises the same questions Bill was asking—and not just for members of AIS but also for members of the other organizations comprising the ITD Alliance. As she notes at the end of her article, "all five organizations need to conduct

the kind of introspection that Newell called for in 2013, both internal to their membership and in dialogue with other organizations.” Yes, as she says, “[p]roliferation and dispersal across an increasing number of contexts complicate understanding of both inter- and trans-disciplinarity.” However, the Alliance itself makes more possible than ever the dialogue-cum-introspection that offers splendid opportunity “for mutual learning across intellectual traditions, socio-political forces, cultural perspectives, and institutional structures and missions.” Enlightened by interaction, each organization might rethink its mission, perhaps rededicating itself to the version of inter- and/or trans-disciplinarity with which it began its work, perhaps initiating change.

As it happens, the second article in this collection constitutes the strongest possible evidence that, whatever else AIS might do if it should rethink its mission, it should never give up supporting the sort of interdisciplinary work it has most supported from the beginning—the work of an individual teacher-scholar in an undergraduate interdisciplinary studies classroom. Jennifer Schulz is just such a teacher-scholar, a Senior Instructor in Interdisciplinary Liberal Studies at Seattle University, and the article she offers here is just such an article as this journal likes to feature whenever it can, an especially fine example of the Scholarship of Interdisciplinary Teaching and Learning (or SOITL) that AIS considers so important in our field.

Titled “An Integrative Interdisciplinary Pedagogy for Well-Being in a Catastrophic Era,” the article describes her experience teaching a course on the surprising relationship between well-being and catastrophe even as the pandemic raged. She explains how she employed “methods of literary analysis in conversation with phenomenological psychology and philosophy” to give students insight into that relationship via close-reading of three novels depicting times of terrible upheaval in which characters nonetheless manage to find “a sense of connectedness, community, and hope.” She further explains how thus “diving into a shared exploration of loss, fear, and displacement” took her and her students well past insight into a lived experience in which they “[showed] up increasingly in [their] full humanness” and themselves achieved a “sense of connectedness, community, and hope,” a sense of well-being, even in the midst of our own terrible times. We think you will be as moved by this article—this exemplar of SOITL at its best—as you will be enlightened by it. We certainly were.

The third article in this collection, “Interdisciplinary Studies and Implementation Science: Clarifying the Concept of Fidelity,” is about as different from the second as it could be—and that means it represents anything but the sort of SOITL work that’s been so central to AIS for so long. Rather than reporting on “the work of an individual teacher-scholar in an undergraduate interdisciplinary studies classroom,” it reports on the work of a team of researchers (specifically, researchers in science and medicine) addressing

the application in real-world situations of “interventions” meant to improve outcomes. And it addresses the need for fidelity in such application and the consequent further need for a reliable framework for evaluating fidelity. The article embodies just such shifts in the practice of interdisciplinarity (and attendant theory) as Bill Newell spoke of in 2013 and as Julie Klein speaks of in the article that opens this volume—shifts including a decided move towards work (team work) that can be characterized as transdisciplinary.

In fact, the article, by lead author Catrine Demers, from the Faculty of Health Sciences at the University of Ottawa, who was working with two others from that Faculty, Sayna Bahraini and Wendy Gifford, and three from the Faculty of Health at Laurentian University, Zoe Elizabeth Higgins, Roxanne Pelchat, and Pascal Lefebvre, should have real appeal for interdisciplinarians of every ilk. We think members of AIS as well as members of other organizations that accord transdisciplinary work by teams of researchers more attention than AIS has accorded it in the past will benefit from its inclusion here. And it is our hope that its inclusion will demonstrate that, however proud of its past AIS may be, AIS *is* interested in expanding the parameters of the work it endorses and encourages beyond its earlier boundaries.

Of course, as you'll see when you turn to the article itself, it actually offers a fusion of older and newer versions of ID work in that its authors emphasize how the former helped enable them to do the latter—and may help others to do the latter, as well. As they say at the start of the piece,

evaluating fidelity is essential for researchers and practitioners when making sure they implement a plan as intended. However, the concept of fidelity remains unclear, given that various conceptualizations exist within and across disciplines. To help researchers and practitioners understand fidelity, a conceptual framework integrating definitions within and across disciplines is needed.

They proceed to report on the study that issued in the “conceptual framework” they speak of—including a “scoping review” of truly unprecedented scope—and, in the process, they report on their use of “techniques that will be familiar to interdisciplinarians,” steps that enable the discovery of commonalities amid differences and the integration of disparate views, improving communication and collaboration. The steps served them well. As they put it themselves, “this very article illustrates how interdisciplinary studies and implementation science can work together.”

The fourth and final article that we're offering this year, by Marissa McCray of the University of Dayton, is “Easing the Uncertainty: How an Interdisciplinary Learning-Living Program Helped Undeclared Students Make Academic and Vocational Choices.” It represents SOITL work, as Jennifer Schulz's article does, but this time the individual teacher-scholar is discussing the

teaching and learning taking place in the whole of an undergraduate program and not just one of the classes in that program. She is interested in the extent to which the program successfully implements key elements in its mission (and the mission of the university as a whole)—those that support students as they make decisions about their majors and careers, about, in fact, the trajectories they envision for the whole of their future lives.

Given that such decision making about vocation is especially challenging for “undeclared students” who enter college with no major in mind, Marissa focuses on students in that category. And she details the way the Discover Arts Program at Dayton serves them via its Core Integrated Studies Program, a two-and-a-half-year interdisciplinary learning-living program that integrates the humanities, arts, and social sciences in its coursework and also complements the experiences students share in the classroom with those they share in their dorms. As Marissa says towards the end of her article,

Themes drawn from the data [she collected for her study] reveal how the Core Program created a means for students, even the most undecided, to navigate the uncertainty of decision-making processes by immersing them in robust interdisciplinary curricular content, challenging course projects, and thought-provoking experiential opportunities, all while fostering a tight-knit intellectual community. The interdisciplinary curriculum coupled with the learning-living component of the program offered students a highly impactful experience.

And it was an experience impactful in ways that did indeed advance the Core Program mission, complementary to that of the university itself, to shape not just students’ minds but also their characters in ways that will yield purposeful work and meaningful living later in life as well as in the rest of their academic careers. As the program motto would have it, “*Core docet cor.*” Or “Core educates the heart.”

Perhaps we might close this introduction to the 39th volume of *Issues in Interdisciplinary Studies* by noting that organizations may develop a sense of vocation even as individuals do—creating mission statements that articulate the purposeful work that they would like to do. And we might further note that, for organizations as for individuals, it may be a good idea to revisit plans now and again, and reconsider the version of vocation they represent. Bill Newell seemed to be thinking along these lines in 2013 when he challenged AIS to consider expanding its definition of interdisciplinary studies—and rethinking its mission. And Julie Klein is thinking along these lines now, encouraging “all five” of the organizations she discusses in her article “to conduct the kind of introspection that Newell called for . . . both internal to their membership and in dialogue with other organizations.” Indeed, in the very title of her article, she issues “A Call for Response” to this challenge. We would like to do the same.



We look forward to hearing from members of our own organization—and from members of the others that Julie has named— in short, from all who share our passion for interdisciplinary work, however defined. As Julie says at the end of her article, and we will end with these words, too, “this journal is an ideal site for response.”

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## Alliances for Interdisciplinarity and Transdisciplinarity: A Call for Response

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**Abstract:** Prompted by William Newell’s 2013 call for the Association of Interdisciplinary Studies (AIS) to consider whether to rethink its mission in light of other organizations’ interests, this article begins by reflecting on similarities and differences among five of the founding organizations of a recently formed Global Alliance for Inter- and Transdisciplinarity. In chronological order of their own founding dates they are AIS, the Network of Transdisciplinary Research, the Integration and Implementation Sciences network, the International Network for the Science of Team Science, and the Center for Interdisciplinarity at Michigan State University. Descriptions of the five in Part I account for their emergence, communication venues, keywords of representation, website features, and prominent outputs. Given the centrality of integration in both inter- and trans-disciplinarity, it also describes their stances on this prominent topic. Part II reflects on implications of the current heterogeneity of the core concepts, focusing initially on generalizations including distinctions between Zurich and Nicolescuian approaches to transdisciplinarity followed by the premise of distinct Franco and U.S. traditions of the field of nanomedicine. It then draws further insights from case studies of institutionalizing interdisciplinarity across Europe, Russia and the South Caucasus, Africa, Latin and North America, Australia, and Asia. After commenting on signs of change in AIS, discussion turns to historical precedents for prioritizing problem solving, followed by future horizons for both inter- and trans-disciplinarity with emphasis on implications of their heterogeneity and overlaps with other prominent concepts such as Convergence and Mode 2 Knowledge Production. The closing section presents final reflections for answering Newell’s challenge for AIS members to consider expanding its definition of interdisciplinary studies and conception of integrative process in light of other organizations’ interests.

**Keywords:** interdisciplinarity, transdisciplinarity, team science, integration, alliance

Recent formation of a Global Alliance for Inter- and Transdisciplinarity (ITD Alliance) is an occasion for reflecting on how organizations differ while also having common values and goals. An alliance forms for the mutual benefit of

individuals or groups on a temporary, an unspecified, or a long-term basis. By joining forces they are able to advance overlapping interests, in the process expanding their knowledge base while strengthening separate efforts through a unified voice. The structure of an alliance may be a loose network or a formal partnership such as a union of workers, a consortium of businesses, a confederation of political allies, or in the academic world a professional society. Following suit, interactions of their members may take the form of informal exchanges, cooperation and coordination on designated tasks, or full-scale collaborations that could even lead to legal mergers. Each organization typically retains its individual mission but subordinates differences when joining others for a shared purpose. A prior attempt to coordinate efforts, the International Network for Interdisciplinarity and Transdisciplinarity (INIT), faltered due to lack of long-term financial backing and a governance structure. Launched in 2019, the new ITD Alliance is endorsed by the Swiss Academies of Arts and Sciences and has a formal Board as well as by-laws, but it is still dependent in its early days on members' dues and donations. Initial founding members included the US-based AIS, Swiss-based Network of Transdisciplinary Research (td-net), Australia-based Integration and Implementation Sciences (i2S), US-based International Network for the Science of Team Science (INSciTS), and US-based Center for Interdisciplinarity at Michigan State University (C4I). They were also joined by the German-based Methodology Center at Leuphana University in Lüneburg and the Swiss-based Transdisciplinarity Lab at the Department of Environmental Systems Science in ETH Zurich's federal institute for science and technology.

AIS included three of these organizations on its website page "Interdisciplinary Connections"—td-net, i2S, and INSciTS. In 2013, though, AIS co-founder William Newell challenged the Association to consider whether its mission needs rethinking in light of others' conceptions of inter- and transdisciplinarity, including the dominant AIS definition of interdisciplinary studies and conception of integrative process. When the Association was founded in 1979, Newell recalled, the locus of interdisciplinary activity in the United States was mostly education and especially undergraduate liberal arts courses, though other scholars have highlighted interdisciplinary fields as a prominent category as well. Since 1979, Newell argued, the primary locus of activity and funding at large had shifted from AIS interests in teaching to research, from undergraduate to graduate levels, from humanities and "soft" social sciences to natural sciences and medicine (and to a lesser extent "hard" social sciences), from an individual to a team activity, and from the ivory tower to the real world including participation of non[*sic*]-academics in research and problem solving. These trends, he exhorted, raise questions about the identity of AIS. Newell highlighted two developments in particular: the science of team science and "transdisciplinary studies," though the latter term is not widely used (p. 35). The first development, he suggested, raises the question of whether

interdisciplinary process should be recast as a team activity. The second pushes the Association to rethink its long-standing premise that interdisciplinarity is reliant on disciplines. He also suggested both developments raise questions about whether interdisciplinarity is focused on application and implementation instead of academic knowledge, whether it is located in the “real world” instead of the university, and whether it is nested in political or social activity rather than intellectual inquiry.

This article answers Newell’s challenge for AIS members to consider implications of other organizations’ interests by comparing in chronological order of their own founding five of the initial members of the ITD Alliance: AIS, td-net, i2S, INSciTS, and C41. Table 1 is a composite of data for comparison: accounting for their emergence, affiliation, communication venues, keywords of representation, website features, and prominent outputs. Given its centrality in both inter- and trans-disciplinarity, it also describes their stances on the cross-cutting topic of integration. Klein and Newell (1997) deemed integration the “acid test” of interdisciplinarity (p. 404), while Pohl, van Kerkhoff, Hadorn, and Bammer (2008) called it “the core methodology underpinning the transdisciplinary research process” (p. 42). The article then weighs validity of generalizations about both inter- and trans-disciplinarity, including “Nicolescuian” versus “Zurich” conceptions of transdisciplinarity and Franco versus U.S. conceptions of the interdisciplinary field of nanomedicine. It next draws insights from a new international collection of case studies of institutionalizing interdisciplinarity across Europe, Russia and the South Caucasus, Africa, Latin and North America, Australia, and Asia. After commenting on signs of change in AIS, discussion turns to historical precedents for prioritizing problem solving, followed by future horizons for both inter- and trans-disciplinarity with emphasis on their current heterogeneity and overlaps with prominent concepts such as convergence and Mode 2 knowledge production. The closing section presents final reflections for answering Newell’s call for AIS members to consider expanding its definition of interdisciplinary studies and conception of integrative process in light of other organizations’ interests.


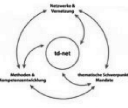

## **Part I: Comparing Members of the ITD Alliance**

Comparison of the five selected founding members of the new ITD Alliance reveals both similarities and differences.

### **Association for Interdisciplinary Studies**

Founded in 1979 in the United States, AIS was launched at a final session of a national conference in the state of Ohio on Teaching of Interdisciplinary Social

Table 1: Composite data for the five organizations in this article: the Association for Interdisciplinary Studies (AIS), the Network for Transdisciplinary Research (td-net), the International Network for the Science of Team Science (INSciTS), Integration and Implementation Sciences (I2S), and the Center for Interdisciplinarity (C4I).

 <p><b>ASSOCIATION FOR INTERDISCIPLINARY STUDIES</b></p> <p><b>Communication Venues:</b> Annual Conferences, Newsletter, Journal</p> <p><b>Keywords:</b> Interdisciplinarity, Integration, Common Ground, Best Practices</p> <p><b>Website:</b> <a href="http://interdisciplinarystudies.org/">http://interdisciplinarystudies.org/</a></p> <p><b>Website Features:</b> Conferences, Publications, Resources</p> <p><b>Prominent Outputs:</b> Guidelines for Tenure and Promotion, Assessing Interdisciplinary Programs, Peer Reviewed Syllabi, About Interdisciplinarity, Publications by Scholars Connected to AIS</p>	<p><b>Founding Year:</b> 1979</p> <p><b>Founding Location:</b> United States</p> <p><b>Affiliation:</b> Self-Organizing</p>
 <p>td-net   Network for Transdisciplinary Research</p> <p><b>Communication Venues:</b> Website, Conferences</p> <p><b>Keywords:</b> Transdisciplinarity, Co-Production of Knowledge, Mutual Learning, Wicked Problems, Sustainability, Integration</p> <p><b>Website:</b> <a href="http://transdisciplinarity.ch/en/">http://transdisciplinarity.ch/en/</a></p> <p><b>Website Features:</b> td-net Toolbox of Methods and Tools, tdMOOC online course, Publications and Tour d'Horizon of Literature</p> <p><b>Prominent Outputs:</b> <i>Handbook of Transdisciplinary Research, Principles for Designing Transdisciplinary Research</i></p>	<p><b>Founding Year:</b> 2000</p> <p><b>Founding Location:</b> Switzerland</p> <p><b>Affiliation:</b> Swiss Academies of Arts &amp; Science</p>
 <p>I2S   Integration &amp; Implementation Sciences</p> <p><b>Communication Venues:</b> Website, I2S Insights Blog, Quarterly E-Newsletter</p> <p><b>Keywords:</b> Integrative Applied Research, Complex Real-World Problems, Synthesizing Disciplinary &amp; Stakeholder Knowledge, Managing Unknowns</p> <p><b>Website:</b> <a href="http://i2s.anu.edu.au/">http://i2s.anu.edu.au/</a></p> <p><b>Website Features:</b> What is I2S, Resources, Integration &amp; Implementation Insights Blog</p> <p><b>Prominent Outputs:</b> <i>Disciplining Interdisciplinarity, Research Integration Using Dialogue Methods</i></p>	<p><b>Founding Year:</b> 2002-2003</p> <p><b>Founding Location:</b> Australia</p> <p><b>Affiliation:</b> Australian National University</p>

	INSciTS   International Network for the Science of Team Science	<p>  <b>Founding Year:</b> 2010/2018   <b>Founding Location:</b> United States   <b>Affiliation:</b> Self-Organizing (originally National Cancer Institute)         </p>
	<b>Communication Venues:</b> Annual Conferences, Special Interest Groups	
	<b>Keywords:</b> Team Science, Research Collaboration, Complex Problems, Social and Cognitive Integration, Transdisciplinary Methodological and Conceptual Frameworks	
	<b>Website:</b> <a href="http://www.inscits.org/">http://www.inscits.org/</a>	
	<b>Website Feature:</b> Conference Materials	
	<b>Prominent Outputs:</b> <i>Strategies for Team Science Success, Enhancing the Effectiveness of Team Science</i>	
	Center for Interdisciplinarity MICHIGAN STATE UNIVERSITY	<p>  <b>Founding Year:</b> 2017   <b>Founding Location:</b> United States   <b>Affiliation:</b> Michigan State University         </p>
	<b>Communication Venue:</b> Toolbox Dialogue Initiative	
	<b>Keywords:</b> Interdisciplinary Research, Graduate Education, Convergence, Integration	
	<b>Website:</b> <a href="http://c4i.msu.edu/">http://c4i.msu.edu/</a>	
	<b>Website Features:</b> Graduate Fellows, Research, Events, News	
	<b>Prominent Output:</b> <i>The Toolbox Dialogue Initiative: The Power of Cross-Disciplinary Practice</i>	

Science. Its founding members emphasized integration is the distinguishing feature and indicator of quality in interdisciplinary education. The most prominent model endorsed by the Association has been Allen Repko's (2008, 2012) textbook for students engaged primarily in individual research projects. Per O'Rourke's (2017) and O'Rourke, Crowley, and Gonnerman's (2016) classification of approaches to integration, it is a top-down blueprint in which Repko assigned it to stage 9 in a linear 10-step model, based on my initial attempt to understand what is required for integrating insights from different disciplines (Klein, 1990). Repko's version reinforced two widely shared beliefs in AIS: that integration is a cognitive process and that establishing common ground is fundamental to achieving comprehensive understanding of a complex question, problem, or theme. His version enjoyed the imprimatur of the Association by virtue of being featured in its publications and conference presentations, to the degree it was promoted as *the* model for interdisciplinary research.

Newell (2013) asserted it became “the de facto ‘lead model’ largely by default” (p. 33). However, as a result of further study and involvement in td-net, i2S, and INSciTS, my thinking expanded to recognize the elevated role of iteration and recursivity in new models of inter- and trans-disciplinary collaboration. When Rick Szostak joined Repko in third and fourth editions of the handbook, they acknowledged iteration might result in rethinking original assumptions though still assigned integration to a later stage. At the same time, the growing body of literature on transdisciplinarity was highlighting communicative and organizational dynamics as well as interaction of cognitive and social dimensions of integration.

Repko and Szostak (2017) were also mindful of the developments Newell signaled, deeming transdisciplinarity (TD) and team science “complementary scholarly enterprises” for AIS (p. xvii). They called TD, in particular, a form of “interdisciplinarity plus” that integrates insights from both academic disciplines and perspectives outside the academy. Yet, even while contending it is not contradictory to the practice of interdisciplinarity, they declared emphatically transdisciplinarity is *not* interdisciplinary studies (p. 25). Repko and Szostak further suggested their model might apply to teams. However, they referred readers to [IN]SciTS and td-net for fuller explanation of dynamics of collaboration and engaging stakeholders while retaining an academic and cognitive orientation. Awareness of competing approaches grew, though, as several AIS members became involved with other organizations. The same year the third edition of the textbook appeared, for instance, three of us co-hosted a session on AIS at the 2017 td-net conference at Leuphana University in Lüneburg, Germany (Klein, Keestra, & Szostak, 2018). We introduced the Association’s mission, constituency, activities, and resources then opened discussion to exploring ways of serving common interests with the audience, which included members of i2S, td-net, INSciTS, and C4I. Ensuing dialogue on reasons individuals attended the session revealed differing motivations, ranging from simple curiosity to a desire among those having prior interactions with AIS to pursue future connections. Participants’ sense of whether joining the Association would advance their interests also varied, ranging from doubt to eagerness. These differences illustrate an important benefit to alliance. Interaction is a reciprocal process, presenting opportunities for all sides to learn about each other and, echoing Newell’s call to AIS members, to consider whether their missions might be expanded, modified, or remain unchanged. In a significant step toward dialogue, at the same 2017 conference representatives of a number of founding organizations for the ITD Alliance met informally to begin exploring prospects for a new coalition under td-net’s oversight. Initial “founding members,” including ones in this article, pledged verbal support for the initiative, though subsequently the Alliance developed a formal payment structure distinguishing “institutional” and “individual” members.



## Network for Transdisciplinary Research (td-net)

Td-net was launched in 2000 by the Swiss Academic Society for Environmental Research and Ecology. In 2003 the Swiss Academy of Sciences took it over and since 2008, td-net has been an initiative of the Swiss Academies of Arts and Sciences. The Network was created for the explicit purpose of promoting transdisciplinarity and its starting point according to the website is environmental and sustainability research, while also advancing a problem-oriented, stakeholder-inclusive connotation of TD documented on the multi-lingual Publications and Tour d'Horizon pages (<https://transdisciplinarity.ch/en>). The movement that gave rise to the Network emerged in environmental research during the late 1980s and early 1990s in German-speaking countries and to a lesser extent related activities in Sweden and in the Netherlands. Since then this discourse has spread to Africa, Latin America, and Australia. Jürgen Mittelstrauss (1992) is often credited with introducing the concept of the *Lebenswelt* (lifeworld) into definition of transdisciplinarity, positioning real-world problems as the starting point for research rather than disciplines and, subsequently, aligning it with a higher degree of integration than interdisciplinarity. The website acknowledges a plurality of definitions: for example, conducting research on problems such as cancer, bridging Western and other forms of knowledge, and bringing together scientific and spiritual thinking in a holistic manner. Nonetheless, td-net is strongly focused on societal problems and mutual learning in collaborations involving academic researchers and stakeholders from other sectors, including professionals in government and industry as well as members of local and regional communities. The seven defining principles of td-net include orientation to societal challenges, comprehension of the complexity of problems, development of knowledge and practices that promote the common good, integration of different perspectives, production of systems-target-and-transformation knowledge, conception of science as part of a social learning process, and bridging of abstract and case-specific knowledge.

Although integration is regarded as a core methodology for transdisciplinary research, authors in td-net literature have identified differing forms. Zierhofer and Burger (2007) distinguished thematic, product- or problem-oriented, and social types of integration while Jahn, Bergmann, and Keil (2012) identified different epistemic, cognitive, social-organizational, and communicative levels. Two chapters in the *Handbook of Transdisciplinary Research* (Hirsch Hadorn, et al., 2008) present a closer view of integrative process. Bergmann and Jahn (2008) generated a model based on the *CITY:mobil* project, which grappled with the challenge of mobility in two German cities. The project involved 20 participants from multiple disciplines and stakeholders in departments of city and transportation planning. The four-phase model that emerged placed integration at a third and a final stage, but the authors

emphasized it is an ongoing process. In a subsequent chapter, Pohl, van Kerkhoff, Hirsch, Hadorn, and Bammer (2008) presented a more general model of integration in a matrix combining three types of collaboration—common group learning, deliberation among experts, and work of a subgroup or an individual—with four methods—mutual understanding, theoretical concepts, models, and products. Like Bergmann and Jahn, they also stressed the importance of ongoing attention to process while affirming integration is not solely cognitive. Institutional factors are enabling conditions as well. Mindful of the need for tested methods and tools, td-net has also produced a Toolbox calling attention to synthesis and integration as well as participatory research, team-based collaboration, design thinking, and impact-oriented research. In addition, other well-known techniques include Delphi, design thinking, scenario integration, Venn diagramming, actor constellation, emancipatory boundary critique, multi-stakeholder discussion groups, storywall, and a give-and-take matrix. The next organization has also advanced an expanded connotation of transdisciplinarity, but in a different arena.

## Integration and Implementation Sciences

The Integration and Implementation Sciences website was established in 2002, and the first published mention of “i2S” appeared the following year (Bammer, 2003). The i2S network evolved from Gabriele Bammer’s (2013) effort to create a new discipline of integration and implementation sciences with the aim of providing concepts and methods for “integrative applied research” on complex real-world problems, synthesizing disciplinary and stakeholder knowledge, understanding while managing unknowns, and coordinating support for policy and practice. Bammer likened this effort to create a new discipline to the model of statistics. The website keeps users informed about relevant publications, journals, conferences, organizations, tools, and approaches (<https://i2s.anu.edu.au/what-i2s>). The Integration and Implementation Insights blog, established in 2015 on a separate but linked site, is also a forum for sharing methods and practices while fostering a community of expertise (<http://i2Insights.org>). And, links in the Resources section lead to other organizations: including AIS, td-net, INSciTS, and the ITD Alliance. Bammer et al. acknowledged core elements of integrative applied research already exist, but cautioned progress is limited by fragmentation resulting from dispersal and marginalization. In an effort to achieve a more coordinated effort, she and 26 other authors came together under the mantle of the i2S mission to propose a knowledge bank for integration and implementation (Bammer, et al., 2020). It would guide users to related approaches: including action research, interdisciplinarity, transdisciplinarity, systems thinking, complexity science, sustainability science, integrative assessment, systemic intervention, and participatory methods.

To elaborate, the knowledge bank would render related forms of expertise more visible and accessible while presenting an authoritative voice to policy makers and funders. Its scope would be greater than a toolkit, though many such resources would be included along with integrative databases, atlases, and compendia the authors reported have not been able to gain traction on their own. The task of building a knowledge bank, however, is formidable, and the authorship group admitted they illustrate in microcosm challenges that coalitions face. Building a repository requires compiling pertinent expertise, indexing and organizing it, as well as understanding reasons for continuing fragmentation in order to mitigate them. It also entails assembling a coalition of communities and teams, and making their expertise easy to find by a wide range of individuals, teams, and communities of practice. In addition, a host of other practical matters loom, including long-term funding, intellectual integrity, technological interoperability, and meta-data standards. In order to strengthen individual efforts regional coalitions have formed. For instance heads of organizations in the Oceania region, where the i2S home is located, created the Network of Interdisciplinary and Transdisciplinary Research Organization to ensure funders and research policy makers understand, value, and support research integration and implementation (<https://nitro-oceania.net/about/>). In Africa, the International Research Council's initiative on Leading Integrated Research for Agenda 2030 also aims to increase integrated research on sustainability challenges in the region (<https://council.science/what-we-do/funding-programmes/lira2030/>). Although the next organization differs, it too is fostering allied efforts.

## The International Network for the Science of Team Science

Coining of the acronym “SciTS” for science of team science dates to a 2006 conference sponsored by the US-based National Cancer Institute (NCI), though a designated community was launched in 2010 at the first SciTS conference then subsequently renamed “INSciTS” in 2018 when securing tax status as a non-profit organization. The NCI is part of National Institutes of Health, the largest medical research agency in the country. This point of origin established a close and continuing relationship with clinical and translational sciences, which aims to bridge scientific research and protocols of practice in health and wellness. Hall, Stipelman, Vogel, and Stokols (2017) attributed this movement to increases in teamwork and real-world problem solving aimed at accelerating discovery and innovation. Some individuals became involved with td-net in subsequent years, but the dominant definition of TD in INSciTS highlights new methodological and conceptual frameworks, not co-production of knowledge with stakeholders in society. The most explicit alignment with integration appears in a state-of-the-art report on *Enhancing the Effectiveness of Team Science* (NASEM,

2015), linking “deep integration” with organizational factors, communication, and interplay of social, psychological, and cognitive dimensions of teamwork. The current president of INSciTS, Stephen Fiore (2008), has proposed remaking interdisciplinarity as teamwork, arguing it is not feasible to conduct interdisciplinary research independently. He cited the Renaissance-man model of Leonardo da Vinci. However, that connotation is a pre-disciplinary construct and borrowing concepts and methods as well as hybrid specialization are more common than the notion of a Renaissance-style “generalist.”

INSciTS has relied primarily on annual conferences to reach and to build its audience, though members have produced a substantial record of publications in a remarkably short time. NCI also sponsored a bottom-up, user-generated Team Science Toolkit, though it is currently dormant. The growing literature on team science includes not only the 2015 NASEM report but a recent volume of *Strategies for Team Science Success*, described as a *Handbook of Evidence-Based Principles for Cross-Disciplinary Science and Practical Lessons from Health Researchers*. This subtitle, though, is deceptive, since authors came from a wide range of backgrounds, thereby broadening insights and recommendations for both theory and practice (Hall, et al., 2019). Like O’Rourke et al. (2019), the editors and some authors also called attention to technological capabilities that are enhancing dataset integration and collaborative data analysis. Furthermore, they advocated engaging stakeholders including practitioners, policymakers, members of industry, community organizations, and citizens. The latter two groups, however, are not typically involved deeply in the actual process of research and decision-making. INSciTS-affiliated authors Hall, et al. (2012) have also promoted a top-down, linear blueprint model of transdisciplinary team-based research: moving from development and conceptualization to implementation and translation. They acknowledged movement across stages may be recursive, but in the final phase specify findings are applied along a pathway from discovery to implementation. As a result, influence is typically a one-way flow *from science to* protocols and procedures in professional practice. Comparably, the 2015 NASEM report aligned translation with application and transfer of scientific knowledge, in contradiction to scholarship in humanities and the field of translation studies that recognizes historical and cultural influences problematize direct transfer from an original meaning to a new context. Like INSciTS, the next example also endorses collaboration but on a more global scale.

## The Center for Interdisciplinarity

Founded in 2017, the Center bears the name “interdisciplinarity” in its title but is also committed to a connotation of transdisciplinarity consistent with problem-oriented research involving stakeholders beyond the academy. This definition is in keeping, as well, with the land-grant mission of the Center’s

host institution, Michigan State University (MSU). The Morrill Act of 1862 established support for U.S. colleges specializing in agriculture and mechanical arts of applied sciences and engineering. C4I combines the Morrill Act's commitment to service with activities that advance interdisciplinary research and education across the local campus while also contributing to scholarship on both crossdisciplinary and cross-sector approaches. Two activities illustrate this combination. The first, the Transdisciplinary Graduate Fellowship Program, supports student partnerships with community members in order to work on a significant problem, while also providing training in teamwork transferable to future endeavors. The second and signature project, the Toolbox Dialogue Initiative (TDI), conducts capacity-building workshops beyond MSU using philosophy-based, survey-style instruments for identifying underlying beliefs and values that influence the ability of individuals with different forms of expertise and worldviews to work together. Thus, the Initiative aims to improve collaboration, whether for strategic planning in a particular organization or enhancing communication in projects (Hubbs et al., 2020). Individuals associated with the Center also interact with other groups, including involvement in conferences and publications of AIS, i2S, td-net, and INSciTS. In the latter case C4I was host to the 2019 team-science conference. Featured plenaries included not only long-standing INSciTS interests in clinical and translation sciences but also insights from agricultural research, the land-grant focus of MSU, and a rare demonstration of Indigenous modes of collaborative dialogue in a roundhouse seating rather than traditional academic hierarchy of an elevated speaker platform.

Furthermore, scholars affiliated with C4I have made significant contributions to understanding the nature of integration. They have identified multiple means: including unification by reduction, a global theory or an overarching abstract model, interconnections between fields, local theories, and micro-level integrations. In addition, they distinguished four faultlines of definition: linear algorithmic step models vs. heuristic and constructivist frameworks that pay greater heed to iteration and reflexivity, cognitive vs. social and communicative aspects of teamwork, interdisciplinarity as an individual vs. a collaborative phenomenon, and emphasis on disciplines vs. inclusion of societal perspectives outside academic walls. They also identified differing levels of abstraction and concreteness as well as multiple epistemologies and methodologies (O'Rourke et al., 2016; O'Rourke, 2017). More recently, O'Rourke reported the TDI team is now conducting research on the relationship of integration and convergence (personal communication, February 26, 2021). The second concept has become a term *du jour* in the US, bolstered by the National Science Foundation's (NSF) alignment of convergence with solving complex problems by "deep integration" of knowledge, methods, and expertise from different disciplines and new frameworks for discovery and innovation. NSF's website further links the concept with transdisciplinarity (<https://www.nsf.gov/od/oia/convergence/index.jsp>). Supported by a NSF Convergence grant,

C41 is currently building on the Toolbox Initiative to explore disciplinary identity and its relationship to epistemic cognition, drawing insights from a survey and interviews with scientists. Individuals associated with the Center, O'Rourke also reported, have been expanding understanding of integration as both a conceptual approach in academic settings and a socio-behavioral approach in collaborations with community stakeholders. Comparable to AIS, C41 has treated integration as a foundational concept for interdisciplinarity, but extends the focus to transdisciplinary and collaborative research (<https://tdi.msu.edu/research-overview/tdi-integration-research>). Hence, O'Rourke et al. (2019) linked integrative process with iteration, negotiation, trade-offs, and contextual parameters, not a universal model.

As the forgoing examples illustrated, historical perspective is illuminating. When AIS was founded in 1979, its leaders felt the term *interdisciplinary* lacked sufficient stature to include in the Association's title. By 2013, though, the governing board formally adopted *interdisciplinary* instead of *integrative* to be more consistent with contemporary usage, adding "especially outside of North America" (<https://interdisciplinarystudies.org>). Comparably, Bergmann and Jahn observed a parallel with *transdisciplinarity*. When they conceptualized the CITY:mobil project in 1993, the term was not widely recognized in Germany. So, they called it "interdisciplinary, problem and actor oriented" (2008, p. 90). By the late 20th century, however, TD had become a more common and sanctioned signifier. To recall, td-net enjoys sponsorship of the Swiss Academy of Arts and Sciences and INSciTS was endorsed initially by the (U.S.) National Cancer Institute. AIS does not have a formal institutional sponsor, but i2S and C4I have university affiliations. Their separate missions also vary. Interdisciplinarity and integration remain central to AIS, with the aim of promoting best practices. In contrast, td-net has been a leading advocate of engaging stakeholders in transdisciplinary research with a frequent focus on sustainability, while INSciTS continues to advance collaborative problem solving in health and wellness even while now expanding contexts. The core connotation of TD in INSciTS also continues to emphasize conceptual and methodological frameworks, rather than fuller involvement of stakeholders. In turn, i2S is advancing integrative applied research by synthesizing disciplinary and stakeholder knowledge with unique concern for unknowns and uncertainties. And, given that C4I is the most recently founded organization, its scholars are drawing on the full body of literature on inter- and trans-disciplinarity even with a strong orientation to philosophy.

## Part II: Deepening Answers to Newell's Challenge

Part II moves beyond the five selected organizations to provide historical perspective on the current heterogeneity of both inter- and trans-disciplinarity.

The central question of Barry and Born's 2013 book sets a framework for answering Newell's challenge. They asked "How might one understand inter-disciplinarity less as a unity and more as a field of differences, a multiplicity" (p. 5). Multiplicity requires scrutinizing generalizations about definition.

## Generalizations

Generalizations about inter- and trans-disciplinarity typically accentuate difference. Sue McGregor (2020), for example, distinguished Zurich (Swiss) and Nicolescuian approaches to transdisciplinarity. The first is based on a 2000 international conference on TD in Zurich that reflected growing momentum for real-world problem solving in general and sustainability in particular. The second approach is associated with the Centre International de Recherches et Études Transdisciplinaire (CIRET), founded in 1987 in Paris. The axiomatic methodology of the second approach is based on three pillars: multiple levels of reality, the logic of the included middle, and complexity. CIRET is fostering an open form of rationality, subjectivity, and ethics that is both transnational and trans-epistemic ([https://ciret-transdisciplinarity.org/index\\_en.php](https://ciret-transdisciplinarity.org/index_en.php)). Yet, founder and president of CIRET Basarab Nicolescu (2010), stressed it is not a new discipline or a superdiscipline. In comparing the two models, McGregor purported the Zurich approach synthesizes knowledge of disciplines and social actors in order to foster socially robust, reflexive, and accountable research without concern for reality, axioms, or logics. She added Nicolescu deemed his approach theoretical and the Zurich approach phenomenological and not vested in formulating a methodology. However, "Zurich Approach" is a narrow classification, ignoring scholarship on methodology as well as epistemic and ontological dimensions including Ludwik Fleck's (1979) conceptual framework of thought styles and Funtowicz and Ravetz's (1990) post-normal science as well as systems thinking, complexity theory, and ecological principles. Furthermore, the Zurich conference, which was attended by nearly 800 people from roughly 50 countries, included presentations on both methods and philosophical implications of prioritizing problem solving and stakeholder inclusion. Another debatable form of generalization posits a distinct style pegged to geographical location.

In a book comparing nanomedicine in France and the United States, Séverine Louvel (2021) acknowledged national contexts shape institutional policies. She cautioned, though, against a sharp distinction between an American and a Franco form of this field, noting variations in their research organizations and universities. International scientific communities, she added, also influence goal setting and practices. At the same time, however, a new book of case studies on institutionalizing inter- and trans-disciplinarity revealed patterns across particular countries. It emanated from panels at two td-net

conferences, at Leuphana University (Germany) in 2017 and at the University of Gothenburg (Sweden) in 2019. When co-editors Vienni Baptista and Klein (forthcoming), invited others to join presenters, chapters on Africa and Latin America highlighted the need for universities to address socio-economic development and sustainability. Some chapters also recognized the legacy of political regimes, including colonialism in post-independence Ghana, centralized control of education in Brazil after 21 years of military dictatorship, and the Soviet era in Russia. In addition, authors documented the power of national policies. In the United Kingdom a standardized framework for research excellence invokes “impact” and “research users.” However, it prioritizes economic rationale over socially useful knowledge and co-production with stakeholders. Comparably, despite the Dutch National Science Agenda to bring together partners from science and society to work on urgent questions, collaboration remains problematic in education and training as well as stakeholder involvement. And, in Mexico, despite the National Council of Science and Technology’s alignment of interdisciplinarity with co-producing solutions to problems, all fields are evaluated by the same criteria. Traditions differ as well. In Armenia and Georgia few documented attempts at integrating cross-disciplinary approaches into academic practice exist, in contrast to extensive experience in Western countries co-creating knowledge with societal actors. And, in China, transdisciplinary research is not grounded in Western assumptions about collective action, governance structures, and individual agency.

Comparative analysis of both similarities and differences across geographical contexts further calls to mind Newell’s 2013 concern that expanding conception of theory and practice might erode some of AIS’ past focus on “interdisciplinarity itself,” prompting the question of whether there is a universal “itself.” He was especially concerned about whether expansion of meaning would make it impossible “to disentangle problems of teamwork from problems of interdisciplinarity” and thus “be drawn into the messy world of interpersonal dynamics, motives other than discovering truth, and problems of communication and technology” (p. 37). Newell further charged team science scholars with being “largely unaware of interdisciplinary process, let alone theory” (p. 36), and scholars of transdisciplinary studies for operating “without benefit of knowledge of interdisciplinary process or theory” (p. 35). Yet, developments traced in Part I have been rendering dynamics of collaboration intrinsic to theory and process, not apart from them. A lot of initial work in other organizations, he rightly noted, was done without awareness of AIS. However, the reverse is also true, reinforcing the need for dialogue between organizations. The current roster of “Core Values” on the Association’s website indicates its priorities remain integration and best practices in curriculum development, program administration, pedagogy, learning assessment, and accreditation. Yet, new members of the Board have been promoting values of diversity, equity, and inclusion as well. “[D]evelopment of real-world



applications” has also become a declared interest along with strengthening the role of interdisciplinarity and integration “beyond” the academy. This composite was not part of early representation of AIS. Even when approaching its 25th anniversary in 2003, a Self-Study and Strategic Planning Report did not include them. Moreover, the only listed connections to other organizations were U.S.-based organizations, many focused on undergraduate education. Even prior to Newell’s 2013 call, though, recommendations for conferences included a session on transdisciplinarity and for the journal expanding authorship beyond an “in’ crowd” while covering graduate education and fields such as women’s studies and American studies.

### Historical Warrants for Prioritizing Problem Solving and Critique of Disciplinarity

Mindful of the foregoing recognition in AIS of real-world applications and work beyond the academy, it is important to realize their priority has been asserted since the early 20th century. Roberta Frank (1988) claimed the term *interdisciplinary* likely emerged at the Social Science Research Council (SSRC) in the mid-1920s. She called it “a kind of bureaucratic shorthand” for problem-oriented research that crossed two or more of the seven discipline-based societies of the Council (p. 73). The roster of real-world problems at the time included crime, social welfare, migration, and interracial relations, and by the 2020s the SSRC website was listing new challenges such as climate change and COVID. In recalling the organization’s history, Kenton Worcester (2001) deemed founding the SSRC “an intrinsically interdisciplinary operation” capable of counteracting overspecialization, departmentalization, and isolation. Furthermore, Frank added, the Council was not alone, revealing both widening support for alternatives to the discipline-dominated system of higher education and multiplicity of motivations. During the 1920s and 1930s, the most popular terms at the U.S.-based National Research Council were “new fields,” “overlapping projects,” “interrelated research,” and “borderlands” and “borderline research” (1988, pp. 73–74). Stephen Turner (2017) also recalled Rockefeller Foundation philanthropy in the 1920s and 1930s supported shifting social sciences toward a more “realistic” direction in order to produce “useful knowledge” directed at not only social problems but also the phage group’s collaboration to integrate physics and biology, a key event in the history of molecular biology. Hence, both societal and scientific problems were the focus of early conceptions of the purpose of interdisciplinarity.

Even with etymological documentation of the term *interdisciplinary* in the 1920s, the claim of SSRC as a point of origin, though, is challenged by many scientists who credit the Manhattan Project in the 1940s. This war-time initiative not only crossed sectors of the academy, government, and industry.

It also combined intellectual and instrumental goals of generating scientific knowledge for building nuclear weapons. The military-industrial route to interdisciplinarity, Steve Fuller (2017) emphasized, pitted “normal science” against use-inspired basic research that reflected two conceptions of success: victory in war, responding to the urgency of combating a common foe, and monopoly in commerce, scaling up knowledge production outside of university laboratories and for economic gain. Fuller (2010) further deemed the military-industrial route “antidisciplinary,” because it denied the premise that disciplinary knowledge production is natural. He likened it to “deviant interdisciplinarity” because it did not aim to integrate existing disciplinary approaches. Instead it redirected attention toward interrogating “normal understanding” of disciplinarity, advancing an epistemic goal of ameliorating the human condition, as well as interpenetrating disciplines to the degree their boundaries are porous and malleable. Most theoretical discussions, Fuller added, treat interdisciplinarity as an endeavor within the academy. Yet, the military-industrial route denies academic sovereignty over knowledge production, while prioritizing instrumental needs of defense. The commercial side of the equation would loom even larger during and after the late 1970s in science-based fields of intense international economic competition that continue to be high priorities today, including engineering, manufacturing, computers, and biomedicine (Klein, 1996).

Yet, another cluster of problems has prompted a sense of urgency today for solving problems prominent in missions of td-net, i2S, INSciTS, and outreach activities of C4I. This sense of urgency is prominent in state-of-the-art reports from science-policy bodies. In an overview by the U.S.-based National Academies of Science, Engineering, and Medicine, authors of *Facilitating Interdisciplinary Research* acknowledged historical precedents. However, they accentuated “new knowledge” and “hot topics” such as nanotechnology, genomics and proteomics, bioinformatics, neuroscience, conflict, and terrorism (NASEM, 2005). Eleven years later a survey report on interdisciplinarity for the Global Research Council’s annual meeting highlighted today’s “grand challenges.” Descriptions of case studies in this report documented the global reach of concerns: spanning Africa, the Americas, the Asia-Pacific region, and the Middle East and North Africa. The concerns spanned problems of climate change, drought, hunger, and disease, as well as initiatives in energy, water, and technologies of information and communication (Gleed & Marchant, 2016). Four years later a policy paper in the OECD’s (2020) science, technology, and industry series situated the concept of transdisciplinarity in “solution-oriented” research aimed at complex societal challenges, including the COVID-19 pandemic. Authors of the paper further contended complex problems require integrating knowledge from academic disciplines with knowledge of public and private sector stakeholders. Here too case studies spanned familiar examples of climate change, natural disasters, sustainability of natural resources, and

public health but also added mobility technology for aging citizens, governance of rights in land use, and preservation of traditional music culture. Given aforementioned calls in AIS to include greater focus on interdisciplinary fields such as women's studies and American studies, it is also important to note the role they have played in prioritizing which problems require inter- and trans-disciplinary approaches.

During the 1960s and 1970s, new fields arose from socio-political movements outside the academy with the aim of addressing questions of social justice. Major examples included Black/ethnic and women's studies. Poststructuralism and critical race theory further problematized traditional forms of enquiry, amplified in closing decades of the 20th century by gender and sexuality studies as well as postcolonial and transnational interrogations of Western paradigms of knowledge and culture. In addition, new fields of environmental and urban studies critiqued siloed disciplinary approaches while prioritizing "real world" problems. Hence, in contrast to the premise of a complementary relationship with disciplines in AIS, these movements amplified critique of disciplinarity. In accounting for the role of stakeholders in transdisciplinary research, Aant Elzinga (2008) further observed members of the public and other end-users might be invited to participate in research projects, but their roles are typically limited to supplying information or providing feedback on solutions academics propose. Elzinga himself treated interdisciplinarity as a prelude to making participation of stakeholders a core element of transdisciplinarity. This driver is evident in peace and conflict research, systems and human ecology, work-life studies, women's studies, social work and nursing as well as policing and research on higher education. However, Elzinga (2008) reiterated, academics are still cast as rational actors in a hierarchy of power that renders "public," "society," "practitioner," and "user" problematic while taking science at face value (p. 356). More broadly, advocates of greater recognition for lay, traditional, and Indigenous knowledge also challenge pejorative characterizations of stakeholders as "*non-scientific*" "*non-academic*," and "*non-expert*" (emphasis added).

In the aggregate, developments over time have pluralized the meaning of interdisciplinarity (based on Klein, 2021). They emerge and take root in a complex ecology of spatializing practices and transaction spaces. Rhetorics of holism and synthesis also compete with instrumentalities of problem solving and innovation as well as transgressive critique. Even with differences, though, typical warrants today include complexity, contextualization, collaboration, and socially robust knowledge. Yet, when reflecting on the state of the university in the 21<sup>st</sup> century, Crow and Debars (2017) concluded many institutions continue to lag behind in accommodating new interdisciplinary forms of knowledge production, limiting their ability to address scientific and societal problems. They also continue to prioritize academic knowledge. Daniel Stokols' (2006) conceptual framework for a science of transdisciplinary

action research also recognized it unfolds in three ways: among scholars of disciplines; among researchers from multiple fields and community practitioners who represent different professional and lay perspectives; and among community organizations across local, state, national, and international levels. These assessments require deeper understanding of implications of the ascendancy of transdisciplinarity for defining interdisciplinarity

## Transdisciplinary Horizons

The concept of transdisciplinarity is linked historically with the quest for unity of knowledge, dating in the West to the idea of synoptic knowledge in Ancient Greece. This intellectual aim persisted over ensuing centuries. Initial use of the term, though, is dated conventionally to the first international seminar on problems of interdisciplinary teaching and research in universities in 1970, co-sponsored in France by the Organization for Economic Cooperation and Development. The generic definition was “a common system of axioms for a set of disciplines,” exemplified by anthropology as a broad science of humans. Individual connotations differed, however, and subsequent definitions based on them. Nicolescu credited Jean Piaget with coining the term, though Peter Weingart (2000) attributed it to Erich Jantsch. Hirsch Hadorn, Pohl, and Bammer (2008) also credited Jantsch, while Palmer, Riedy, Fam, and Mitchell (2017) traced origin to both Piaget and Jantsch. Piaget (1972) regarded transdisciplinarity as a higher stage in epistemology of interdisciplinary relations, informed by a general theory of systems or structures. Jantsch (1972) proposed, instead, a teleological and normative model of the university based on purpose-oriented knowledge triangulating systems design laboratories, function-oriented departments, and discipline-oriented departments. In the latter half of the 20th century, though, TD became associated with new synthetic paradigms as well: notable among them general systems theory, feminist theory, post/structuralism, cultural critique, and sustainability. They shared a common goal of advancing overarching models but differed in outlooks that Raymond Miller (1982) compared in his typology of interdisciplinary approaches in social sciences published in the inaugural volume of this journal.

Even early on, then, TD was a multiplicity. In contemplating future prospects Russell, Wickson, and Carew (2008) admonished, “Transdisciplinarity is a practice, not an institution, and the more flexible, adaptable and open it remains, the greater will be its contribution” (p. 470). Two recent books document current multiplicity of developments associated with TD including not only overarching theory but also problem orientation and stakeholder engagement. When Barry and Born (2013) asked whether interdisciplinarity is a multiplicity, they identified three logics of interdisciplinarity today. The first—accountability—is often associated with the economy but also has a

democratic imperative that asserts political priorities and the common good. Hence, they cautioned against reading interdisciplinarity exclusively as emanating entirely from governmental preoccupation with accountability, innovation, and commercialism. It is neither solely instrumental nor promulgates only social and economic transformations. The second—innovation—is a spectrum of arguments about how research should contribute to economic growth. This purpose has a history dating to the mid-19th century but has intensified in recent years. In contrast the third—ontology—is a philosophical discourse that interrogates rationales of both accountability and innovation. They cite ethnography in the Information Technology industry. It appears initially aligned with the logic of innovation when, for example, ethnographers identify customers' desires to leverage product design and marketing. Yet, ontological rationales also appear, including theoretical and methodological preferences as well as the nature of technology. In recounting emergence of the Art-Science movement in the United Kingdom during the 1990s, Barry and Born also identified multiple rationales. Instruments of legitimation that popularize or communicate science to consumers differ from engaging the public in scientific debate. In the latter case, ontological questions critique, challenge, and transform existing ways of thinking about art and science.

In the second recent book, introduced earlier, Louvel (2021) acknowledged interdisciplinarity depends on societal concerns and advancing knowledge through political support and stakeholder cooperation. Yet, she argued, it is also a scientific agenda. Louvel concluded prioritizing definitions is part of the boundary work individuals and groups perform when selecting relevant approaches and constructions of a field. In the case of nanoscience they include definitions as an area in biomedical engineering, as an archipelago of objects and approaches in existing interdisciplinary communities, and as an extension of disciplinary territories. Louvel added researchers are conducting two types of interdisciplinary collaboration. In the first, projects bring together academic researchers from natural and biomedical sciences with chemical, material, and physical sciences within the university. In the second, they treat interdisciplinarity as a dialogue between academics and stakeholders within the medical profession. At the same time, nanomedicine exhibits the logic of ontology: by generating new ways of conducting, organizing, and evaluating science. Not everyone would agree with Louvel, though, that interdisciplinarity should stop short of a full sociopolitical order anchored by explicit organization, hierarchies, rules, rewards, and sanctions. She argued instead for greater organization to benefit both science and society, with central oversight in a portfolio of strategies rendering disciplinary and interdisciplinary research co-existing sociopolitical orders. Like other fields, nanomedicine also exhibits internal divisions and oppositions that belie a unified vision. Consequently, the social space of this and other fields is multi-layered, rendering interdisciplinarity a generic or an umbrella term for differing practices. Multiplicity

also raises a question about relationships of inter- and trans-disciplinarity with other prominent concepts. Two stand out in literatures cited by founding members of the ITD Alliance.

Overlap with convergence is evident in C4I's current alignment of convergence with interdisciplinarity and integration in a project supported by the U.S.-based National Science Foundation, as well as growing interest among members of INSciTS. Convergence has become a term *du jour* in the country. Some universities promote it as a means of fostering coherence across campus around themes, often linked to grand challenges while aimed at reducing fragmentation due to dispersed specialties and fulfilling the university's social mission. In addition, the concept is associated with an intellectual and creative process of convergence-divergence. Authors of a U.S.-based National Academies of Science task-force report on *Convergence* explained this process brings together different forms of expertise in a new system that continues to spin off applications and components, which may be further recombined and integrated in innovative ways. Moreover, in aligning convergence with transdisciplinarity, the report called TD an "expanded form of interdisciplinarity" serving both epistemological and instrumental goals: including understanding complex biological systems, improving patient outcomes, revolutionizing manufacturing, enhancing energy storage, and providing secure food supplies (NASEM, 2014). NSF has had the concept in its portfolio since 1954 but is aligning it today with problem-driven research emanating from either scientific questions or societal needs. Its Big Ideas initiative targets not only convergence but also data, infrastructure, astrophysics, Arctic change, a quantum revolution, and the future of work at the human-technology frontier. Even while endorsing values of inclusion and diversity, however, this effort prioritizes positioning the United States on the cutting edge of science and engineering, in a competitive international marketplace of ideas and applications ([https://www.nsf.gov/news/special\\_reports/big\\_ideas/NSF](https://www.nsf.gov/news/special_reports/big_ideas/NSF)).

Overlap with Mode 2 Knowledge Production has also reinforced the prominence of transdisciplinarity, including connotations of both problem-oriented and stakeholder-inclusive research. In a widely read treatise, Gibbons et al. (1994) proposed a new mode of knowledge production is fostering synthetic reconfiguration and recontextualization of research beyond academic settings. In contrast to the traditional discipline-based form of Mode 1, defining characteristics of Mode 2 include complexity, non-linearity, heterogeneity, and transdisciplinarity. New configurations of research work are being generated continuously, and a new social distribution of knowledge is occurring as a wider range of organizations and stakeholders are contributing their skills and expertise. As traditional academic and disciplinary boundaries of control blur, notions of competence are also being redefined and new criteria are needed for appropriate evaluation. Gibbons et al. initially highlighted instrumental contexts of application, such as aircraft design, pharmaceuticals,

electronics, and product development. Subsequently, however, Nowotny, Gibbons, and Scott (2001) extended the theory to include participation in the *agora* of public debate. When lay perspective and alternative knowledges are recognized, a shift occurs from solely reliable scientific knowledge to inclusion of socially robust knowledge as well. Some have disputed how new Mode 2 actually is, while others have questioned claims of epistemic transformation and prioritizing Mode 2. Overlaps might also suggest relationships may be portrayed as a Venn diagram. However, Daniel Stokols cast doubt on such depictions. Early notions of convergence, for example, were narrower than current conceptions of transdisciplinary and collaborative research in STEM fields of science, technology, engineering, and mathematics. Related concepts also appeared earlier in community-engaged action research and the field of social ecology (personal communication, July 6, 2019).

## Conclusions for Answering Newell's Challenge

Mindful of organizational and historical perspectives traced above, a number of shifts must be considered in contemplating the future of any one organization and its alliance with others. Empirically grounded accounts and case studies abound, expanding awareness of contextual parameters of both theory and practice while elevating transdisciplinarity. Organizing languages and their conceptual frameworks have changed as well. At the first international conference on interdisciplinarity in 1970, they were logic, cybernetics, structuralism, general systems, and organizational and information theories. Today the typical warrants are complexity, contextualization, and collaboration (Klein, 2021). Weingart (2010) further cited a shift in science policy over the second half of the 20th century, signaled by increased industrial expenditures for research and development to support fundamental research. As a result, he contended, knowledge production is no longer solely a search for basic laws and, despite their intellectual autonomy, disciplines are affected by external resources and influences. Transitory networks and contexts have also formed, replacing traditional disciplines as sites of research. Nonetheless, Weingart cautioned against overstating external drivers. Claims that discipline-based knowledge production has been replaced by a new mode of research are not corroborated by empirical evidence. He projected traditional disciplines and crossdisciplinary fields will continue to exist side by side, paralleling Louvel's belief a disciplinary and an interdisciplinary sociopolitical order will continue alongside each other.

Further echoing the current multiplicity of both inter- and transdisciplinarity, Robert Frodeman (2017) suggested definitions of the concepts have functioned as boundary objects with different meanings at different times for different groups, though interdisciplinarity is most often a

portmanteau word for more-than-disciplinary approaches. He added, though, the concept of innovation stood out across the 46 chapters of the 2017 *Oxford Handbook of Interdisciplinarity*, leading him to question whether the usefulness of interdisciplinarity may be ending. Politicians and citizens speak instead of “impact,” “accountability,” or “relevance.” Frodeman (2013) himself has advocated prioritizing problem-focused research now. And, reflecting on the future of interdisciplinarity Machiel Keestra (2019) called in a recent volume of *Issues in Interdisciplinary Studies* for placing greater weight today on actionability, grounded in the realization knowledge is valid from both different perspectives (as in interdisciplinarity) and a social context (as in transdisciplinarity). Keestra further contended actionability constitutes a fundamental challenge to the traditional form of integrative interdisciplinarity that prioritized academic, epistemological, and cognitive dimensions. The value of experiential knowledge, interests, and norms is recognized along with stakeholder expectations. When Russell, Wickson, and Carew (2008), in turn, contemplated the future of transdisciplinarity, they identified three drivers today. The first—the knowledge economy—prioritizes problem-oriented or applied research. The second—an environmental imperative—incorporates contextualization of problems and a systems approach. The third—an engaged populace—calls for an inclusive approach. Contradictions among the three drivers, they suggested, are faultlines in conceptualizing transdisciplinarity, comparable to Barry and Born’s depiction of the three logics of interdisciplinarity as competing rationales.

Russell, Wickson, and Carew (2008) further noted transdisciplinary activities are contributing to development of a methodology inclusive of iterative reflection and collaboration of both internal academic and external social actors with philosophical implications. Yet, the first driver reinforces priorities of economic growth and international competitiveness at a time, they added, when public funding for higher education has declined. As a result, many research universities have consolidated around particular strengths and external priorities that will generate revenue, stirring critique of which kind of research is devalued because it is not competitive in the high-stakes academic political economy of grants and contracts. Governmental and administrative intervention in setting priorities is also being interrogated. Critics charge, for example, the Triple Helix partnership of universities, industry, and government comes at the expense of bottom-up initiatives emanating from a wider range of intellectual interests. Russell, Wickson, and Carew themselves cautioned consolidation around selected strengths runs the risk of creating “mega-silos” that construct new priorities at the expense of other areas. As a result, attempts to institutionalize transdisciplinarity may actually inhibit flexibility and openness while diminishing prospects for creativity, interconnection, complexity, and systems thinking. In the process, ownership of research is channeled in some directions rather than others, perpetuating



imbalances of power that determine which form of knowledge counts and whose voice is heard, including not only particular academic experts but also professional practitioners and residents of communities. Given multiple claims and practices, though, Russell, Wickson, and Carew proclaimed transdisciplinarity cannot boost the economy, save the environment, and empower the community at the same time.

In closing, deeper understanding of conflicting priorities and heterogeneity of practices returns discussion to Newell's challenge to consider how interdisciplinarity is defined. This article has called attention to not only multiplicity but also the prominence of transdisciplinarity today. The distinction, though, is questioned. Harvey Graff (2015) charged the "name game" is littered with typologies and terminology that have generated more confusion than clarity (p. 215), while Jerry Jacobs (2013) dubbed the "jungle of terminology" a "cacophony" (pp. 3, 124). Graff further contended a monolithic "standard version" prevails, singling out the U.S.-based National Institutes of Health (NIH) as an exemplar of a normative Big Science model that hegemonizes large-scale team-driven research. He further contended transdisciplinarity pales in comparison to the primacy of interdisciplinarity (pp. 3-4). Graff is correct to criticize marginalization of other areas of interdisciplinary work: including general education, arts, and digital humanities. He is also right to declare applied research is often less prestigious, and the increased number and size of teams raises concern about minimizing individual achievements. However, his minimizing of transdisciplinarity ignores its heightened visibility and status today. Moreover, NIH is a large federation that does not follow a single definition or project a "succinct, conflict-free, and romanticized account of a 'great transformation' neatly unconstrained by time, place, and historical context" (p. 215). And, branding "multidisciplinary 'wars' on poverty, cancer, drugs, history, communication, the human genome, and on and on" as "fallacies" is a glib dismissal (pp. 155-156). They have entailed significant fundamental research and pragmatic solutions to societal problems (Klein, 2021). Graff is not alone in his critique, though. Callard and Fitzgerald (2015) contended "Interdisciplinarity is a term that everyone invokes and none understands." And, in her genealogy of the word claiming origin at the SSRC, Roberta Frank (1988) suggested its ubiquity means "no one can pin down what people have in mind when they utter it." To the contrary, patterns of consensus refute assertions that "none understands" and "no one can pin down" the meaning of the term.

Proliferation and dispersal across an increasing number of contexts complicate understanding of both inter- and trans-disciplinarity. However, they do not render it impossible or terminology a Tower of Babel. When heterogeneity, not universality, becomes the groundwork of theory and practice similarities and differences must be compared. The global scale of the ITD Alliance, in particular, accentuates the need for mutual learning across intellectual traditions, socio-political forces, cultural perspectives, and institutional structures and

missions. Each organization in an alliance, however, must ensure its website is regularly updated. Hosts of the td-net site are doing so now as they migrate to a new digital format, and its bibliography has long been updated regularly. The i2S website is also being updated to include new developments as they arise, and the Insights blog continues to add new posts while archiving earlier ones for access. For their part, AIS, INSciTS, and C4I are in need of updating, though AIS is starting to do so with Publications. For its part INSciTS needs to archive more materials from past conferences and C4I to capture outcomes of both education and research activities. In addition, all five organizations need to conduct the kind of introspection that Newell called for in 2013, both internal to their membership and in dialogue with other organizations. The state of interdisciplinary theory Newell represented in 2013 was AIS-centric, but this tendency appears in other organizations as well, driven by the need to advance their individual missions. Each of them, though, needs to weigh implications for their agendas and claims to authority. An alliance is an ideal forum for doing so. For AIS members in particular, this journal is an ideal site for respond to Newell's challenge.

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(1990), *Interdisciplinary Studies Today* (1994), *Crossing Boundaries* (1996), *Transdisciplinarity* (2001), *Interdisciplinary Education in K-12 and College* (2002), *Humanities, Culture, and Interdisciplinarity* (2005), *Creating Interdisciplinary Campus Cultures* (2010), *Interdisciplining Digital Humanities* (2015), *Beyond Interdisciplinarity: Boundary Work, Communication, and Collaboration* (2021), and *Institutionalizing Interdisciplinarity and Transdisciplinarity* (forthcoming 2022). She was also Associate Editor of *The Oxford Handbook of Interdisciplinarity* (2010, 2017). She can be reached at <ad5820@wayne.edu>.

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# An Integrative Interdisciplinary Pedagogy for Well-Being in a Catastrophic Era

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**Abstract:** How do we navigate fear of catastrophic change while also fostering a sense of well-being in our everyday? This question provides the lived context for the story this article tells about teaching a course on imagining well-being during the COVID-19 pandemic. Taking an integrative interdisciplinary approach that employs methods of literary analysis in conversation with phenomenological philosophy gives students insights into the necessary relationship between well-being and catastrophe that modernist discourses bypass. This approach thus underscores the limitations in disciplinary attempts to find objective measures to quantify well-being and, implicitly, to prescribe (physiological, psychological, political, or economic) methods for attaining it. Further, attending to the lived experiences of students as they encounter this integrative approach can give us insights into valuable resources that are not just material but existential. In the face of direct and immediate threats to our physical, psychological, and emotional well-being, diving into a shared exploration of loss, fear, and displacement invites students and faculty to show up increasingly in our full humanness, replete with contradiction, confusion, and ambiguity. This stance of not-knowing, as opposed to claiming to know and hence prescribing, may lend itself to new cognitive, emotional, and imaginative avenues for self-realization and connection, which are means to the experience of well-being.

**Keywords:** catastrophe, well-being, integrative, interdisciplinary, pedagogy, literary study

## Introduction

“Because none of this is *unprecedented!*” I said, a little too forcefully for that first day of spring quarter term in March of 2020, and cringed (inwardly) at the double negative in my sentence.

I am originally (and forever at heart) an English professor.

My students had registered a couple of months before for my class entitled “Imagining Well-Being in a Catastrophic Era.” There were thirty of them,

most of whom I had never met before, many of whom were STEM majors; they told me that the word “catastrophic” in the course title drew them in. This course was one of several options to choose from that fell within a core requirement at my liberal arts university: Humanities and Global Challenges.<sup>1</sup>

I felt the need to capture and hold their attention because: the majority of my students were seniors and they had put this requirement off until their last college term; it is a literature course (and many claimed they were “still recovering” from their rigid high school English classes); they had suddenly and jarringly been placed in quarantine; and we were meeting over Zoom for the very first time.

These thirty students had registered for this course when COVID-19 was a distant virus on the other side of the world. By the first day of class, many of them had been sent back to their childhood homes. But some of them were stranded in apartments adjacent to campus because their families, who lived on the other side of the world, had already been impacted by this now not-so-distant virus.

I introduced the course theme to them by reading from my syllabus overview:

In 1946, the World Health Organization implemented its Constitution, whose first principle reads, “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” The rest of the preamble underscores that the “highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.”

Aside from the fact that this fundamental right has been unrealized since its articulation and is arguably unrealistic in an age of deeply entrenched systemic inequalities born out of globalization, environmental degradation, political corruption, xenophobia and institutionalized racism, etc., the concept of “well-being”—and what constitutes it—is too complex to operationalize by means of a Constitution or the WHO itself.

How has well-being been represented (in popular and academic discourses) as a *thing* to be attained in the 21st century? This course will offer an integrative interdisciplinary perspective on the lived experience of well-being

1 Seattle University requires all undergraduates to complete a general education (“core”) curriculum made up of twelve courses that provide “foundational knowledge in several relevant disciplines, critical inquiry, reflection on learning and values, and preparation for life as global and ethical citizens” (The Curriculum, n.d.). Students are required to take a Humanities and Global Challenges course generally in their third year. I designed “Imagining Well-Being in a Catastrophic Era” to fulfill this core requirement. Additionally, I designed it to be cross-listed as a Special Topics: Interdisciplinary Project course within the Interdisciplinary Liberal Studies (IDLS) program where I teach full-time. IDLS majors are required to take one Special Topics course in addition to four other courses that help students develop interdisciplinary scholarship, community engagement, and metacognition.

particularly during a time in which humans face potential and real catastrophe from myriad sources: viral, environmental, political, social, economic, etc. It will open up a conversation about the ways in which these encounters with well-being, as imagined in literary texts, give us insights into valuable resources that are not just material commodities but existential. How do they call us into recognition of a shared human experience? We will read literary narratives of homelessness (exile, dislocation, refugee-ism, a sense of being estranged or a stranger, etc.) that, simultaneously, locate a sense of connectedness, community, and hope in the midst of such upheaval. (See Appendix A for an abridged syllabus.)

After I was done reading this introduction and briefly describing the three novels we would read (including one—“trigger warning,” I joked—about a global pandemic), they said, “How did you know?”

I said, “I designed this course two years ago because none of this is *unprecedented!* And, by the way, I guess it’s only fair that you know, at the outset of this class, that reading the phrase ‘In these unprecedented times’ in every ‘official communication email’ from our university’s administration is really plucking at my nerves. And, furthermore, it is a patently disingenuous claim.”

My thinly veiled irritation belied something bigger that was simmering for me under the surface—something that would take months to uncover and finally articulate and foreground with my students. And, perhaps, it is only now, as I narrate the story of teaching this course a year and a half later, that I am beginning to understand better the origins and implications of this course.

The arc of my story goes like this: The first iteration of the course took place during spring term 2020 as we were issued the stay-at-home order in Washington state; the third wrapped up in spring term 2021 just as most of my students and colleagues were getting vaccinated against the virus. I have thus had the unique opportunity to compare and contrast my students’ responses to the course over three different academic terms that coincided with what we (naively) hoped would be the arc of the pandemic, beginning to end. During this period the pandemic had not only killed hundreds of thousands but had also revealed the inequities and injustices endemic in U.S. society. The reality of a catastrophic era in which we have been living for generations had come to be on full display and was impacting each of us personally throughout the year in which I was teaching this course.

And, indeed, each time I taught this course, that reality manifested differently based on my students’ and my own ever-deepening relationship with pandemic, quarantine, racialized violence, and social-political unrest. Now, eighteen months after that first day of that first term, this course has revealed itself to me as a kind of nexus of my scholarly, pedagogical, and clinical, as well as creative work. Teaching this class during a pandemic has underscored for me what I see as my deepest commitment as a professor and psychotherapist living and working in a catastrophic era (pandemic or no): to open up spaces

for us to encounter the profound paradox and uncertainty of our existential condition. Without recognizing our relationship with mortality and loss (i.e., if we continue to live in the fiction that these are unprecedented times), we cannot experience well-being.

## The Origins of the Course

When I first designed “Imagining Well-Being in a Catastrophic Era” in 2018, I did so in response to my long-term experience of teaching a course called “Narratives of Trauma” that falls within the same core requirement of Humanities and Global Challenges and is also cross-listed as a Special Topics course in the Interdisciplinary Liberal Studies Program. As I have explained in an earlier volume of this journal (Schulz, 2018), I had come to recognize that students were drawn to my course on trauma narratives because my approach gave them an opportunity to explore the complexity of giving testimony to traumatic suffering, and witnessing this testimony, as essential to survival and meaning making. I watched them become more nuanced witnesses of their own lives as well as those of their classmates as they integrated psychological and interdisciplinary theories of trauma with the primary method of the course, close-reading literary narratives of trauma. Our approach to the literary texts required us to slow down, to grapple with ambiguity, and to challenge assumptions we make about “survivors,” “victims,” and “perpetrators.” Indeed, as we encountered narrators and characters in their full humanness in these narratives, I came to recognize “Narratives of Trauma” as a course that helped enable us to recognize the fullness of our own and each other’s humanity. And this recognition often manifested in a distinct, and oft-reported, sense of *well-being* in the shared space of those classrooms.

As students’ reflected on the ways in which narratives of trauma resonated so poignantly with them, even if they had not experienced such violations, I recognized that I wanted to open up the contextual field to help students explore the common ground of suffering without stripping the category of traumatic experience of its specificity by calling all adverse experience “traumatic.” And this was my starting point for thinking about the relationship between experiencing well-being and living in a catastrophic era. What would make teaching a course about well-being and catastrophe different from teaching a course about trauma narratives?

I began to explore this broadening context of “catastrophe” by turning to a collection of essays entitled *The Future of Trauma Theory: Contemporary Literary and Cultural Criticism* (Beulens et al., 2014). In the Preface, Michael Rothberg addresses the move that I was trying to make to open the field; he notes that the work of trauma theory over the past twenty years has revealed how “the problem of individual psychic suffering became ‘tangled up’ with

an array of the larger problems of modernity, including industrialization, bureaucracy, and war” (p. xi). He articulates the conflict that I was facing: “Even as we seek to maintain trauma as a theoretical category, we should not, of course, attempt to subsume all forms of violence, dislocation, and psychic pain under its categorical singularity” (p. xiii). He argues for next steps in studying the complex problem of trauma when he proposes uncoupling the study from an exclusive focus on “event-centered accounts of violence” (p. xv)—even accounts of a long genealogy of events, as in the case of racialized violence. He suggests that we should also explore these events within a complex fabric or matrix of systems that support globalization and all its attendant catastrophic consequences (e.g. exploitation of laborers, industrial accidents, climate change). He invokes Rob Nixon’s concept of the “slow violence” wrought by these complex systems in which we are all implicated subjects (p. xv). Rothberg writes,

The slow violence of climate change does not only require a shift in temporal perception away from the shattering event of classically conceived trauma; it also requires a recalibrated understanding of humanist history and subjectivity that displaces (without entirely eliminating) the positions of victim and perpetrator. (p. xvi)

Indeed, Rothberg’s recommendation of a “shift in temporal perception” away from sudden rupture to slow and systemic catastrophes would later inform my irritated response to the fiction that we are living in “unprecedented” times.

Further, Rothberg’s discussion of the concept of “implicated subject” also influenced my thinking on the new course I hoped to teach. The concept is crucial in disrupting these dichotomous positions of victim and perpetrator that are used in politically coercive ways and that continue to divest individuals of their subjectivity as well as their self- (and group-) determinations. And the complexity inherent in the concept of “implication” reminds us of our ever-shifting relationships with, proximities to, and distances from power that Black feminist theories of intersectionality help us understand. In *The Implicated Subject: Beyond Victim and Perpetrator*, Rothberg (2019) underscores this complexity and extends it beyond the structural, pointing to the existential, when he writes,

It goes without saying that contexts of injustice are multiple and often contradictory, and that categories such as “perpetrator,” “victim,” and “implicated subject” are abstractions that serve analytical purposes *but do not describe human essences*. That is, it is best to think of the implicated subject (not to mention the victim and the perpetrator) as a position that we occupy in particular, dynamic, and at times clashing structures and histories of power; it is not an ontological identity that freezes us forever in proximity to power and privilege. (p. 8, emphasis added)

As I read this I was struck by the ways in which studying narratives of trauma implicated my students and me in the complex work of witnessing, which required that we actively reject systemic attempts to silence or delegitimize such testimony. And, in the space of the classroom, it required that we witness each other anew, outside of categories of the subject positions we imagined we (and others) occupied, as if they were fixed and determining.

So when I chose the title for my new course, “Imagining Well-Being in a Catastrophic Era,” I was very deliberate about each part of the title. I hoped to invite students to explore this broader context of *catastrophe* in which we are all implicated, but also to come to a complex understanding of how we experience and foster *well-being* within this context. Because teaching trauma narratives had awakened my interest in this phenomenon as my students and I experienced a sense of well-being, I decided to take a similarly interdisciplinary approach to this course with the expectation that exploring the limitations of discipline-specific approaches to the subject might yield similar rewards—both a sense of well-being in the context of catastrophe and an understanding that that phenomenon cannot be isolated, quantified, or replicated through empirical methods in the social or natural sciences.

And I searched for ways to again use an integrative interdisciplinary pedagogy such as I had used in my trauma class to show the relationship between the two phenomena: catastrophe and well-being. When I had begun research for this course in a pre-COVID time, I explored proliferating discourses in scholarship and popular culture that were envisioning and predicting catastrophe in the form of societal extinction; they seemed to be signaling a growing sense that well-being could no longer be taken for granted among those who have relied on their well-being as an inalienable right simply by virtue of their class and race status. However, at the same time, I found that the phenomenon of well-being was being energetically researched through myriad modernist academic disciplinary lenses by scholars working to find objective measures to quantify well-being and, implicitly, to prescribe (physiological, psychological, political, economic) methods for attaining it.

These discourses have manifested in popular culture trends that offer tools for ameliorating suffering in the form of consumable products such as self-help books, vitamin supplements, and treatment programs that promise well-being as an outcome of the disciplined hard work of self-re-making. In my fifteen years working as psychotherapist specializing in trauma, I have witnessed how these prescriptions for well-being have impacted my clients in ways that have actually amplified their distress. This market-oriented approach to well-being showed up in my clinical office as clients “confessed” to me about not being able to follow through on a particular exercise, diet, or other “self-help” program they had read about, bemoaning their laziness and lack of self-discipline (on top of their depression and anxiety).

As a professor and a clinician, moving back and forth between classroom and therapy office, I am often bringing insights that I learn in one context to bear on the other. My students are certainly not my clients, but they have often arrived at college reflecting similar sources of depression and anxiety to those of my clients—including lack of success with products supposed to promote well-being. So I used the following questions as my guide as I designed the course: What are the consequences of this ever-proliferating market-oriented approach to well-being in modern Western culture? What are alternative ways of exploring this phenomenon?

My experience as a creative writer and literature professor guided me toward again adopting the particular interdisciplinary integrative approach to responding to these questions such as I had used before (and described in the 2018 *Issues in Interdisciplinary Studies* article on my trauma class that I referenced above). The poet Jane Hirschfield (2015), in her book of essays, *Ten Windows: How Great Poems Transform the World*, foregrounds the profound humanity in the experience of existential uncertainty and the ways in which “what we think of as ‘art’ . . . makes the encounter with the uncertain a thing to be sought . . . . That anxiety, grief, and the abysses of chaos can be lured into beauty and meaning, and into the freedom such transmutation itself brings, is no small part of literature’s power” (p. 123). My own un-disciplined encounters with the integrations of art (literary, visual, performance, etc.) have consistently assisted me in encountering my clinical clients in their full humanity far more powerfully than the disciplinary study of psychological methods and theories ever has.

So, as I moved on in my planning process, I asked myself two more specific questions: What insights into, and possibilities for, well-being can an interdisciplinary integrative approach to the subject of locating well-being in catastrophe via the humanities and works of literature give us that focusing on discipline-specific psychological, sociological, economic, political, or medical approaches as presented in scholarly and popular discourses cannot? And how can this approach actually lend itself to new cognitive, emotional, and imaginative avenues for creating community and conversation in the midst of catastrophe that can foster well-being?

These questions, in fact, gave me the rest of the course title, which I realized needed to open with an active verb: *Imagining* Well-Being in a Catastrophic Era. “Imagining” signaled that we would take a humanities-oriented perspective on the subject. And it also signaled that we would be taking an integrative approach because imagining is both a method of the fine arts and a phenomenon of our lived everyday experience as human beings. Of course, my familiarity with the literature of interdisciplinarity helped me think this through. As they introduce the distinctions among interdisciplinary work in the natural sciences, the social sciences, and the humanities, Repko, Szostak,

and Buchberger (2020) claim that the interdisciplinary humanities tend to focus on “expression, effect, values, meaning, and how the things natural and social sciences study play out in human lives (i.e., lived experience)” (p. 44). Building on this distinction, William Newell wrote of the interdisciplinary humanities that it involves an integrative process that is experiential:

it seeks to draw others (audiences, viewers, readers) into the integrative process and encourage them to participate in a shared integrative process . . . . Although scientific knowledge is disembodied and ideally purely cognitive, as is the integration of knowledge from different sciences by the interdisciplinarian, artistic expression is not only affective as well as (if not more so than) cognitive, but also potentially embodied, and so, too, can be its (partial) integration by the interdisciplinarian. It strikes me that the role of emotion in interdisciplinary integration . . . deserves more attention. (Repko, Newell, & Szostak, 2012, p. 301)

To invite *imagining* would mean to invite active participation in the “shared integrative process” of attending to our own lived experience (emotional, embodied, cognitive, etc.) even as we examined that of others. I knew the best place to undertake the integrative interdisciplinary study of the phenomenon of well-being was in the context of the intersubjective space of a classroom with my students.

What I did not anticipate was that the context in which I actually would teach the course between the spring of 2020 and the spring of 2021 would place us in such an immediate relationship with catastrophe. Throughout the process of teaching this course, I watched my students’ and my experiences and responses shift as I came to recognize the many kinds of “slow-violence” that were driving and amplifying the impact of the COVID-19 pandemic. This is the slow-violence that has always underlain (and belied) the social contract of American democracy and the putative democratizing mission of U.S. foreign policy. My students and I became increasingly exhausted as we moved into the realization that we have always been living amid catastrophe, and that, indeed, these are not “unprecedented” times.

Our exhaustion also helped throw into bold relief a more familiar response to catastrophe that is cultivated not only in American culture as a whole, but uniquely, in the university classroom—that of self-conscious anxiety. At first, the experience of physical isolation from each other alongside news of the frequent eruptions of violence (e.g. George Floyd’s murder, violent state-sanctioned responses to Black Lives Matter protests, the January 6th Capitol insurrection during fall term 2020) had all of us sharing the immediacy of catastrophe, a sharing that helped us to encounter one another and the phenomena we were studying more directly, despite or perhaps *because* of our physical distance from each other as we met over Zoom. In the relatively anonymized Zoom space, we seemed to be able to interact with one another with fewer assumptions regarding our subject positions; the anxiety regarding



our own implicated subjectivity seemed to recede, making space for something else to happen, particularly during the spring of 2020. Indeed, in the face of direct and immediate threats to our physical, psychological, and emotional well-being, diving into a shared exploration of catastrophe and our implicated subjectivity at a physical distance from each other gave us permission to show up increasingly in our full humanness, replete with contradiction, confusion, and, often, a stance of *not-knowing* that, instead of prompting self-consciousness or prescriptive reactions, catalyzed mutual curiosity.

However, this openness that we experienced throughout the spring and fall of 2020 did not last. By the spring of 2021, as more and more students left their cameras off during class, I felt their skepticism growing about locating well-being together in the context of the class and of this catastrophic pandemic in general. They retreated into well-defended arguments and stances that seemed to leave little room for curiosity about themselves or about each other. In many ways, this closing-off/shutting down during the third iteration of the course became just as important to my understanding of this class and the phenomena we were exploring as the openness had been during the first two terms.

I think this provides as good an introduction as any to the story that I will tell here now, in more detail, about teaching this course, specifically focusing on the first and third time I taught it, one year apart, because of the insights the dramatic contrast between the two experiences produced. So what follows here is a story about my students and me navigating catastrophe and coming to new understandings of and opportunities for well-being together—thanks not just to the content of the course but also to its integrative interdisciplinary pedagogy.

## Teaching the Course and COVID-19

When COVID-19 sent us all home in early March 2020, we were three weeks away from the start of our spring term. Reeling from the poignancy of teaching a course about catastrophe and well-being that I developed in pre-COVID times, I decided to post on the course website a poem entitled “Pandemic” that Lynn Ungar (2020) wrote and circulated just as quarantine began.

What if you thought of it  
as the Jews consider the Sabbath—  
the most sacred of times?  
Cease from travel.  
Cease from buying and selling.  
Give up, just for now,  
on trying to make the world

different than it is.  
 Sing. Pray. Touch only those  
 to whom you commit your life.  
 Center down.

And when your body has become still,  
 reach out with your heart.  
 Know that we are connected  
 in ways that are terrifying and beautiful.  
 (You could hardly deny it now.)  
 Know that our lives  
 are in one another's hands.  
 (Surely, that has come clear.)  
 Do not reach out your hands.  
 Reach out your heart.  
 Reach out your words.  
 Reach out all the tendrils  
 of compassion that move, invisibly,  
 where we cannot touch.

Promise this world your love—  
 for better or for worse,  
 in sickness and in health,  
 so long as we all shall live.

I ended up opening the class on the first day of that term reading this poem out loud. I did not aim for a close reading. Rather, I just wanted to hear how students experienced the poem, emotionally and viscerally. The students that first spring said that reading it on the website and again hearing it made them cry. They were particularly moved by the repetition of the call to “reach out” and they talked about their sense of a commitment to a shared humanity in recognizing our mutual investment in one another’s well-being. I ended up reading the poem out loud on the first day of the subsequent terms, as well, but by the spring of 2021, student responses had changed. Given the continuous disruptions due to political and social unrest, as well as the constant reminders of deeply entrenched hatred and hierarchy, on top of the pandemic, the dream of connection seemed all but extinguished in my students. Many of these later students resented the metaphor of the “wedding vow” that concludes the poem. They took offense at the tone that, in their reading, seemed to issue commands. An outlier student quietly suggested that it was written as a prayer, not a command. Much of the class balked at the “religiosity” of it. In other words, the third time I taught the course during spring of 2021, I encountered a group that seemed submerged in polemical rhetoric and ideological positions that manifested from day one in default responses that enabled fewer opportunities for authentic connection.

In all three iterations of the course I made an abrupt shift in disciplinary perspective right after reading the poem; I told them that we were going to leave the humanities—and a literary approach to the subject—behind briefly to journey into the social sciences for a week to look at the ways in which the phenomenon of well-being was being researched through the lens of modernist epistemologies and quantitative methods. I did this in order to underscore the difference in epistemologies between the social sciences and the humanities. I also started here because of the assumptions I was making about my students. One thing that remained consistent across the iterations of the course was the disciplinary orientation of the students; both spring 2020 and spring 2021 class rosters were weighted toward STEM majors. I believed that, given the epistemologies in which they were steeped as biology, computer science, and engineering majors, they would be especially compelled by a modernist quantitative approach to exploring the subject of well-being: that of positive psychology. I noticed my own disciplinary assumptions when that first group of students had responded so vulnerably to the poem. I was surprised that they had clearly been moved by metaphor. Even so, I made similar disciplinary assumptions when we embarked on the first section of the course entitled “Well-Being in the 21st-Century: Positive Psychology, Happiness Studies, and a Culture of Calibrations.”

I had decided that I would open the course by examining the limitations of the approach of the sub-discipline of positive psychology to well-being with my students through two articles: one foundational and the other illustrative. The first is an introduction that Martin Seligman and Mihaly Csikszentmihalyi wrote for a special 2000 issue of *American Psychologist* that they edited and that introduced positive psychology to the broader field and argued for its novel approach to the study of human behavior. They wrote in their introductory essay,

Positive psychology grew largely from the recognition of an imbalance in clinical psychology in its research focus on mental illness . . . . PP, instead, is the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions. (p. 5)

Seligman’s and Csikszentmihalyi’s collection showcased a variety of examples and issued a call to action on the part of disciplinarians (both clinical and academic) to join in the work that de-emphasizes pathology and places its emphasis on happiness, subjective well-being (“what people think and how they feel about their lives” (p. 9)), and the fundamental disciplinary assumption that there are empirical measures for phenomena they identify as “optimal functioning.”

The subfield of positive psychology has since inspired myriad journals, one of which is the *Journal of Happiness Studies* that describes itself thus:

The peer reviewed *Journal of Happiness Studies* is devoted to scientific understanding of subjective well-being. Coverage includes both cognitive evaluations of life such as life-satisfaction, and affective enjoyment of life, such as mood level. In addition to contributions on appraisal of life-as-a-whole, the journal accepts papers on such life domains as job-satisfaction, and such life-aspects as the perceived meaning of life. *The Journal of Happiness Studies* provides a forum for two main traditions in happiness research: 1) speculative reflection on the good life, and 2) empirical investigation of subjective well-being . . . . The journal addresses the conceptualization, measurement, prevalence, explanation, evaluation, imagination and study of happiness.

The second disciplinary article I selected for my students to read was a more recent empirical study published in this journal; in this study, well-being is uncoupled from happiness, per se, and is instead presented as an outcome of a process that is, perhaps, less epistemologically fraught for this researcher: meaning-making that can be observed through self-reported thinking processes and behaviors. In this study, entitled “Prioritizing Meaning as a Pathway to Meaning in Life and Well-Being,” positive psychologist Russo-Netzer (2018) found, through survey and statistical analysis that,

The capability to prioritize meaningful activities in daily life appears to constitute a significant yet *intricate process* that requires not only intrinsic choice, but also *continuous reflection and examination* . . . . *Self-awareness* is thus vital in discerning personal values, *aligning daily choices of activities accordingly and refining such choices through detecting potential shifts of meaning*. Such an *ongoing process* enables individuals to shape and cultivate a sense of personal meaning....Through *actively organizing daily routines* to include meaningful activities, individuals can become aware of what is personally meaningful and of value to them, *consciously focus their intention and energies to invest in them*, and eventually contribute to their *well-being*. (p. 1887, emphasis added)

In other words, in this research the conclusion seemed to be that agentic, intentional, highly self-conscious practices will result in well-being.

In selecting these two articles and asking students to close read them in the second week, I wanted to engage students, in a limited way, in what Repko and Szostak (2017) lay out as the “integrated model of the interdisciplinary research process (IRP)” (p. 77). I developed a tool for critically reading these two journal articles that asked them to explore the assumptions that drove these researchers’ questions, methodologies, and theories. This tool included a set of prompts for close reading the articles as well as a glossary and a schema that I adapted from Repko and Szostak’s IRP to give students a very preliminary introduction to “developing adequacy in a discipline” and “analyzing the problem and evaluating insights” (pp. 147–212). See Appendix B.

I was also very aware that I was setting up positive psychology as a discipline-specific counterpoint in relatively stark contrast to the interdisciplinary humanities approach to studying well-being that we would be taking a little later in the course. I chose this subfield of positive psychology, to be frank, because of my own ambivalence about the implications that this research has had for clinical work done outside of the university. The assumptions, methods, findings, and conclusions of this research have directly informed “evidence-based” clinical practices of “cognitive behavioral therapy” (CBT), which are problem- and goal-oriented short-term therapy techniques that can help people find new ways to behave by closely monitoring and changing their thought patterns. On the one hand, I have found that attending to one’s thought patterns (e.g., habitual loops of worry, paralyzing self-criticism, distorted projections onto others) can be a very useful practice to step clients through in a therapeutic context. On the other hand, the assumption that shifting thinking and behavioral patterns will remedy negative feeling and mood states is much more problematic. Offering clients “tools” and encouraging them to exert more mindfulness and personal agency in response to their feeling of despair often has the effect of amplifying that feeling.

Again, I made assumptions about how my students might react to relatively abstract questions I posed as to how we might explore well-being through the disciplinary lenses we would be using during the course. I assumed they would initially welcome the empiricist approach of positive psychology and would resist taking a critical look at Seligman’s and Csikszentmihalyi’s views that promised quantitative methods and measurable findings. I was immediately surprised and, again, called to recognize my own biases when I found the many STEM majors to be keen close-readers and abstract thinkers. The following example illustrates powerfully the ways in which many of these students exceeded my expectations, even drawing from their own disciplinary perspectives, including their experiences as empirical researchers, to question the disciplinary perspective of positive psychology. This was one engineering student’s response to the Seligman and Csikszentmihalyi introduction that she posted on a discussion board:

Seligman used the term well-being synonymously with “positive individuals” and “thriving communities.” This, to me, seemed over-generalized. I believe that thriving communities aren’t just composed of all positive and optimistic personalities. I think that it takes the entire spectrum to achieve this. In the case of engineering, it takes a positive attitude to drive the team forward and keep spirits high, but the pessimist of the bunch might be the one who questions everything and ultimately finds an issue, not because they want to find something wrong . . . I also thought the idea of summing up the positive and negative events in a person’s life to evaluate well-being as questionable and overly simplistic. It made me think of that trick

question that asks if 10 pounds of feathers or 10 pounds of rocks is heavier. And I think this can be compared to people's life events and how the weight of each event impacts a person differently than any other.

And it was not just the STEM majors who pushed back; a sociology major gave specific voice to a collective distrust in positive psychology most of the students shared:

They assert the necessity of applying the scientific method as an approach towards cultivating the “strongest qualities” towards a better quality of life . . . . Supporting this kind of argument suggests a problematic expectation that there exist more valuable lives than others.

I was reminded that twenty-first century students are well aware of the ways in which, in her words, “a hierarchy of human traits can come to dictate the expectations of society” and the dangerous implications these kinds of assumptions and research agendas can have for reinforcing systemic discrimination and hierarchization in and outside of academia.

Indeed, such critiques anticipated the next discipline-specific article I assigned in the course, a sociological one that demonstrates how this discourse of positive psychology has been widely adopted by popular culture because it is so operationalizable. This reading is a discourse analysis by professor of childhood studies Kate Cairns and sociologist Josee Johnston (2015) entitled “Choosing Health: Embodied Neoliberalism, Postfeminism, and the ‘Do-Diet,’” in which the authors close-read wellness magazines (like *Real Simple* and *Living Well*), blogs, and lifestyle columns from *The New York Times*. The authors frame their analysis through a Foucauldian conception of power as circulating within and by self-governing individuals as opposed to power that is imposed by governing institutions. They draw the connection between self-disciplined subjects and neoliberalism, which they define as a “discursive context where market-culture is valorized, state responsibility is minimized, and individual responsibility is a priority” (p. 154). They find that individuals’ everyday practices of self-regulation are fundamental to neoliberal governance that “operates *through* the embodied actions of free subjects—often by exercising choice in the market,” adding that “neoliberalism also operates at the level of emotion, as structural problems are individualized as private burdens that are *felt* in everyday life” (p. 155). As we grappled with the theoretical context of this study, I showed my students the covers of magazines like *Real Simple* and *Well Being Journal* that promise to address everything from interpersonal relationships, to meditation, to clothing, to travel, to positive thinking- and body-practices, to healthy eating. I talked about the ways in which these kinds of popular culture texts participate in disciplining us into self-governance by “teaching” us how to eat, dress, and interact with each other. The promise for those who opt to engage these practices, as illustrated by the slim models

meditating and doing yoga against the backdrop of beautiful natural landscapes, is a sense of well-being.

Without explicitly studying the phenomenon of well-being, Cairns and Johnston look at discourses of health and wellness in these publications that in particular frame food choices and eating/dieting practices “through a lens of empowerment and health rather than vanity and restriction” (abstract). They show how the emphasis of what they call the “do-diet” is on positive choices, body discipline, expert knowledge, and self-control, emphasis that students immediately recognized not only resonates with the discourse of positive psychology but also reinforces market-based ideologies that validate those who can perform “well-being” through complex consumer practices and attitudes (and, of course, exclude many who cannot afford to participate or whose bodies are not represented within these discourses).

The researchers found that the “do-diet” remediates a tension at the heart of neoliberal consumer culture: namely, the tension between embodying discipline through dietary control and expressing freedom through consumer choice” (p. 153). In a series of focus group interviews, women described their practices of “healthy eating” as *making choices* versus restricting themselves; they underscored that these everyday eating choices required *significant effort and self-control*. And Cairns and Johnston call this process “*calibration*—a practice wherein women manage their relationship to the extremes of self-control and consumer indulgence in an effort to perform middle-class femininities” (p. 154, emphasis added). They note that we are inundated with suggestions for “steps” we can take to achieve well-being in popular and consumer culture—and the implications of these steps reinforce neoliberal values of self-control, individual responsibility, and self-improvement through consumption. We are constantly being trained to *calibrate* our thoughts and behaviors, and, as a result, to become increasingly self-conscious and self-monitoring in the process. We measure ourselves not only against the models represented in these publications but also against each other. And not only does this amplify our anxiety but it also de-emphasizes the structural inequities that give only certain individuals access to these practices. Those who cannot participate are either rendered invisible or seen as un-disciplined (read unhealthy).

As we discussed this research, some of the humanities and social science majors in the class were grappling with the metaphor of “calibration,” which is a method used in the natural and applied sciences. “Are the researchers using this metaphor just to claim that middle-class white women need to *balance* themselves in their self-presentation?” they asked. The engineering majors in the class explained that calibrating an instrument of measurement means comparing it to a “known standard” in order to achieve accuracy or uniformity in experimentation; thus, to “calibrate” the tool is to adjust or tune it to bring it into alignment with this standard. One student added, “Of

course, calibration is achieved by determining *what counts* as the standard for measuring.” In other words, the standard itself is arbitrary; what is important is maintaining alignment with or accuracy in comparison with this standard in order to achieve uniformity in measurement.

I told my students that what they were doing in this discussion was, in fact, the work of integrative interdisciplinary analysis, specifically finding common ground between two different disciplinary approaches. Making explicit what Cairns and Johnston were doing when they used “calibration” as a metaphor, my students were redefining and extending a method from the natural and applied sciences to apply to this sociological discourse analysis. I then invited my students to see how they could, in fact, build on the integrative analysis by asking them to share examples that they found in their own lives of “calibration culture.” I provided them with a “padlet” as a flexible medium for posting links to websites, images, video, music clips, etc. so that we could encounter these examples directly.

While some students merely reiterated Cairns’ and Johnston’s analysis by posting examples of messages promoting “healthy eating” to women (with photos of a very specific body standard), many others opened up the field and applied the metaphor to very different contexts and cultural sites. For example, one student posted an image of the Nike “swoosh” and the words “Just Do It” which he close-read in a way that defamiliarized what has become so iconic as to be nearly invisible in American culture:

Nike’s motto calibrates individuals to believe that they are capable of doing anything they set their mind to. . . . However, this notion, similar to the “do-diet,” does nothing more than rephrase a belief that has already been problematic. As the do-diet still advocates for fat anxiety, Nike’s “just do it” creates anxiety sourced around laziness and failure. The calibration is set with a positive psychological background to do physical things to the best of our ability. However, it does not acknowledge failure or the need to prioritize safety as an option – and thus is driven by and drives anxiety.

Another student focused on the myriad pre-structured “gratitude journals” that bookstores perch on the selves between daily planners and blank Moleskine notebooks. She reflected on the format and prompts in these journals as

a way to take control of one’s thoughts and emotions. . . . Society often tells us we should keep our emotions in check, not be too emotional or too detached. . . . These journals are a consumer-based positive psychology method in which you remind yourself daily for things and people you are grateful for. It’s meant to steer away from negative thoughts and emotions and focus on the positives. . . . but as [another student] said in our last class discussion, we have to go through our feelings of sadness and anxiety, not around them.



In a final example, a student described the pressure to calibrate in terms of a “being woke but not being an SJW” scale:

Especially in the wake of the Black Lives Matter movement, it is so critical for young people to be active politically. Immediately following the murder of George Floyd, there was a lot of criticism on social media of people who were posting other content as if nothing had happened. At the same time, there always feels like a lot of pressure to not be too “uptight” or you’ll be labeled a “Social Justice Warrior.”

As students commented on each other’s posts, the engineering majors pushed us further into our integrative analysis. One of them said that engineers only calibrate their tools “as needed—usually just in the beginning of a project.” In fact, it is not a “best-practice” to continuously recalibrate. However, what he was seeing through our work on the padlet was that “calibration culture” is actually a process of constant recalibration. Another student who was majoring in international studies added that maybe we could connect this process to the Marxist theory of the cycle of capitalism and continuous accumulation through the re-production of need. The sociology major made a connection between her colleague’s Marxist analysis and her understanding of the “social gaze.” As I listened, I furiously wrote down the concepts and theories they were exploring on the Zoom whiteboard. I told them that they were engaging in the interdisciplinary research method of finding common ground. And, in doing so, they had also connected the concept of “calibration culture” back to the assumptions and methods of positive psychology, giving them an even deeper understanding of the limitations and implications of this approach to studying “well-being,” which, we had realized through this process, had ceased to look like well-being at all.

I offer such a detailed description of this process because this padlet assignment became the first in which I started noting the shifts in tone, attention, and energy level from the first time I taught the course in spring of 2020 to the last in spring of 2021. It is, of course, difficult to come to clear conclusions about the impact of the ongoing pandemic and its resonance in this class over time based on only three groups of students taught in the course of year. However, I have been struck by the fact that, one year into the pandemic, my students’ participation in the padlet had become perfunctory; it lacked any of the creative energy that the first group of students displayed not only in their posts but also in their excitement in exploring the metaphor of calibration. Almost all of the final group of students simply reiterated Cairns’ and Johnston’s research by producing additional examples of the “do-diet” to focus on eating and body image standards.

Two outliers in this final group, by contrast, began an analysis of how “calibration culture” manifests in their lives and then seemed to enact a resistance, not only to “calibration culture” but to the assignment itself. As an

example, one of them, who titled her post “Preferring/Requiring Authenticity,” underscored the false “choices” that Cairns and Johnston describe and then wrote,

Choice as a source of empowerment looks different to me these days; it takes into consideration my whole being: mind, body, and spirit . . . I am learning to give myself grace, daily, remembering that I am a complex being requiring different things at different times. Tonight, for instance, I required bourbon in all its forms. I think I’ve successfully overcome attempts at calibration, at least for now.

The other student wrote about “going off the grid” instead of calibrating her social media use to an “acceptable balance”; she now only uses the internet for academic-related research.

I am not suggesting that these students were signaling an escape from the Foucauldian gaze of “calibration culture,” but, instead, want to note how anomalous their posts were in a sea of what felt like more lackluster responses. Were they exceptions that proved a rule? And, if so, what rule did they prove? And what standard had I myself posited a year into the pandemic to which I was calibrating the impact of this course and/or the students’ engagement?

These spring 2021 students were just as weary of the pandemic and the other catastrophes we had been living through as I was. And they were just as critical of the deployment of the word “unprecedented.” But by the middle of the term and toward the end of the 2020–2021 academic year as a whole, I realized that I needed to work as hard as I could to repurpose the word in the context of the class itself. I wanted us to aim towards something akin to what one of the two anomalous posts called for (without the bourbon): to “take into consideration [our] whole being[s]: mind, body, and spirit . . . to give [ourselves] grace, daily, remembering that [we are] complex being[s] requiring different things at different times.” In short, I wanted us to aim for something truly unprecedented to happen in our class. I wanted to break the rules, to throw out my reliance on explicit or implicit “known standards,” even in terms of my own expectations for what authentic engagement in the class could look like.

Happily, I remembered that interdisciplinary teaching in the humanities, which is where I dwell, is an invitation, as Newell (2012) reminded us, “to participate in a shared integrative process” (p. 301). I realized by the third week of that spring term in 2021 that I did *not* in fact need “to work as hard as I could” to do something “unprecedented” because our approach to the subject of well-being in a catastrophic era *through* the literary texts we were about to read would open up the field: the field of our encounters with each other, with ourselves, and with our own imaginations. The experience would just feel different than it had with the previous classes.

## The Literary Texts and the Lived Experiences of My Students

I wanted my students to understand that positive psychology and popular culture produce mutually reinforcing *prescriptive* discourses that may, in fact, *prevent* us from paying attention to lived experiences of well-being that we can and do encounter even in the most extreme conditions of potential and real disruption on individual and societal scales. An approach to exploring well-being through the humanities, by contrast, I told them, would engage us in the work of collaborative imagining, in contrast with calibrating. Invoking Newell's call to engage in a "shared integrative process," I told them that we would approach the literature not only through close-reading but also through paying attention to what the texts evoked in us, thus attending to our lived (emotional, embodied, as well as cognitive) experiencing.

I told my students that I had chosen the literary texts for this course two years before because, through very different narrative forms and contexts, they give us windows into some of the lived ways in which humans register, communicate, and navigate fear of catastrophic change in the everyday. I explained that these novels imagine and record dramatic reversals, sudden ends, disruption, destruction, or displacement—often as manifested in various experiences of *homelessness* (exile, dislocation, refugee-ism, a sense of being estranged or a stranger, etc.)—and, at the same time, locate a sense of *well-being* in the midst of such upheaval. In the twenty-first century, homelessness seems an even more pervasive and far-reaching literary trope than at any other time throughout history, seen through narratives of forced migration and immigration as well as post-industrial labor exigencies of constant relocation in addition to individual experiences of alienation and anxiety. And yet, these narratives also reflect experiences of meaningful human connectedness and, indeed, a sense of finding oneself "at home" in the world, enjoying a sense of well-being, however momentarily. I told them that literary texts can call us into recognition of a shared human experience and thereby teach us to foster such connection, even with those who seem most strange to and estranged from us. Literary texts ask readers to witness—which means to be deeply attentive to the characters and the contexts they experience. And I told them I believe that the work of literature can, thus, nurture in readers a new kind of attentiveness to ourselves and to others in our own lives.

The first novel students read after a couple of weeks of grappling with positive psychology and "calibration culture" was Aimee Bender's (2000) *An Invisible Sign of My Own*. The novel's narrator—middle-class, white, American Mona Gray—lives a life prescribed by her obsessive fear of her father's mortality (really, mortality, in general) and by the compulsive rituals she uses to find order in a world that she experiences as confusing and threatening. The confining rituals with which she navigates her internal world are the same

she uses to face the everydayness of her small U.S. hometown in an unnamed landlocked landscape that, at age twenty, she has never left.

The novel opens with a Prologue in which Mona recounts the bedtime story her father told her on her tenth birthday about a kingdom of people who discover the secret of eternal life. Of course, one unintended consequence of this gift is overcrowding. So the king rules that every family must select one member to be executed to alleviate the space problem for the good of the community. One family, resistant to this idea, elects to have each member sever a body part instead—reasoning that the sum of the parts will be equivalent to a whole person. The king agrees, thus making the act of amputation a controlling metaphor of the whole novel (pp. 1–4). This metaphor opens the section immediately following the Prologue when Mona states, “On my twentieth birthday, I bought myself an ax” (p. 7). And thus we are introduced into Mona Gray’s world—in which we will be immersed throughout the rest of this first-person narrative.

Coincident with Mona turning ten (and the traumatizing choice in bedtime stories), her father had fallen ill with an undiagnosed kind of melancholy that had locked her, her mother, and father into a kind of collective gray inertia for the next ten years. His disease had also precipitated Mona’s penchant for quitting: quitting everything—running, piano playing, desserts, relationships, sex, desire. “It’s a fine art, when you think about it,” she says. “To quit well requires an intuitive sense of beauty; you have to feel the moment of turn, right when desire makes an appearance, here is the instant to be severed, whack” (p. 9). The only things that Mona does not quit are her compulsion to knock on wood and her obsession with numbers in ritualized attempts to stave off her father’s mortality and, indeed, death in general.

As readers we are immersed in Mona’s inner cogitations throughout the whole novel. Students notice early on that, while other characters interact and speak with Mona, there are no quotation marks, a style that amplifies the insularity of this perspective. Students across all three classes quickly worked to diagnose her (OCD, major depression, anxiety, autistic spectrum disorder, they speculated) and, in so doing, distanced themselves from her, even if she felt familiar to them. Many of them recognized some of her rituals and thought patterns. Others said they felt “put off” by her rigidity. I asked them to attend to their own affective response to this character and suggested that by diagnosing her, they wanted to fix her within a category, in relationship to a “known standard” of “normal.” I invited them, instead, just to notice, describe, be curious.

Mona’s project to stave off death isolates her, just as it isolates her father; she sees him lost in his own gray world of stasis, fear of death, and fear of living. In one scene she stands outside her parents’ house and thinks: “I could guess where he was inside. In front of the television, half-watching, taking note of everything living inside his skin. Gallbladder? Check. Liver? Check.

Heartbeat? Check. Brain? ABCDEFG . . . Check” (p. 75). She imagines him not only calibrating his body parts as an engineer might calibrate different mechanisms in a complex machine, but also enacting a kind of psychic amputation as he severs selfhood from his body’s component parts.

She knows this ritual well; “I used to think death might be hidden somewhere on our bodies . . . If you knew where to look, you could find it” (p. 74). At age twenty, she believes that she has special access to the signs that one’s time is up, and, thus, if she can discover and correctly read the signs, she can prevent a death. It is all up to her.

After her mother beseeches her to move away and claim her own life, she rents an apartment around the corner from her parents and takes a job as the local elementary school’s math teacher, becoming particularly attached to the 2nd grade class and specifically to one student, Lisa Venus, whose mother is dying of cancer.

It is Lisa Venus’s imminent loss that pulls Mona out of her own fruitless attempt to keep her father company in his self-isolation. In the end of the novel, Lisa finds Mona in the teacher’s lounge and tries to keep her company by mimicking Mona’s wood-knocking tics, making visible what Mona has always assumed was the “invisible sign of her own” mechanism for protecting herself and others against the forces of what has felt like a chaotic mortal existence. When Lisa’s knocking turns self-destructive and she bashes her head into the wall, Mona steps outside of her insularity to save the child.

I kept holding her as tight as I could, fierce as a vice, and she said . . . I wanted to bleed all over the carpet, I want to have chemotherapy, I want to have no hair, I want to be in the hospital too, she’s going to have to die all by herself . . . and it was my turn to talk but I kept holding her close and I had nothing to say . . . No matter how many times she kept her mother company, it was clear who was leaving, and who was staying put. (p. 193)

Mona holding Lisa has the added effect of making Mona visible to herself. And it initiates a profound decision when Mona visits her dad and tells him quietly, “I’m sorry . . . but I don’t think I can keep you company anymore” (p. 229).

On the final page of the novel, Mona retells the opening bedtime story to Lisa Venus—but with an important difference. Rather than sacrificing a body part for the family, the daughter of the family announces her decision to move away from the kingdom of eternal life. She invites others to join her and when they hesitate, she simply says, “Bye . . . I’ll be next town over” and walks off into the bright sunshine (p. 242).

I go into such detail here because I think that the arc of this novel, from the opening Prologue to Mona’s revised fairy tale in the end, narrativizes a complex process that phenomenological philosopher Hans Georg-Gadamer (1993) identifies as he unpacks the profound paradox of death anxiety in his reading of the myth of *Prometheus Bound* as ultimately a catalyst for imagination and

liberation (rather than paralysis). Midway through reading *An Invisible Sign of My Own*, I introduce this paradox when I give my students excerpts from *The Enigma of Health*, a series of essays based on talks that Gadamer delivered on the dehumanizing impact of modern medicine and its ever-increasing and dis-integrating specializations. In it he writes,

[the myth of *Prometheus Bound*] signifies the forgetting of death so that [man] no longer has to reckon with it. And yet . . . this forgetting of death is never a real forgetting or overcoming but rather constitutes life itself. Thus the whole investigative genius of man presses forward into an incalculable future, or rather, . . . into the experience of transcendence . . . it is through . . . the possession of language that a person is able to think something [hold awareness of mortality] and at the same time hold certain possibilities open. (p. 157)

In other words, it is our genuine encounter with our mortality—with the clear awareness that we are “beings onto death”—and, simultaneously, our ability to imagine and move toward a future in spite of this awareness that exemplifies and fosters our well-being. Our active awareness of our existential condition, in fact, contrasts with the anxiety that “calibration culture” amplifies in its emphasis on achieving certain standards of health through specific practices.

Gadamer contrasts *existential* anxiety with the anxiety that is born out of the prescriptive discourses that modern science produces to achieve or maintain health, discourses that have amplified humans’ need for security, mastery, and control, specifically over death. Gadamer argues that modern scientific prioritization of “The prolongation of life finally becomes a prolongation of death and a fading away of the experience of self” (p. 62). My students notice this same pull toward security, mastery, and control in the discourses of *Well-Being* and other popular magazines reflective of the social sciences that foster the kind of obsessive self-monitoring/calibration that Mona’s dad engages in (gluten-free: check; requisite kale intake: check; daily smile quotient: check).

Gadamer’s caution in response to modern science and medicine recalls the father’s opening fairy tale that values immortality above all else—a view that, fundamentally, prevents us from engaging us in the present. The young Mona quits her own life to save her father; her experience of self is rigid, fearful, self-sacrificial. However, in the end of the novel when she retells the fairy tale to Lisa, we are left at the threshold of the incalculable future that Gadamer describes as the necessary step to transcendence—diametrically opposed to the obsessive calibrations by which Mona has tried to order her life and fend off death throughout the novel. Townspeople in Mona’s version of the fairy tale watched “as the [daughter and several others] walked straight into death, and they watched as long as they could” until they disappeared from view

over the horizon and they “could see nothing more than an empty yellow hill rolling out in front of them like a carpet of sunlit water.” As my students and I all sat in the power of the daughter’s choice to “[walk] straight into death,” I asked “what other choice do we have!?” maybe a little too jovially.

Throughout our reading of the novel in all three classes, I had to push against my students’ strong urges to contain the characters not only within diagnoses but also within other kinds of precedents, known standards, and rules of behavior. I made it clear early on that continuing to diagnose Mona would go over about as well as saying that our pandemic was “unprecedented.”

This was another juncture in the course that marked, for me, the differences between the first class and the third class. The first class took to heart the ways in which diagnosis can foreclose on listening to and encountering others in their full humanness. They applied this consideration to the “grayness” surrounding Mona’s family and the ways in which the family fades and becomes isolated from the community. They talked about how Mona’s loneliness prompts her connection to Lisa Venus as a way to re-parent herself.

By contrast, the students in the third class held on tightly to diagnosis. After I told them to stop diagnosing Mona, many of them turned their attention to Mona’s father’s “cancer” and her grief over her impending orphan-hood. I entreated them to notice that, in fact, the problem was that he does *not* have a cancer diagnosis, or any other diagnosis. And still, they inserted “terminal illness” into every description of her father. Lisa Venus, who is the imminent orphan in the novel, wakes Mona up to the fact that he is not actively dying, but is paralyzed with death anxiety.

And there is another kind of wake-up call in this novel that was, in fact, even more troubling for this third group of students: the wake-up call of desire as Mona works to manage her interactions with the new science teacher at her school. If Mona is all about order, Benjamin Smith represents chaos as he teaches human biology by assigning students to role-play the symptoms of viruses and diseases. (Mona finds students lying in the halls of the school simulating scurvy and tuberculosis.) Despite her horror and anger, she is drawn to Benjamin and his embodied and experiential pedagogy (which, despite her best intentions, she actually shares as she invites students to find numbers in the materials of their lived worlds: Lisa’s mother’s IV tubing becomes a zero; a war hero’s amputated leg that has been preserved becomes a number one). Midway through the novel Benjamin and Mona go out on a date and return to her apartment, and as they begin kissing each other, Mona extinguishes her rising desire when she excuses herself to go to the bathroom. “I was blooming out of control, and the melting inside was unbearable, and I took myself away.” The nature of her retreat is, at first, unapparent to Benjamin. But the reader knows what is coming based on her earlier description of her penchant for the “fine art” of quitting “right when desire makes an appearance” (p. 9).

I slipped into the bathroom and shut the door and locked it and confronted my face—pink, eyes bluer than normal. Took the bar of soap right into my hands . . . My friend, soap, that small ball of ruin . . . I brought the whole bar up to my lips and rolled it halfway inside my mouth, sucking on the white curves, lolling the smoothness over my tongue, drinking the water off the white: I ran it over my mouth, lathered my lips, and I licked the froth off again and again, licked the smooth curve of the bar, reglaze, relick, swallowing it down, forcing the upset, feeling my stomach unravel. (p. 145)

When she returns to Benjamin, after having successfully expended her erotic energy on the soap, “[her] body went limp and dead.” Benjamin—who has prompted his students to fake illness and near death—knows an “act” when he sees it, and he names it. “No, he said. This part is acting class—I give you an A for acting class. But the rest was real. This stuff, he said, this stuff about you I don’t like at all . . . I was here, remember?” (p. 147). And even though we continue to see Benjamin through Mona’s narration, his insistence on his own reality and Mona’s “real” connection to another provides readers one of the first potential conduits to a perspective outside of Mona’s “own.”

In the end of the novel, Mona’s wake-up call to the otherness of Lisa Venus, as well as her decision to let go of her anxious surveillance of her father, catalyzes her return to Benjamin and her own active turning toward the real. When she invites him on a second date, she also asks him for an important favor: “I took a breath and told Benjamin the science teacher that next time, if there ever was a next time, if I said I was going to the bathroom, he shouldn’t let me go . . . I felt like I was praying. He said: Ms. Gray, I am not your bathroom monitor. I smiled a little at that. I know, I said. You’re right, I said. But just once, I said.” In fact, in one of the final scenes in the novel, Benjamin has to enforce his appointed role as bathroom monitor not just once but over and over. In the beginning of the scene, just as desire makes an appearance, Mona, “tentatively, terrified,” says she has to go to the bathroom.

He stops kissing me and looks straight at me and his teeth are white in the darkness. There is a long pause and I am waiting, and my hope is eighty airplanes, poised on the runway, ready for takeoff: please, please, please, please. And then he smiles. No, he says. As soon as he says it my eyes fill up, just like that, the gratitude is that fast and that immediate. (p. 220)

The specificity of the erotic in this scene is played out as Benjamin refuses to let Mona go to the bathroom, holding her down in her bed.

And this is where many of the students in my third class took up Mona’s now-former habit and “quit.” “This feels like a rape scene,” they said. I was alarmed, particularly because the first class, in reading this scene, were curious about it even as they wondered if Bender would have chosen to write a scene like this in a #MeToo era. The third class were not curious; instead they were incensed. I urged them to close read the complexity in Mona’s gratitude and



hope—indeed, the complexity in inviting another in as she thinks, “I can feel the room shift, the whole room is keeping us, and I ask him [if I can go to the bathroom] again because I can, because I am starting to have the smallest, most precious glimmer of trust [that he won’t let me]” (p. 221). I told my students, like Lisa Venus, she needs another to see her and to hold her tightly in the real. She wakes later in the night next to Benjamin and to the reality of her existential condition; “I’m still here . . . I have been here the whole time, haven’t I, and the broom thought that finally sweeps me away is that I am young. I am younger. I am supposed to outlive them both” (p. 225). While, as readers, we “have been here the whole time” in Mona’s insular world, she claims a new presence for herself in this moment; she sets her parents free to their own existential condition as she sets us free to imagine an unknown and unprescribed future for her.

I became increasingly aware, as I watched my students in that third class struggle with this scene and the ending of the novel, of the insularity that had been forced upon them over the past year as they had attended class on Zoom and feared their physical proximity with another—as well as their own uncertain futures.

I wondered about how, in this protracted state of isolation, these students could access their own curiosity and sense of freedom and possibility. While considering the differences between the two responses of the two classes as I worked on this article, I eagerly read an essay entitled “The Ballad of Sexual Optimism,” by cultural critic, feminist, and queer theorist Maggie Nelson (2021) the week that her new book *On Freedom: Four Songs of Care and Constraint* came out. In it she writes about desire in terms of “the fundamental unknowability of ourselves and each other . . . which is part of what makes [sexual experience] worthwhile” (p. 78). And it is part of what makes our interpersonal connections, in general, worthwhile. Desire makes us vulnerable, and it is also a source of our power. Indeed, Mona emerges vividly from her rigid insularity in the novel when she holds eight-year-old Lisa Venus in a “vice grip” to protect her from (while witnessing) her uncontainable grief. And this power also manifests in Mona asking Benjamin to hold her down because she trusts him enough to see her as real: a whole person. This is an example, in Maggie Nelson’s framing, “of a different kind of freedom drive—one that longs to be self-forgetful, incautious, overwhelmed” (p. 95). And Mona’s desire in this scene opens her up to a new kind of learning; she is making her signs visible and shared or co-created. They are no longer just “her own.” This moment also resonates with Gadamer’s (1993) claim that “Well-being shows itself when we are open to new things, ready to embark on new enterprises and forgetful of ourselves” (p. 112). Again, this self-forgetting that both writers invoke is not a self-abandonment, but an opening up to new possibilities for a self-in-relation to the world that is not mediated by anxious calibrations.

I know enough to know that encountering a scene like the one between Benjamin and Mona likely activates thirty different responses in a class of thirty students—some of them borne out of trauma. And I do not diminish the impact that a history of sexual trauma, in particular, could have on a student's encounter with this scene. But I did continue to invite students to see Mona in her own wholeness and separateness from their own experience—in the hopes that this might offer them conduits to new freedom for themselves as well.

When we moved into the second novel of the quarter (a novel that is about a pandemic, but one that is also about connection and community), I felt wary with this third class; not only had they had difficulty fostering curiosity about Mona's journey, but they also seemed relatively disconnected from one another. By this time, we were also a full year into the pandemic, and if *An Invisible Sign of My Own* foregrounds the rigid repression of death anxiety, Emily St. John Mandel's (2014) novel *Station Eleven* evokes just that anxiety, situating the certainty of death and the real possibility of human species extinction center stage. The first class, the one that had been so inspired by Ungar's prayer for a collective "reaching out," had been compelled by Mona's waking up to the intersubjectivity of well-being. They had also been deeply moved and consoled by the experience of this second novel. What would happen this time around, with this third class that seemed collectively resistant to inviting their own and each other's full humanness into the space of the class? Would foregrounding pandemic in our literary exploration as well as in our lives foreclose on our shared imagining altogether?

Mandel's *Station Eleven* opens at the advent of catastrophe in the form of a world-wide pandemic that kills 99% of the population indiscriminately. The novel moves back and forth in time from various moments in pre-collapse North American culture to the present-time of the novel, which is twenty-years post-pandemic onset. In this present time, we follow various communities and individuals navigating this world without electricity, internet, cars, airplanes, etc. including a Traveling Symphony that announces itself as it travels the landscape performing concerts and Shakespearean plays with a sign on the side of their caravan that reads "Because survival is insufficient" (p. 58).

The Traveling Symphony is directly contrasted with and hunted by a dangerous cult led by a ruthless "prophet." At the onset of the pandemic we see him, as a child, being read to obsessively by his panicky mother from the Book of Revelations (again, not the best choice in bedtime stories—particularly in the midst of pandemic). This ominous foreshadowing also helps explain the source of the prophet's murderous theology; he sees himself as "chosen" by divine providence—and thus constructs himself as immortal and justified in enslaving others for his own bidding, and killing those who resist or attempt to flee. The prophet and his followers are represented as antithetical to the artists and their role as an enlivening force; unlike the Traveling Symphony, this cult manifests a failure of the life-sustaining imagination. When

the symphony unwittingly arrives in the cult's settlement and performs *A Midsummer Night's Dream* (a play, significantly, that foregrounds the power of the imagination), the prophet cuts off the standing ovation (and the tears of an audience member) as he stands and states,

“My people . . . We are blessed to have these musicians and actors in our midst today” . . . . “We have been blessed,” he said, “in so many ways, have we not? We are blessed most of all in being alive today. We must ask ourselves, ‘Why? Why we were spared?’” He was silent for a moment, scanning the Symphony and the assembled crowd, but no one responded. “I submit,” the prophet said, “that everything that has ever happened on this earth has happened for a reason.” (p. 59)

The prophet delivers a dangerous cliché that makes the community immediately recognizable as a “doomsday cult” and that threatens to subsume the meaning of the Symphony and the art it offers—a signal to the Symphony’s leader to pack up immediately and leave.

The Traveling Symphony, in stark contrast to the prophet and his followers, provides one of several beacons of hope in this devastated world because of its commitment to community and creativity. The conductor—certainly not a cult figurehead—remains unnamed, but she is represented as a clear-headed leader who values the non-hierarchical well-being of the group as a whole while also recognizing them as a set of unique individuals playing specific roles in the symphony; they are each named for their instrument and seat in the orchestra (second violin, fourth guitar, third cello, etc.). The sum of the parts is great. But so too is the individuality of each player.

Now, lest we worry that Mandel is copping out by positing a utopian artist commune as the ideal configuration for humanity in a post-pandemic world, we learn early on that as in any human community living and traveling in close-quarters, things are not always easy: “Someone had written ‘Sartre: Hell is other people’ in pen inside one of the other caravans, and someone else had scratched out ‘other people’ and substituted ‘flutes’” (pp. 47–48). At the same time, we learn that “what made it bearable were the friendships, of course, the camaraderie and the music and the Shakespeare, the moments of transcendent beauty and joy” (p. 47). Shortly after this description, we are immersed in the fairyland of *A Midsummer Night's Dream* played at “Twilight in the altered world” (p. 57). The performance, described before we even see the prophet, captures the imagination and the emotions of the cult members who sit in rapt attention in the audience. In fact, the Symphony enables experiences of well-being through art, even in the context of the most profound catastrophe: “What was lost in the collapse: almost everything, almost everyone, but there is still such beauty” (p. 57).

Again, the aim of this novel is not to romanticize or aestheticize catastrophe. Rather, it is to suggest an alternative to a denial or defense against death,

in the face of catastrophe (indeed, in the very age in which we are living). And, again, as I had brought Gadamer's phenomenology of death anxiety into conversation with our discussion of *Invisible Sign of My Own*, I brought another phenomenological approach into our conversations about *Station Eleven*. As we neared the end of the novel, students read Les Todres and Kate Galvin's (2018) existential-phenomenological theory of well-being, which they describe as a state of "dwelling-mobility." Todres and Galvin draw from Heidegger's discussion of existential homelessness that humans experience when they face vulnerability and mortality. In this experience, they say, we become unmoored from a sense of at-homeness that is a taken-for-granted everydayness (during which we are not directly facing our mortality), or what Heidegger calls "numbing comfort" (p. 86). But they argue that rather than paralyzing us with terror, this recognition of our existential homelessness, or

facing this 'not being at home' through an anxiety provoking experience [for example pandemic, illness, war, displacement, catastrophe] can often open up a path of movement; and this can provide an energizing potential that can itself be felt as well-being. (p. 86)

This movement that they describe is not an anxious flight from facing our existential condition; rather, it realizes the "ontological possibilities of *authentic mobility* . . . a creative restlessness in which we are called into our future possibilities" (emphasis added). In turn, this authentic mobility opens up a path toward an authentic homecoming. Thus "[h]omelessness paradoxically provides an important motivation for the quest to seek the experience of homecoming . . . [to] a peaceful attunement to existence," an existence including the vulnerabilities of our mortality (p. 86). Todres and Galvin note,

One can come to dwelling in many ways such as sadness, suffering, concern, attentiveness, acceptance, relaxation, or patience . . . It is a form of being grounded in the present moment, supported by a past that is arriving and the openness of a future that is calling. (p. 87)

In other words, well-being is not contingent upon "positive" subjective feelings of pleasure or happiness. And it is, notably, not yielded by a trajectory of self-improvement. Instead, existential well-being finds meaning in the ways in which we live simultaneously in relationship with our past, in our present, and toward our future.

Again, like Gadamer's notion of humans' imaginative transcendence in the face of mortality, Todres' and Galvin's theory underscores an essential paradox: "In coming home to what 'is there,' there is not necessarily an eradication of suffering, pain and the existential vicissitudes of life" (p. 87). Instead, "there is a felt quality to 'making room for' and 'letting be-ness' that constitutes a kind of peace" while, at the same time, "being called into the novelty of open horizons" (p. 88). This dwelling-mobility of existential well-being is manifested and epitomized in the *Traveling Symphony* that not only creates

“such beauty” in the “twilight of the altered world,” but fosters the wholeness of individuals within a human community whose members watch out for each other in the most profound manifestation of the social contract.

*Station Eleven* ends with the violent death of the character who is the antithesis to existential well-being, the prophet. (One of the Symphony members kills him in self-defense and in defense of her beloved fellow musicians.) And we look out on the horizon through the perspective of another character who has created a Museum of Civilization in which he collects artifacts of the pre-pandemic world. After his imagination is reignited by learning that a nearby community has rediscovered electricity, he thinks,

is it possible that there are ships setting out? If there are again towns with streetlights, if there are symphonies and newspapers, then what else might this awakening world contain. If nothing else, it's pleasant to consider the possibility. He likes the thought of ships moving over the water, toward another world just out of sight. (pp. 332–333)

Like the daughter in the end of Mona's story, in the end of *Station Eleven*, The Museum of Civilization curator gazes out over a similarly uncertain horizon. As he reflects on his pre-pandemic career in corporate culture as a “high-functioning sleepwalker” (p. 163), that self is set in sharp contrast with his presence to himself and others as the repository of memory and perspective. And his perspective manifests existential well-being or dwelling-mobility as he looks outward.

Gadamer argues that well-being requires this kind of self-forgetting (a relinquishing of anxious calibrations and attempts at control that situate ourselves and our mere survival at all costs at the center of existence); instead, he claims, “we should consider it a universal responsibility of human beings to learn to turn this capacity for directing our attention away from ourselves—this permanent orientation towards new possibilities, towards the unknown, towards new ventures—back in the direction of the vast, balance-sustaining rhythm of the natural order” (p. 85). Significantly, the post-pandemic landscape of *Station Eleven* has not been decimated by nuclear fallout. In fact, we encounter a landscape of the upper mid-west and Canada in which nature is taking over, a phenomenon that has the effect of placing limits on the Promethean reach of individual characters and forcing them to turn toward each other to work in more sustainable and collaborative rhythms.

As we began reading this novel about a world-wide pandemic during each of the three terms in quarantine, I felt a collective bracing; students reported that they avoided doing their reading at night because it gave them bad dreams. Soon, however, they described feeling some relief that “our pandemic” was not nearly as bad as the one in the novel. “We still have electricity; we can still be connected to each other through the internet and Zoom,” they said.

Still, during the spring of 2021 I needed to attend to the fact that every day it seemed as if fewer and fewer students were turning their cameras on—an experience all my colleagues were having, as well. So, in response to their retreat from engagement, I decided to break the class up into smaller groups of ten. Over three class periods, I met with one group at a time and sat back in silence to let them conduct the conversation about the section of the novel they had been assigned to read for the day. I had assumed that the conversations would last for about one hour, I would sum up what I had heard, and then I would let them go for the day.

Instead, the conversations lasted for the full two hours—during which time students (all with their cameras on) opened with quotations they wanted to close-read together, raised follow-up questions in response to others' analyses and ideas, and asked specific group members to speak from their own disciplinary perspectives. A theater major spoke at length about Shakespeare and the history of traveling acting troupes; a physics major talked about the theory of parallel universes that one character meditates on—envisioning a universe in which the pandemic has not occurred—and spoke about how this not only disrupts the prophet's providential narrative but also invites the reader (who is living in the parallel universe) to engage with the novel more deeply. And they spoke to each other from their lived perspectives. One Vietnamese-American student, whose grandmother was a refugee to the United States after the Vietnam War, talked about how her Vietnamese relatives are only now beginning to move through the trauma of the war fifty years later. She connected this family history to the different relationships that the characters in the novel had to the world before the pandemic, to memory, and to trauma, based on their ages (some of the characters were born after the collapse but into a legacy of collective trauma). In her reflections she integrated the novel, her grandmother's perspective, and her observations on the present moment:

Something that seems to contribute to one's well-being is the hope that the future will get better/improve from this tragedy. However, because this pandemic has been traumatizing for all of us, we are wishing for things to go back to what the world was like before. The reason why we don't wish for an improved situation, but rather to go back to how things were, is trauma makes it difficult for us to envision a hopeful future for ourselves, so the only vision we can see that may comfort ourselves is the vision of the past. But the problem with this is we often want to move past trauma way too quickly without really reflecting on how detrimental this is to us in our coping.

This comment slowed the group down to reflect on the importance of attending to this moment of our pandemic for themselves, as they watched each of the characters in the novel make different meanings of their experience.

In fact, the students talked about how they had come to experience the novel, despite the frightening events, as a character-driven (versus a

plot-driven) novel. At first, they had found themselves wanting to know how it was all going to “work out.” As they then close-read specific passages together, they began noticing that each character, however minor, had a purpose in the novel in terms of interconnections with the other characters across time and space. They focused on the character of Miranda, who dies when the pandemic hits but continues to circulate throughout the novel by means of her art: a graphic novel entitled *Dr. Eleven*. We see her in the moments before her death, staring out at the ocean:

She was thinking about the way she'd always taken for granted that the world had certain people in it, either central to her days or unseen and infrequently thought of. How without any one of these people the world is a subtly but unmistakably altered place, the dial turned just one or two degrees. (p. 225)

Miranda became central to the students' own understanding of the most significant themes in the novel: our shared human condition, our intersubjectivity, the role of art, and the ways in which these are mutually constituted in our project to make meaning and to realize (or make real) our own experience of selfhood.

And during these small group conversations I was struck by memories of something that had been a profound learning experience for me in a different integrative interdisciplinary context as I was working toward my clinical degree twenty years ago. For a number of years, I joined my mentor, psychologist Steen Halling, in collaborative research projects on experiences of despair (Beck, et al., 2003) and of deep connection with another (Guts, et al., 2016). In doing this research, we employed a qualitative research methodology called the “dialogal phenomenological method” that Halling and his colleague Jan Rowe (2006) developed in their research on the experience of forgiving another. In this approach, we began by writing and sharing with each other as researchers our individual reflections on our own experience of the phenomenon we were studying. In these conversations, we developed the open-ended interview question(s) that we then used with our research participants. Halling (2014) has eloquently described this approach in a reflection poetically entitled “The Phenomenon as Muse: On Being Open to ‘Friendly Invasion’”:

This approach requires a focused and ongoing dialogue among the researchers and between the researchers and the phenomenon under study. There is a disciplined and collaborative focus on the various descriptions, from both the researchers and the research participants such that the phenomenon, as it were, comes to be a presence in the room and a partner in the dialogue. (p. 4)

The “discipline” in this context refers to the attentiveness on the part of the researchers to the phenomenon itself rather than to some disciplinary lens through which to understand the phenomenon.

As my students in that third class gathered together in these small groups to close-read and explore *Station Eleven*, a novel all about human community, I saw the phenomenon manifest in these small groups, even over the computer screen. For that matter, earlier in the term, as we had close-read *Invisible Sign of My Own*, a novel all about isolation, rigidity, and insularity, the phenomenon had emerged in that (Zoom) room as well. This experience underscores what I see as a profound opportunity those of us who teach in the interdisciplinary humanities have to invite students into lived experiences of self-hood and authentic ethical encounters with the Other. Initially, *Station Eleven* threatened to isolate us even further from each other as *Invisible Sign of My Own* had done; but as I invited students to name the fear that this novel was invoking in them, we found our way into a different kind of connection with each other.

Our final novel in the course, *Exit West* by British-Pakistani author Mohsin Hamid (2017), threw us into still another different encounter with existential homelessness. Hamid's novel drops us into a hyper-real present of militant extremism, civil war, global migration, and violent nativist responses to migrants. Hamid's omniscient narrator delivers a story that reads like an amalgamation of a sociological report and a fairy-tale; this is a story, the narrative style suggests, that is generalizable to all humanity. For example, he sets the opening in an unnamed city in the Middle East on the eve of Civil War:

In a city swollen by refugees but still mostly at peace, or at least not yet openly at war, a young man met a young woman in a classroom and did not speak to her . . . It might seem odd that in cities teetering at the edge of the abyss young people still go to class . . . but that is the way of things, with cities as with life, for one moment we are pottering about our errands as usual and the next we are dying, and our eternally impending ending does not put a stop to our transient beginnings and middles until the instant when it does. (p. 4)

The “we,” as well as the overarching device of random doors that appear and become portals to other countries around the world through which myriad groups of migrants pass, paints a picture of the whole human species in motion. Indeed, the novel makes it clear that eventually we will all be migrants, if we are not already, whether we move from country to country or stay in place in a shifting cultural landscape. And, of course, our existential condition—our “eternally impending ending” that Gadamer foregrounds—does not preclude, and, in fact, inspires our “transient beginnings and middles,” during which time we feel desire, fall in love, fall out of love, go to school, etc. “That is the way of things.”

Indeed, this novel's opening illustrates Todres' and Galvin's (2018) theory of existential well-being, even (maybe especially) on the eve of war. The narrative form disrupts our expectations regarding the trajectories of both love and rupture. The two main characters, Nadia and Saeed, are on the verge of



displacement—again, existential homelessness—at the opening of the novel. We see the end of their “everyday” as it is defined by Heidegger, as “numbing comfort” (as cited in Todres and Galvin, 2018, p. 86). But this experience of crisis, while suffused with fear and grief as they lose family members and leave their homeland, also opens up a path of authentic movement for them. They meet in class, fall in love, and travel together through portals, relocating themselves to different parts of the world, while simultaneously attending to their changing relationship as they grow as individuals. While the narrative opens as a “boy meets girl” story, it does not follow a traditionally prescribed path into marriage. They part ways (another rupture) at the same time that they discover new horizons for themselves.

At the end of the novel, the narrative time travels forward to “Half a century later” (p. 229) when, coincidentally, Nadia and Saeed find themselves back in the city of their birth and their meeting. The city is a calmer place now, “the lives of cities being far more persistent and more gently cyclical than those of people, and the city [they] found [themselves] in was not a heaven but it was not a hell, and it was familiar but also unfamiliar” (p. 229). Nadia and Saeed reunite over coffee and talk about the journeys they have taken since their time together (the portals have remained open), and in this conversation we see another homecoming of sorts as Nadia invokes an aspiration that she remembers Saeed sharing with her:

Nadia asked if Saeed had been to the deserts of Chile and seen the stars and was it all he had imagined it would be. He nodded and said if she had an evening free he would take her, it was a sight worth seeing in this life, and she shut her eyes and said she should like that very much and they rose and embraced and parted and did not know, then, if that evening would ever come. (pp. 230-231)

While some of my students in the final class lamented this ending (longing for a more romantic reunion), many of them recognized it as an example of dwelling-mobility in the sense that these characters are “grounded in the present moment, supported by a past that is arriving and the openness of a future that is calling” (Todres & Galvin, 2018, p. 87). Nothing is prescribed, but all is included in this moment, that, in turn, allows for myriad possibilities.

And the world that Nadia and Saeed have navigated holds this same possibility. Just as the ending resists the romantic outcome we hope for and expect, the descriptions of clashes between migrants and “nativists” throughout the novel resist the catastrophic outcomes that twenty-first-century-readers have also come to expect, given that we are inundated daily with examples of violence and injustice catalyzed by seemingly unbridgeable polarizing ideologies and political stances. In a poignant scene set in London in the middle of the novel, when heavily armed white “nativists” are poised to murder a crowd of migrants, suddenly there is a pause:

Perhaps [the nativists] had grasped that the doors could not be closed, and new doors would continue to open, and they had understood that the denial of coexistence would have required one party to cease to exist and the extinguishing party would have been transformed in the process, and too many native parents would not have been able to look their children in the eye, to speak with head held high of what their generation had done . . . . Decency on this occasion had won out. (p. 166)

In a similar vein, towards the end of the novel, a portal that opens into Marin County brings a rich diversity of migrants who outnumber those who have claimed the region as their own birthright; at this point in the novel, “native-ness [has become] a relative matter” (p. 196) So too has “apocalypse”—calling both concepts into question.

The apocalypse appeared to have arrived and yet it was not apocalyptic, which is to say that while the changes were jarring they were not the end, and life went on, and people found things to do and ways to be and people to be with, and plausible desirable futures began to emerge, unimaginable previously, but not unimaginable now, and the result was something not unlike relief....Indeed there was a great creative flowering in the region especially in music. (p. 218)

We witness this creative flowering not just in music, but also in food, new forms of community and communion, and new forms of political representation.

This penultimate scene offers us a new view of the West that resists the ideologically dominant narrative of the providential City on the Hill/promised land; instead, we are situated in the possibility of a future world that enlists our imagination in new ways. Like the other two novels, *Exit West* ends poised on the edge of an unknown horizon, not just for our former lovers, but for humanity in general. And in the form of his telling, which reads a bit like a parable, Hamid is offering a kind of meta-narrative: a new possibility for narratives of the human condition that keep contingency and temporariness front and center and, in turn, our profound human capacity for dwelling-mobility, for existential well-being, in the face of catastrophe.

Meanwhile, back in the Zoom-room, as we prepared for the end of spring term 2021, and the end of a long academic year of learning in quarantine, I worked with a graduating senior student to re-imagine the culminating project for the other students in the course (which had originally been a reflective analysis essay). This student, who had taken the course with me during the fall term, had been co-facilitating this term’s class for independent study credit. My student was invaluable in helping me attend to the significant differences we sensed in the collective mood in the room between that of the previous fall and six months later. We anticipated the ways in which the students might have been inspired by the imaginative possibilities that *Exit West* posed, but knew that they felt the exhaustion that we were also feeling. Because the

phenomena of insularity/anxiety and creativity/community had appeared in the contexts of discussing the previous two novels, we decided to make room for the phenomenon of dwelling-mobility in response to this final novel. Thus, we issued the assignment as an invitation to explore where they found themselves “in the present moment, supported by a past that is arriving and the openness of a future that is calling”:

Because we find ourselves in this both/and complex landscape (of well-being and catastrophe), this final creative practice invites you to step outside the box of the generic conventions and expectations that a “final assignment” might suggest (hence, we call this a “practice”). That is, we would like you to witness your own navigation of well-being (or lack thereof) within this catastrophic moment, choosing a medium (visual, performative, literary, sculptural, etc.) that you feel would best enable you to witness, represent, and create. We have lived with lots of restrictions/prohibitions over the past year—so this practice is meant to enable your freedom to access your own sensory, emotional, cognitive, and/or creative experiences as you witness your own relationship to well-being. In other words, make something that reflects your journey through this quarter/this class at this moment in your life. There is no GOOD/BAD or RIGHT/WRONG way to engage this assignment. Recognize where YOU are at this moment. And what is meaningful to you. Maybe this can’t be expressed in English; maybe this can’t be expressed by written words. Don’t even aim for a “finished product.” Etc. Etc. Etc.

To underscore the “unprecedented” nature of the assignment, I resisted any tools of “calibration” by including, in the place of a rubric, avant-garde composer John Cage’s “10 Rules for Students, Teachers, and Life” that he borrowed and popularized from artist and educator Sister Corita Kent. The most significant rules for my students were:

RULE FOUR: Consider everything an experiment.

RULE SIX: Nothing is a mistake. There’s no win and no fail, there’s only make.

RULE TEN: We’re breaking all the rules. Even our own rules. And how do we do that? By leaving plenty of room for X quantities.

HINTS: Always be around. Come or go to everything. Always go to classes. Read anything you can get your hands on. Look at movies carefully, often. Save everything. It might come in handy later.

After the anxiety and rigidity that I witnessed in my students throughout the first half of this final quarter, I was surprised and gratified that there seemed to be very little consternation in response to the open-endedness of this assignment. I would like to think that our final literary text prepared the students for this practice. Or maybe they were just ready to break the rules. In any case, I was certainly not prepared for the range of responses that included:

- a music video of a student walking to and through an on-campus labyrinth, set to the song “Call it Magic,” by Coldplay;
- a sculpture of a lemon tree made out of paper mâché pamphlets from local transit (and other public spaces) about COVID-19 pandemic protocols that was evocative of this student’s family home, extended family, and their relationship with death;
- a photo of a freshly-baked loaf of bread and homemade marmalade including a written reflection from the student about sharing this with her housemates-in-quarantine. This student had been feeling increasingly “untethered” from her family. The pandemic was the context, but not the catalyst, for this untethering that, in myriad ways, many college students experience. In all cases, it is disorienting—and this student found moments of authentic homecoming in relationship with her housemates;
- a written-reflection by a student from Iran who, in the end of the quarter, was personally impacted by Israel’s airstrikes against Hamas; his good friend and housemate was Palestinian and taught him about the ways in which his family and friends had been caught in the crossfire for generations. This experience led to a series of conversations in which my student invited specific friends and family members into reflections on the power of vulnerability in their own lives;
- myriad paintings, drawings, videos, and photo essays from other students, plus a studio recording of an original song a student had written during the quarter.

### COVID-19 as Muse, Not Alibi

If we call the COVID-19 pandemic “unprecedented,” my English professor colleague and husband said when he read a draft of this article, we turn it into an “alibi.” The pandemic becomes a defense for why we could not show up, an explanation for where we were at the time (i.e. anywhere but here). And I am reminded, again, of the opening of *Exit West*: “our eternally impending ending does not put a stop to our transient beginnings and middles until the instant when it does” (p. 4). At least, it should not do so. And so I chose to mark the end of the third iteration of the class by prompting the students to represent their “transient beginnings and middles.” What emerged out of the Final Imaginative Practice assignment was not the usual analytical essay. What emerged were different representations of and reflections on the selves of my students than I would typically encounter in a final project. Like Nadia and Saeed, my students thereby showed up during a pandemic; and I was there to meet them. In that space, in that time, we experienced everydayness in catastrophe together, which is to say that we opened ourselves up to the possibility of well-being.

The students in my third class, most of whom had seemed resistant to showing up throughout the course, reminded me at the conclusion of the course that this resistance itself was an indication of richly important “felt experiences.” Attending to our “our way of being in the world” phenomenologically in the class and close-reading the ways the characters in the literary texts showed up in their own worlds gave us opportunities to find common ground and well-being with each other. And so through teaching this course (as through teaching my course on trauma) I have come to understand even more deeply what William Newell meant when he described the interdisciplinary humanities as involving a shared integrative process (Repko, Newell, & Szostak, 2012), a process that, for me, is inseparable from entering the shared space of the class (zoom) room.

In closing, I should note that the story of teaching this class did not, in fact, end in June of 2021; I am teaching the course again this fall. Masked, vaccinated, and wary of our physical proximity to one another, my students and I have returned to the physical space of the classroom. On the first day, as they filed in and sat down facing forward, not daring to look at or interact with each other, one of them broke the silence and said, “I feel like we are placed here like traffic cones.”

And so, I begin again.

I decided to open the fourth iteration of this class not with Ungar’s pandemic poem, but rather with an invitation that also feels like a reflection on integrative interdisciplinary humanities. I issued this invitation by assigning a chapter by Jenny O’Dell from her book *How to Do Nothing: Resisting the Attention Economy*. It is entitled “The Case for Nothing.” In it she describes several works of public art that evoke a specific quality of lived experience:

The artist creates a structure—whether that’s a map or a cordoned-off area . . . —that holds open a contemplative space against the pressures of habit, familiarity, and distraction that constantly threaten to close it . . . You can see this effect at work in the circular labyrinths that are designed for nothing other than contemplative walking. Labyrinths function similarly to how they appear, enabling a sort of dense infolding of attention; through two-dimensional design alone, they make it possible not to walk straight through a space, nor to stand still, but something very well in between . . . they unfold secret and multifarious perspectives even within a fairly small area. (pp. 6–7)

I suggested to my students that our classroom could be such a structure and that the kinds of activities I would invite them to engage this term “would hold open a contemplative space against the pressures of habit, familiarity, and distraction that constantly threaten to close it.”

I also told them that this is what I believe a course designed to fulfill a requirement in Humanities and Global Challenges fundamentally calls for. And that this is what I believe the process of finding our way into real

connection with each other in a shared physical space will require. The interdisciplinary humanities offer an opportunity to break habits of thinking whether these are disciplinary habits or habits of distraction. They invite us to contemplate works of art, literature, or other kinds of performance that exist outside of ourselves and to pay attention to the ways in which these works resonate within us, and how they may resonate differently within others. The “in folding of attention” that O’Dell says the labyrinth enables is different from the insularity that calibration culture reinforces, particularly in a classroom. Instead, it recalls what I find to be a very moving description that Repko and Szostak (2017) give as they orient students toward the interdisciplinary research process; they describe this process as a “decision-making process that is heuristic, iterative, and reflexive” (p.79). All of these characteristics can be represented in the movement one takes through the labyrinth, movement that enables living and learning, through discovering, doubling back, rediscovering, and reflecting on the habits and assumptions that we all bring to a complex subject such as the necessary relationship between catastrophe and well-being.

This fall, as I began again I remembered that if I really want to invite my students into the labyrinth, I have to be willing to journey with them, which means tolerating contingency, transience, and indeterminacy while also opening myself up to vulnerability, authentic connection, and creativity. Imagining well-being in a catastrophic era is a shared process of discovery requiring that we make space for it all.

## Biographical Note

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## Appendix A Syllabus (abridged)

*“You can work to make a safe environment, but if the teachings at hand are meant to rattle, people are going to feel rattled . . . This isn’t a bad thing. (Maggie Nelson, On Freedom: Four Songs of Care and Constraint)*

### Syllabus: UCOR 3400-02, Humanities and Global Challenges

#### *Imagining Well-Being in a Catastrophic Age*

#### Course Texts

- Bender, Aimee. (2000). *An Invisible Sign of My Own*. First Anchor Books
- Hamid, Mahsud. (2015). *Exit West*. Riverhead Books
- St. John Mandel, Emily. (2014). *Station Eleven*. Vintage Books
- A packet of course readings available on CANVAS



## Course Description

In 1946, the World Health Organization implemented its Constitution, whose first principle reads, “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” The rest of the preamble underscores that the “highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.” Aside from the fact that this fundamental right has been unrealized since its articulation and is arguably unrealistic in an age of deeply entrenched systemic inequalities born out of globalization, environmental degradation, political corruption, etc., the concept of “well-being”—and what constitutes it—is too complex to operationalize by means of a Constitution or the WHO itself.

That is, well-being can be conceived very differently whether framed through objective measurements or subjective experience and evaluation. As anthropologist Nigel Rapport (2018) describes it, “Well-being is existential rather than metrical, and other adjectives that seem to pertain include personal, momentary, sensorial and variable” (p. 23). Indeed, Rapport situates his phenomenological and cross-cultural study of well-being within a question that underscores the potential diversity of what it means to have a *sense* of well-being: “Is there a *human* story of well-being to tell, or a *cultural* or *social* one, a *geographical* or *historical* one?”

How has well-being been represented (in popular and academic discourses) as a thing to be attained in the 21st century? This course will offer a more complex perspective on the lived experience of well-being particularly during a time in which humans face potential catastrophe from myriad sources: viral, environmental, political, social, economic, etc. We will read literary narratives of homelessness (exile, dislocation, refugee-ism, a sense of being estranged or a stranger, etc.) that, simultaneously, locate a sense of connectedness, community, and hope in the midst of such upheaval.

## Learning Outcomes

Upon successful completion of this course (i.e. by *passing* this course), you will have:

1. Employed your unique experiential perspectives, through reflective writing, thus gaining a personal investment in your critical questions and challenging/broadening your perspectives on catastrophe as well as well-being and “at-homeness”
2. Demonstrated rigorous critical analysis grounded in close reading of literature, critical race theory, feminist theory, philosophy, and

contextual texts that focus on the global issue/challenge of displacement and exile due to environmental, political, social, economic, racialized, gendered, and/or psychological disruption and finding well-being within these contexts

3. Demonstrated an awareness of *integrative interdisciplinarity*: the ability to bring two or more disciplines, intellectual approaches, or methods to bear on the complex phenomenon well-being alongside of catastrophic disruption
4. Through both open-form and closed-form writing assignments and/or projects, you will have:
  - Created thesis driven arguments that provide specific reasons for claims and that draw on close analysis of texts and contexts for evidence in various genres and for various audiences
  - Made use of appropriate media and/or internet technologies as a means of engaging with current political, academic, as well as cultural discourses about catastrophe and well-being
5. Gained a deep understanding of the global challenge of well-being by tracking the importance of psychological, political, social and cultural discourses on well-being
6. Analyzed the roles that the above discourses play in the lived experience of well-being, particularly among individuals and communities who have experienced displacement or significant disruption of an everyday
7. Connected literary representations of well-being and “catastrophe” to the political, economic, social, and cultural contexts of post-industrialization, globalization, systemic racism, and environmental degradation (including forced migration, displacement, estrangement from and within community, etc.)
8. Reflected on the ways in which you recognize and enact your role as global citizen (particularly as this applies to the call to witness the Other) and the impact this has on the well-being of others local and globally
9. Reflected on the role that reading literature plays in living a socially just and engaged life.

## Summary of Assignments

### (30%) *Series of Canvas Discussion Posts*

These will make up the bulk of our asynchronous learning together. They will happen frequently and I will give you specific prompts to initiate the discussion. I will also invite you to respond to one another’s posts in

a threaded discussion and/or to initiate new threads of discussion. I will assign at least 8 of these throughout the quarter and will expect that you will respond to at least 6 (for 5 points each). Because we will try to simulate “real time” discussion on the texts through these posts, posts must be made by the class period/week for which they are due or they will not get credit. (Please let me know if you are unable to keep up with posts and we will devise an alternative).

#### (15%) *Close Reading Assignment*

We will scaffold toward this assignment as “close reading” will be our primary methodology throughout the quarter. In short, you will be doing a close textual analysis of a scene/passage(s) from *Invisible Sign of My Own*.

#### (20%) *Contemporary Resonance Analysis*

Unfortunately, COVID-19 has given us an unusual opportunity to close read contemporary “narratives” of global pandemic in real time as we are close reading Emily St. John’s 2014 imagining of global pandemic in *Station Eleven*. This assignment will ask you to do just this.

#### (5%) *Small Group Meetings to Discuss Station Eleven*

#### (30%) *Final Project*

This final project will invite you into a process of reflective analysis about your journey through the course this quarter. I will give you a lot of creative freedom as well as some examples of forms that this project might take.

### **Class Schedule**

Please complete the assignments on the day for which they are due. Please give me feedback when you feel lost, anxious, confused, frustrated, etc.—it is important that I know what is working and what isn’t. Nothing is set in stone; it is up to all of us to figure out a system that works best for the class. Let me know if there are ways that I can support you.

Week 1 (Sept. 22–Sept. 24): *Who are You? Who Might we Be?*

**Thursday, Sept. 23**

- View/Read Canvas Home Page (+ “Start Here”)
- Introductions

Week 2 (September 27–October 1): *How to Do Nothing.*

**Tuesday, September 28**

**Before Class**

- Read Syllabus and Course Policies (annotate the syllabus with any questions that you have and bring these to class on Tuesday)
- Read from Jenny O’Dell, *How to Do Nothing: Resisting the Attention Economy*
- Reflection

**During Class**

- Invite students to raise questions about syllabus and offer points of clarification.
- Discuss Odell, “The Case for Nothing”
- 5 Eyes Practices/5 Ear Practices
- Small Groups: Radical Listening

**After Class**

- Submit 100-200 word Reflection on Canvas on questions, concerns, hopes, fears about this class

**Thursday, September 30**

**Before Class**

- My mini-lecture introduction to Positive Psychology
- Seligman, M. & Csikszentmihalyi, M., (2000) “Positive Psychology: An Introduction”
- (Skim this) Russo-Netzer, “Prioritizing Meaning as a Pathway to Meaning in Life and Well-Being”
- Ehrenreich, B. (2009) “Positive Psychology: The Science of Happiness,” from *Bright-Sided*

**During**

- Discuss positive psychology and the critique

**After**

- Post on the Muddiest/Clearest/Most Intriguing Points Discussion Board (week 2)

*Week 3: (October 4–8) Well-Being in the 21st Century: Positive Psychology, Happiness Studies and a Culture of Calibrations. This is the start of Part One of the course: The Problem of Human “Agency” as a Measure of Well-Being: Positive Psychology, Popular Culture, and Anxiety in the 21st Century*

**Tuesday, October 5**

**Before Class**

- Read Cairns, K. & Johnston, J. (2015) Choosing health: Embodied neo-liberalism, postfeminism, and the “do-diet.” *Theory and Society* 44 (2). 153–175. (Canvas)
- Post “Calibration” Examples on “Culture of Calibration” Padlet (5pts)

**During**

- Discuss Cairns and Johnston
- Breakout sessions to share and discuss “Calibration” examples

**Thursday, October 7**

**Before Class**

- Read Rapport, “A Sense of Well-Being: The Anthropology of a First-Person Phenomenology”
- Post on Week 3 Discussion Board (5 points)

**During**

- Discuss Rapport
- Introduce *An Invisible Sign of My Own*

**After**

- Post on the Muddiest/Clearest/Most Intriguing Points Discussion Board (week 3)

*Week 4: (October 11–15): A Sense of Well-Being and Lack Thereof*

**Tuesday, October 12**

**Before Class**

- Read *Invisible Sign of My Own* up to page 45
- Read Close Reading Guidelines
- Read McLaughlin, “Figurative Language” from *Critical Terms for Literary Study*
- Contribute to interactive small-group close reading (5 pts)

**During**

- Small groups
- Complete one-page response to collaborative close-reading

**Thursday, October 14****Before Class**

- Read *Invisible Sign of My Own* (end of Part I)
- Read Gadamer Mini-Lecture

**During**

- Discuss Gadamer and the enigma of health + play vs. Calibration Culture

*Week 5 (Oct. 18–22): The Lonely Catastrophe of Death Anxiety***Tuesday, October 19****Before Class**

- Read *Invisible Sign of My Own* (end of Part II)
- Read Short Analysis Assignment and come with questions

**During**

- Discuss Short Analysis Assignment
- Discuss *ISOMO* (through Part II)

**Thursday, October 21****Before Class**

- Complete *Invisible Sign of My Own*
- Select passage (or passages) for Short Analysis Assignment and begin to annotate
- Read Sample Essay (on Canvas)

**During**

- Questions about Analysis Assignment
- Discuss ending of *ISOMO*
- Discuss passages in small groups

Week 6 (Oct. 25–29): *The Enigma of Health and Transcendence of Existential Anxiety*

**Tuesday, October 26**

**Before Class**

- Draft Short Analysis Essay

**During**

- Peer review Submit Analysis Essay Draft to breakout group for peer review

**After**

- Peer review and exchange

**Thursday, October 28**

- No Class: Open Zoom office hours

Week 7 (November 1–5): *Imagining Well-Being in the Collapse: Survival is Insufficient. This is the start of Part Two of the course: The Problem of Human Agency in the Anthropocene: Imagining Well-Being in the Collapse*

**Tuesday, November 2**

**Before Class**

- Read *Station Eleven*, to end of Part II (page 67)
- Post to Week 6 Discussion Board

**During**

- Discuss *Station Eleven*
- Introduce small-group meeting/class facilitations and Contemporary Resonance Analysis

**Thursday, November 4**

**Before Class**

- Read *Station Eleven*, to end of Part III (page 115)

**During (Meeting for Only Group One)**

- Group One meeting with Jen (5pts)

**After**

- Group One Posts Meeting Synopsis to *Station Eleven* Group One Discussion Board for rest of class to read
- Post Contemporary Resonance by Saturday

*Week 8 (November 8–12): Well-Being and Community*

**Tuesday, November 9**

**Before Class**

- Read *Station Eleven*, Parts IV and V (page 196)

**During** (Meeting for only Group Two)

- Group Two meeting with Jen (5pts)

**After**

- Group Two Posts Meeting Synopsis to *Station Eleven* Group Two Discussion Board for rest of class to read
- Post Individual Contemporary Resonance by Thursday

**Thursday, November 11: Veterans Day—no class**

*Week 9 (November 15–19): Dwelling Mobility: An Existential Theory of Well-Being*

**Tuesday, November 16**

**Before Class**

- Read *Station Eleven*, Parts VI and VII (page 280)

**During** (Meeting for only Group Three)

- Group Three meeting with Jen (5pts)

**After**

- Group Three Posts Meeting Synopsis to *Station Eleven* Group Three Discussion Board for rest of class to read
- Post Individual Contemporary Resonance by Thursday

**During Class (Full class meeting)**

**Thursday, November 18**

**Before Class**

- Finish *Station Eleven*
- Read Todres and Galvin, “Dwelling Mobility: An Existential Theory of Well-Being”

**During**

- Discuss *Station Eleven* and Todres and Galvin

**After**

- Post on Muddiest (or Clearest!) Points (Week 9) Discussion Board



*Week 10 (November 22–26): Exiting Western Society. Part Three of the course: Exiting Western Society—Reimagining Well-Being and Human Community in a Post-Capitalist Era*

**Tuesday, November 23**

**Before Class**

- *Exit, West*, up through Ch. 6 (p. 118)
- Post Responses

**During**

- Discuss *Exit, West*
- Introduce Final Reflective Analysis

*Thanksgiving Break*

*Week 11 (November 29–December 3): On Endings and Re-Imagining Well-Being*

**Tuesday**

**Before Class**

- Finish *Exit, West*
- Post Responses

**During Class**

- Discussion *Exit, West*
- Questions about Final Reflective Analysis

**Thursday, December 2**

**Before Class**

- Read Eve Tuck, “Suspending Damage: A Letter to Communities”
- Consider the following questions: What are the ethics of studying well-being in a catastrophic era? How does Tuck’s essay, in particular, her “epistemology of desire and complex personhood,” resonate with our discussions and readings this quarter? How does it resonate with your lived experiences?
- How has this course impacted you?
- Reflect in your notes on which issues/readings in class have been the most influential for you and how these readings/ideas have impacted your own sense of/understanding of well-being and your experience with contemporary catastrophe

**During**

- Open Discussion

*Finals week*

- Turn in Final Reflective Analysis

## Appendix B

### Disciplinary Perspective Toolkit

Disciplinary *Perspective* is a *lens* through which to view reality. Repko et al. (2020), in *Introduction to Interdisciplinary Studies*, state that disciplinary perspective “is a distinctive form of perspective associated with communities of disciplinary specialties in the natural sciences, the social sciences, the humanities, the fine and performing arts, the applied fields, and the professions . . . A discipline’s perspective embraces, and in turn reflects, the ensemble of its defining elements that include the phenomena it prefers to study, its epistemology, assumptions, concepts, and favored theories and methods” (pp. 126–131).

A disciplinary perspective is comprised of the following *defining elements of a discipline* which are all mutually reinforcing (see Repko & Szostak, 2017, pp. 147–212).

The *phenomena* it studies are the “subjects, objects, and behaviors that a discipline considers to fall within its research domain” (Repko et al., 2020, p. 134). The “what” of the discipline. For example,

- Cultural Anthropology / Culture / food, music, clothing, rituals
- Business / Economy / ownership, profit, labor, output.

Its *epistemology* is the rules about what constitutes knowledge, evidence or “proof”; how one knows what is true and how one validates truth. “Each discipline has a different conception of what constitutes knowledge, how it is produced and how it should be applied (Repko et al., 2020, p. 136). Examples are *empiricism* (e.g. knowledge derived from observation, is replicable, etc.), *constructivism* (e.g. knowledge is shaped by social and cultural context), *interpretivism* (e.g. knowledge is attained by close reading), etc. *All disciplines have ways of “knowing” that are mutually constituted by assumptions, theories, methods, etc.*

There are three overarching epistemological categories (but these are nuanced in each discipline).

- *Knowledge is Mechanistic* (Natural Sciences)—empirical/rational (universal truths) (observation, experimentation, predictive)
- *Knowledge is Contingent* (Social Sciences)—tends to embrace more than one epistemology/pluralist (interplay among empiricist/positivist and constructivist: knowledge is socially constructed)
- *Knowledge is Narrative* (Humanities)—knowledge is based on interpretation and is constructed socially or individually.

There are two primary epistemological approaches:

- Modernist: belief in objective, empirically based, rationally analyzed truth that is knowable
- Postmodernist: there is no such thing as objective truth

The *assumptions* it makes about the natural and human world are the “things that are accepted as true or certain [by the discipline] . . . [They] mostly reflect epistemology, but capture elements of ethics, metaphysics, and ideology when these are particularly important” (pp. 140–141). *Assumptions can sometimes be the most difficult to identify and articulate because they are often the most “taken for granted” element within the disciplinary perspective.* For example, Earth Science has a uniformitarianist epistemology based on the assumption that natural laws will remain constant (since history of the earth is not directly observable).

Its basic *concepts* give discipline-specific vocabulary (or “jargon”) to phenomena, or changes in phenomena, or relationships among phenomena; they may also “represent elements within a particular theory or method” (p. 144). *For example, a psychologist may look at the phenomena of sadness, disinterest, and trouble waking up in the morning and assign the concept of depression to this collection of phenomena. Note, however, that different disciplines may use the same word to describe different concepts. Consider how psychology defines the concept of depression versus the way in which economics would define the same word, or the way in which meteorology would define this term.*

Its *theories* explain the causes and behaviors of certain phenomena: “a generalized scholarly explanation about some aspect of the natural or human world, how it works, and why specific phenomena or events are related, that is supported by data and research” (p. 144). Disciplinary theories often drive the questions asked within the discipline, the phenomena investigated, and the insights produced.

Its *methods* refer to the way the discipline gathers, applies, and produces new knowledge—the *how*.

*Data* are “by definition that which is observed” (p. 150). See also the questions that interdisciplinarians ask about data (p. 152).

Its *insights* reflect the findings that all of the above lead to.

## Reading Guide for Positive Psychology Disciplinary Articles

Strong writing is borne out of active reading so I would like us to step through the following process while reading these peer-reviewed articles. Please engage these steps in your notes/journal and by annotating the article itself.

You do not need to turn these in to me but I would like you to use them to inform your specific response to the *Canvas Discussion Post prompt*.

*Content Response:* Read the article for content. Simply get a sense of the writers' thesis and main points about articulating the newly proposed subfield (in 2000) of "positive psychology." After doing this first reading, *freewrite* your initial reaction/response to the theory and literature review. Put fingers to keyboard and write without stopping for five minutes, considering the following questions: Does the article seem to reflect your own experiences and/or your own perspective on positive subjective experience? Where did you find yourself gratified or irritated, vindicated or offended, intrigued or bored, or . . . ? How do you account for this *affective* (in other words, emotion or mood-driven) experience of reading? Again, let yourself write without editing or questioning this initial response. This is the time simply to value any and all responses and free up your thinking/writing process. Even if you disagree with yourself later, some of the most fruitful critical ideas emerge from these initial raw and experiential responses.

*Structure Response:* Now go back and re-read the article for the *structure, coherence, and consistency* of the argument. There is a wonderful method to assess coherence, which may feel arduous at first but I guarantee will serve you well in the future as you embark on your final reflective analysis essay for this class.

- Identify the thesis of the article, underline it and label "thesis" next to it in the margin
- Find the topic sentence of each paragraph. Underline it and label it in the margin
- Reread each paragraph with an eye towards coherence and consistency: how does the rest of the paragraph work to support the topic sentence? That is, does the evidence used respond directly to the topic sentence or does it stray from the point? Summarize in the margin of each paragraph what the paragraph "does" to prove what it "says" in the topic sentence
- As you read slowly through the argument, highlight those places that seem most significant or that seem to articulate the most important implications of the argument

*Disciplinary Response.* Please look at the *Disciplinary Perspective* toolkit that I have compiled. See if you can deepen your annotation of these essays by identifying examples of the disciplinary elements at work: phenomena, assumptions, epistemology, concepts, theories and methods. Don't obsess over this too much as here I am asking you to do something that I teach over the course of a whole quarter (in my Methods of Interdisciplinary Research class). This is just a good practice for closely analyzing a research essay and getting a good sense of how the discipline (in this case positive psychology)

does its work. It will also help us to compare and contrast this disciplinary perspective on well-being with that of philosophers, anthropologists, and of course, literary writers.

*Rhetorical Response.* Finally, try to identify the rhetorical strategies that the writers use to make their points. Does the article draw and keep your attention? How? (For example, look at the use of rhetorical questions, anecdotes, examples, figures and tables). Is the writers' writing style/grammar distracting or dull? In what way? Once you have systematically stepped through the article, you will have a much clearer and more detailed understanding of essay than, presumably, you had after a first reading.

*Thus*, after this second reading, look back at your initial freewrite and do a second *freewrite* (*this will be the bulk of your Discussion Post*) that responds to your first and revises your initial reactions (or reinforces them) based on your more systematic reading of the article. Reference specific aspects about the disciplinary perspective that inform your response to this article (for example, you might reference the writers' assumption that there are "normal people" (p. 5 and p. 8)—which, of course, implies the assumption that there are "abnormal people"). Also, discuss your sense of the essay's significance. To what extent does it shape or counter your understanding of well-being? This response should be at least 250 words and will comprise the beginning of your Discussion Post. Wait to post it until you complete the following.

*Next.* Read the example I posted of an empirical study from *The Journal of Happiness Studies* (one journal devoted to this subfield of positive psychology) using the Disciplinary Perspective Toolkit. I selected this because I wanted to show you a somewhat recent study that Seligman and Csikszentmihalyi's call-to-research in 2000 continues to prompt.) Add a few sentences of reflection/response to the above after reading this work.



# Interdisciplinary Studies and Implementation Science: Clarifying the Concept of Fidelity

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**Abstract:** As implementation scientists know well, evaluating fidelity is essential for researchers and practitioners when making sure they implement a plan as intended. However, the concept of fidelity remains unclear, given that various conceptualizations exist within and across disciplines. To help researchers and practitioners understand fidelity, a conceptual framework integrating definitions within and across disciplines is needed. The study we report on here aimed to review the many different terms for and definitions of fidelity to create such an integrated interdisciplinary conceptual framework. We performed a rigorous and structured literature review, known as a scoping review. The 77 documents included in this scoping review: (1) defined fidelity by the degree to which a plan is implemented as planned, and (2) discussed fidelity as a concept, definition, conceptualization, facet, dimension, conceptual framework, model, or theoretical model. We used techniques that will be familiar to interdisciplinarians to find the commonalities amid the differences, allowing us to propose an integrated framework for this sort of endeavor. The conceptual framework we propose includes consideration of levels, dimensions, and relationships between key terms in the reviewed literature. It also clarifies the concept of fidelity and provides details regarding reliable measures

to evaluate it. This framework can be used by those in all disciplines seeking to assess fidelity. And we think it will be especially helpful to those working in interdisciplinary teams.

**Keywords:** fidelity, conceptual framework, implementation, intervention, interdisciplinary

## Introduction to Implementation Science and Fidelity

Implementation science, a field of interest and benefit to researchers and practitioners in many disciplines, helps explain and guide the implementation of research knowledge into routine use (Kislov et al., 2019). Studies in implementation science aim to find the quality of the uptake and implementation of evidence-based practices (Bauer et al., 2015) and improve that quality when need be. The study of implementation requires tools developed from different disciplines, e.g., psychology, organization studies, and sociology, making implementation science an interdisciplinary field (Kislov et al., 2019).

As one might expect, evaluating the fidelity with which practices are implemented is one of the essential tools for achieving the primary end of implementation science, the betterment of outcomes. However, because many disciplines are involved, the concept of fidelity and its evaluation processes remain unclear, even within fields. Fidelity is generally defined as the degree to which a plan is implemented as intended (Gresham, 1989), but there is much disagreement about any more detailed definition.

To help researchers and practitioners understand fidelity (and then evaluate it), a conceptual framework integrating the multiple definitions that exist within and across disciplines is needed. This article reports on a study examining the various definitions of fidelity to help create such an interdisciplinary conceptual framework. We performed a rigorous and structured literature review known as a scoping review. The 77 documents included in this review (1) defined fidelity by the degree with which a plan is implemented as planned, and (2) discussed fidelity as a concept, definition, conceptualization, facet, dimension, conceptual framework, model, or theoretical model. The proposed framework integrates this material and includes levels, dimensions, and relationships between key terms in the reviewed literature. It clarifies the concept of fidelity and provides details regarding measures to be taken for evaluating fidelity. This interdisciplinary framework can be used by those in all disciplines seeking to assess fidelity—and by those involved in interdisciplinary projects, as well.



## Examples of the Need for Evaluation of Fidelity

### *Fidelity in Education*

A school principal wants to implement effective teaching strategies to support the learning of children who speak a language at home other than the one used at school. Even though he has provided teachers with training from an expert on effective teaching strategies, the students' performances are not improving. He does not understand this lack of improvement. He is starting to think that these supposedly effective teaching strategies do not work in practice.

The school principal decides to look at what was actually done. He finds out that since many teachers in his school do not work on Fridays, they could not attend the training workshop when it was moved from a Monday to a Friday, just before the holidays. Initially, the workshop was supposed to last two days; however, it only lasted one day because they lacked substitute teachers to fill in for those missing classes. Furthermore, when looking at the teachers' feedback on the workshop, he sees they reported that the expert did not provide any examples to support the theoretical information. As a result, the teachers found the recommended strategies hard to apply in their classrooms. The school principal now understands why those strategies might not have given the anticipated results—not because they are ineffective, but because the workshop about their use was not correctly implemented. Therefore, the teachers were not appropriately using the strategies. There had been a failure regarding fidelity.

### *Fidelity in Health Sciences*

A speech-language pathologist works in a clinic with a six-year-old child who has a speech sound disorder. She tries a new intervention supported by research evidence showing its effectiveness for children with similar disorders. After a few weeks, she believes the intervention is not working because the child is not showing signs of improvement. Nevertheless, before changing it, she evaluates her provision of the intervention. She realizes that her sessions were not scheduled as frequently as prescribed because the clinic only allows weekly client visits. Also, she realizes this client's appointment had been at 4 pm when he is already tired from his day at school. By reflecting on her intervention implementation, she realizes that the problem might not be the intervention itself but rather that she did not implement it as recommended. There had been a failure regarding fidelity.

These scenarios show the importance of measuring fidelity when implementing new practices. Fidelity can provide information on when to trust

that a new practice is effective or not (Sanetti et al., 2009). As shown in the examples above, when implemented practices do not result in the intended outcome, one may not simply conclude that the practices are ineffective. Without data on fidelity, one cannot know whether the lack of an intervention's efficacy should be attributed to the intervention per se or to weak implementation of the intervention (Carroll et al., 2007). Moreover, fidelity measures can provide reliable information about what was and what was not well put in place. Feedback from this specific information can allow improvements of what was poorly implemented to make better results possible (Begeny et al., 2013; Noltemeyer et al., 2014). Only if the fidelity measures are positive but the outcome is not should one begin to question the efficacy of the intervention itself.

Another goal of measuring fidelity is to identify which components of an intervention are essential if it is to have the intended impact. When implementing a practice, measures of different components of this practice, e.g., the content and the frequency, can be correlated with the results. The implemented components that lead to better outcomes are the essential ones. Thus, measuring fidelity can help determine the most critical components of an intervention, so practitioners will know where to focus their attention for the best outcomes (Century et al., 2010; Dunst et al., 2013).

However, a question remains: How does one measure fidelity? The following scenario illustrates how an interdisciplinary team of researchers can and indeed must tackle the many issues that arise in attempts at fidelity measurement, issues that emerged in the actual situation that led to the current study. It was our team (including some authors of this article) that ran into problems choosing a framework to develop fidelity instruments to evaluate an intervention. These problems prompted us to turn to another project, the scoping review presented in this article. We then used the conceptual framework we developed from the scoping review to guide our fidelity instruments development.

### **Fidelity Evaluation in an Interdisciplinary Team: The Origins of this Study**

An interdisciplinary team is implementing new practices to prevent reading difficulties in schools. This team is composed of school board staff and researchers from many disciplines. School board staff include a school board coordinator, a school board administrator, a school principal, an educational advisor, a teacher, and a speech-language pathologist. Researchers are from the disciplines of education, nursing, and speech-language pathology. After researching the literature, the team realizes that researchers use various terms, definitions, and methods regarding fidelity evaluation (Nelson et al., 2012).

For example, authors refer to fidelity as *adherence*, *integrity* (Dunst et al., 2013), *treatment integrity*, *treatment plan implementation*, *procedural fidelity*, *implementation integrity* (Begeny et al., 2013), *fidelity of implementation* (Bianco, 2010), *treatment fidelity*, *intervention integrity*, *procedural reliability* (Sanetti & Kratochwill, 2009), *treatment plan implementation* (Noell & Gansle, 2006), and *process evaluation* (Steckler & Linnan, 2002). In addition, the same term used in different studies can refer to different conceptualizations or definitions. Hence, there is a lack of uniformity in the construct and definition of fidelity (Gearing et al., 2011) with no consistency across terms to represent distinctions (Noell, 2008).

The team members meet to discuss how to proceed with monitoring the implementation of the new practices. Implementation monitoring and evaluation are not part of the school board staff's usual responsibilities. However, while discussing the topic with the researchers, they realize that fidelity evaluation is essential to accurately measure the new practices' outcomes and provide feedback to the people in charge of actualizing these practices in the classrooms. When discussing how to monitor the implementation of the latest practices, the researchers suggest different frameworks that they have come across.

The researcher from education suggests Dane and Schneider's (1998) framework for program integrity in primary and early secondary prevention programs aiming to prevent academic, behavioral, and social maladjustment in children. This framework includes dimensions of adherence, exposure, quality, participant responsiveness, and differentiation. Adherence refers to the degree to which the intervention components were delivered as planned. Exposure includes the number of sessions in the intervention and their length and frequency. Quality is related to the implementer's enthusiasm, preparedness, and effectiveness, and the leader's attitude regarding the program. Participant responsiveness is the participant's level of enthusiasm and participation. Finally, differentiation refers to comparing two groups, for example, a group receiving an intervention and another group receiving either no intervention or another intervention, to ensure that each group is different and receives only the planned interventions.

The researcher from nursing suggests a framework of process evaluation for public health interventions by Linnan and Steckler (2002). They describe process evaluation components as context, reach, dose delivered, dose received, fidelity, implementation, and recruitment. Context refers to the political, social, and economic environment. Reach is the proportion of the target population that participates in an intervention. Dose delivered is the amount of intervention provided by implementers. Dose received reflects the engagement of the participants in the intervention. Fidelity refers to the degree to which the intervention was delivered as planned. Implementation is a score that includes reach, dose delivered, dose received,

and fidelity. Finally, recruitment is related to the procedures used to recruit the participants.

The researcher from speech-language pathology highlights that in implementation research, authors often differentiate between two levels of fidelity: implementation fidelity (Dunst et al., 2013), also called organizational fidelity (Fixsen et al., 2005), and intervention fidelity (Dunst et al., 2013; Fixsen et al., 2005). Implementation fidelity refers to the implementation strategies put in place to help implement an intervention, whereas intervention fidelity refers to the actual intervention being implemented. It is crucial to measure both these aspects of fidelity.

The team members have a difficult time choosing a specific framework. They quickly search for other frameworks and realize that there are many more that have been published and that each of them has similarities and differences with the others. When the team members evaluate the pros and cons of choosing one of these frameworks, they realize that none includes all facets of fidelity.

Researchers often use multiple frameworks to comprehensively respond to the needs of a study because a single framework does not cover all of their needs (Birken et al., 2017). In fact, “When addressing a complex problem, there are likely to be a number of frameworks or theories from a variety of disciplines that provide at least a partial explanation of the concepts involved and how they influence the problem” (Morse, 2014, p. 4). This is precisely what we in our team found: different conceptual frameworks and definitions of fidelity from various disciplines with none inclusive of all the levels and dimensions of fidelity. For example, the conceptualizations of Fixsen et al. (2005) and Dunst et al. (2013) on the two levels of fidelity do not include discrete dimensions (e.g., adherence, reach, dose). In turn, dimensions by Dane and Schneider (1998) as well as by Linnan and Steckler (2002) do not include the two levels of fidelity. The well-known framework by Carroll et al. (2007) contains dimensions of content, coverage, frequency, and duration. Furthermore, this framework also includes potential moderators of fidelity, i.e., factors that will influence fidelity. In this framework, these moderators are implementation strategies as well as dimensions of quality and participant responsiveness. Although these moderators are not integral components of the concept of fidelity, we can agree that implementation strategies are another aspect of fidelity that needs to be evaluated (e.g., Dunst et al., 2013; Fixsen et al., 2005). But Carroll et al.’s framework (2007) is otherwise lacking; it does not break down the fidelity of implementation into the different dimensions of fidelity.

Trying to proceed without a comprehensive and integrative framework may lead to evaluating only some aspects of fidelity, missing out on essential components that may influence outcomes. If a team evaluates fidelity only

partially, the incomplete evaluation will add to the confusion around the relationship between fidelity and outcomes. And yet, as the scenario based on our personal experience shows, there is a lack of uniformity in the construct and definition of fidelity (Gearing et al., 2011) with no consistency in terms and usage that represent the different components of fidelity (Noell, 2008), enabling its reliable evaluation. This is where interdisciplinary studies come in to help resolve this major issue in the practice of implementation science.

## The Lessons of Interdisciplinary Studies

One major issue that interdisciplinary studies can help tackle is establishing a common language to overcome communication barriers among those working in different disciplines. In fact, such communication can be challenging (Crowley et al., 2015). Members of interdisciplinary teams from different disciplines frequently disagree on which language to use for the various concepts they are working with. Efforts to develop and share the same language culture will allow people to cross borders to coordinate their understandings and thus their actions (Laursen & O'Rourke, 2019). The present study has highlighted this need. And the literature of interdisciplinary studies is full of helpful suggestions for meeting this need. That literature can help researchers and practitioners find a language for all disciplines or an interlanguage (Pohl et al., 2019) that will increase the chances of successful communication and collaboration among those in different disciplinary areas working in an interdisciplinary team (Crowley et al., 2015).

Moreover, the present study has also highlighted the need for a framework that introduces an integrative view of fidelity within and across disciplines (Sanetti & Kratochwill, 2009). Again, the literature of interdisciplinary studies offers guidelines to create such a framework by integrating the understandings of different disciplines for a more comprehensive insight into a large or complex topic than a single discipline can provide (Repko & Szostak, 2017). As interdisciplinarians know well, Repko and Szostak have written at length about steps in the process that allow teams to establish this common understanding: (1) defining the problem or stating the research question; (2) justifying the use of an interdisciplinary approach; (3) identifying relevant disciplines; (4) conducting the literature search; (5) developing adequacy in each relevant discipline, (6) analyzing the problem and evaluating each insight or theory, (7) identifying conflicts between insights and their sources; (8) creating common ground between insights; (9) constructing a more comprehensive understanding; and (10) reflecting on, testing, and communicating the understanding. We decided to take these steps within *our* team, a process that led to the completion of this study and of this article, conducting a

scoping review that allowed us to integrate the languages and frameworks we discovered in that review and develop an interdisciplinary conceptual framework of fidelity. Thus, this very article illustrates how interdisciplinary studies and implementation science can work together in creating a much needed common language and framework that unifies fidelity as a concept within and across disciplines and enables the reliable practice of the measurement of fidelity.

## Objectives

The current study aimed to understand how fidelity is conceptualized in the literature within and across disciplines. The specific objectives were to: (1) categorize all the terms and definitions used, and (2) create an interdisciplinary conceptual framework to guide research and practice when individuals and teams are implementing practices in many disciplines that are not narrowly disciplinary, including education, health sciences, and interdisciplinary fields.

## Methods

### *Approach*

Since many documents have already conceptualized and defined fidelity, these texts were searched and reviewed to identify the different ways of seeing fidelity. We chose a scoping review to meet the objectives of the current study. A scoping review is a rigorous literature review covering all the information available in scholarly publications (Arksey & O'Malley, 2005). We used the scoping review steps proposed by Arksey and O'Malley (2005): (1) identify the research question; (2) identify the relevant studies; select the studies; chart the data; and (3) collate, summarize, and report the results. We reported the current scoping review using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist (Tricco et al., 2018; the document is available from the corresponding author). No protocol was registered for this review.

### *Identify the Research Question*

The research question to be answered by this scoping review was “What are the existing concepts, definitions, conceptualizations, facets, dimensions, conceptual frameworks, models, and theoretical models of fidelity in an implementation context?”

### *Identify the Relevant Studies*

The following electronic databases were searched from inception until March 2016: Ovid Medline, EBSCOhost CINAHL, Ovid PsycINFO, Ovid ERIC, and EBSCOhost Education Source. In addition, we explored the grey literature through ProQuest Dissertation theses and abstracts. Finally, we searched additional electronic databases: Scopus, Web of Science, and Google Scholar. Other activities supplemented this search, including hand-searching the journal *Implementation Science*; scanning the reference lists of articles discussing fidelity (including documents that we kept in this scoping review); and examining the first author's list of references.

The literature search included a combination of two main concepts using free-text terms and medical subheadings (MeSH): (1) fidelity, adherence, implementation integrity, intervention integrity, procedural integrity, procedural reliability, professional compliance, program integrity, teacher compliance, treatment integrity, treatment plan implementation, guideline adherence, process evaluation, and (2) framework, concept, and model. The Medline literature search is available from the corresponding author. We modified the search strategy to match the syntax proposed in CINAHL, PsycINFO, ERIC, and Education Source. To limit the results, we restricted the search to the combination of these words in the title for the additional databases of Scopus, Web of Science, and Google Scholar: (1) fidelity and (2) framework.

### *Select the Studies*

Three reviewers (CD, RP, SB) screened the documents by titles and abstracts, and two reviewers (CD, SB) screened them by full texts. They selected the studies according to the following inclusion and exclusion criteria.

### *Inclusion Criteria*

All types of documents were considered, including peer-reviewed articles of primary research, non-peer-reviewed articles, commentaries, editorials, books, book chapters, theses, and reports. Authors' research methods could be of any type, including reviews, quantitative, qualitative, and mixed designs. We considered documents published in English or French. We included papers if they discussed (1) the degree to which something was implemented as planned (e.g., intervention, treatment, curriculum, strategy, guidelines); (2) concepts, definitions, conceptualizations, facets, dimensions, conceptual frameworks, models, or theoretical models of fidelity; (3) original ideas of the authors.

Original ideas are novel definitions that do not use or cite other authors' definitions or conceptualizations. Original ideas also include the work of other authors if it was merged or reorganized to create a different vision that adds something new, modifies something, or creates a new perspective.

While fidelity can be conceptualized in many ways, the conceptualizations we discovered share a similar concept: people implementing the intervention or implementation strategies, referred to as "implementers," should implement the intervention as accurately as possible. The term "implementers" often refers to employees of an organization where service is given, for example, teachers, nurses, physicians, social workers, psychologists, and caregivers. When putting in place implementation strategies, implementers are usually acting as administrators, managers, coordinators, principals, or team leaders. The people that are receiving the intervention or implementation strategies are labeled the "receivers." When receiving an intervention, the receivers can be clients, patients, or students. For example, when receiving an intervention in health sciences, receivers could be patients, and implementers could be physicians. Among individuals benefiting from implementation strategies at the organizational level, the receivers can also be teachers, nurses, physicians, social workers, psychologists, caregivers, etc. For example, when receiving implementation strategies in education, receivers could be teachers, and implementers could then be school principals. For the current review, the documents had to consider implementers as the main actors who put in place the intended plan. We included authors from any environments and disciplines discussing fidelity in the context of implementation.

### *Exclusion Criteria*

We excluded documents if fidelity was conceptualized through a different definition than that of the degree to which something was implemented as planned (e.g., romantic relationship, reproduction of human models, computer programs). We also rejected documents if they introduced the concept of fidelity but did not define it or discuss its levels or dimensions. More specifically, the documents were rejected if they only included brief definitions to introduce the concepts of fidelity, structure and process, or adherence and competence that were not the authors' original idea. These are familiar concepts, and they are often presented as known facts. We rejected documents if other authors' ideas were only combined or used in part without adding anything new. Finally, documents were dismissed if the ideas were too detailed or specific to a particular intervention or discipline. Very specific intervention components or implementation strategies restrict the generalizability to other interventions or implementation strategies.



Moreover, when extracting the data from the documents we did include, we excluded other topics related to fidelity, such as factors that can moderate fidelity and act as facilitators or barriers to fidelity, the fidelity-adaptation debate, the frequency of fidelity evaluation in studies, the importance of evaluating fidelity, etc. Although these topics are important to understand contextualized fidelity, they were not aimed at by this study.

### *Chart the Data*

The data were extracted from the selected documents and charted according to the following: authors; year of publication; discipline; and conceptualizations of fidelity. More specifically, we charted the data according to a content analysis within a directed approach. This approach creates initial categories using existing theories and forms new categories with data that cannot be coded in initial categories (Hsieh & Shannon, 2005). We based our initial categories on four well-established frameworks (Dane & Schneider, 1998; Dunst et al., 2013; Fixsen et al., 2005; Gresham, 1989) that researchers commonly use. These frameworks also complement each other in their conceptualizations. With those frameworks, we created three categories and their subcategories deductively on spreadsheets. We created categories according to these already established conceptualizations: fidelity in general according to Gresham (1989), two levels of fidelity according to Fixsen et al. (2005) and Dunst et al. (2013), and five dimensions of fidelity according to Dane and Schneider (1998). If there was no category or subcategory appropriate to the definition extracted from a document, we created a new category or subcategory inductively, i.e., the categories were created directly from the data by the reviewers and added in spreadsheets. Two independent reviewers extracted data from the full-text documents (CD, ZH). They identified the concepts and their definitions within the documents and classified each data entry into corresponding categories and subcategories as well as into newly created categories and subcategories. Finally, they compared their results for agreement, and disagreements were solved by a third reviewer (PL).

### *Collate, Summarize, and Report the Results*

Terms and definitions found in all the categories and subcategories were grouped with the help of tables to reach the first objective of the current review: listing all the terms for and definitions of fidelity used in the literature. Next, we created integrative definitions and chose terms for each category and subcategory to represent adequately the similarities in the terms and definitions

of the different authors. We thus synthesized categories and subcategories to reach the second objective of the current review: creating an interdisciplinary conceptual framework to guide research and practice.

## Results

### *Search Results*

After we removed duplicates, we selected 3770 documents. Three authors screened the documents by titles and abstracts, 3461 were removed, and 309 documents were included based on exclusion and inclusion criteria. Two authors read the full texts of these 309 documents to screen for the documents that answered the research questions. They dismissed a total of 232 documents, leaving 77 documents to be included in the current review (see Figure 1 for the PRISMA diagram (Moher et al., 2009); the complete list of references is available from the corresponding author).

The 232 documents were excluded based on the following reasons: the concept of fidelity was too general or generic, not detailed or subdivided (83), the definition of fidelity was not derived from original work by the authors (80), there was no mention of fidelity (36), the concept of fidelity was other than that of the degree to which something was implemented as planned (14), the full text could not be found or was not available (11), the definition was too specific to the program or subject (4), there was already work by the same author in another article (2), the full text was not in English or French (1), or the document was only an abstract (1).

### *Characteristics of the Documents Included*

The documents included were published from 1971 to 2016. There were 22 documents published from 1971 to 2000 and 55 documents from 2000 to 2016. The studies came from various disciplines: health (27), education (18), psychology (14), psychiatry (6), nutrition (3), nursing (3), program evaluation (2), society and health (1), behavioral sciences (1), business (1), and social work (1). The documents originated from several countries: United States (60), Canada (5), United Kingdom (4), Netherlands (3), Sweden (2), Australia (1), Cuba (1), and Singapore (1). The documents included articles (62), book chapters (9), reports (3), theses (2), and a conference presentation (1). The documents included were mainly laying out primary research data (26) and reviews (51) that were divided into systematic (7) and non-systematic (44) reviews. The primary research data were drawn from quantitative methods (9), qualitative methods (6), mixed methods (7), and case studies (4).

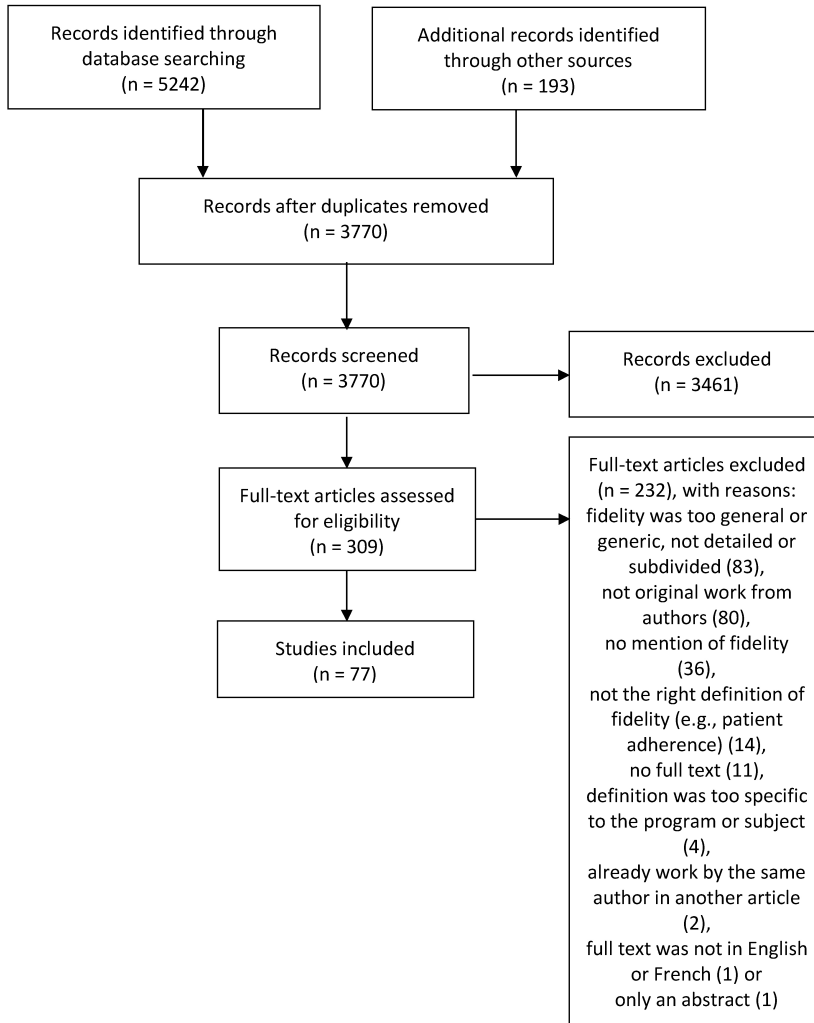


Figure 1. PRISMA flow diagram of the scoping review on fidelity. The PRISMA flow diagram of the scoping review, including the records identified through databases and other sources, the records after the duplicates were removed, the screening by titles and abstracts, the screening by full texts, the studies included, and the reasons for exclusion.

### Categories

The 77 documents included definitions that we charted into the categories of fidelity, levels of fidelity, and dimensions of fidelity (see Table 1). First, the data were classified into the category of fidelity when the authors defined

the general concept of fidelity. Next, they were categorized into the levels of fidelity category when the authors divided the concept of fidelity into distinct levels. We further ordered the data into implementation level and intervention level. Finally, the data were categorized into dimensions of fidelity when the authors divided the concept of fidelity into discrete dimensions. We organized the data into the following dimensions: adherence, dosage, timeliness, quality, differentiation, adaptation, reach, exposure, responsiveness, and enactment.

### *Fidelity*

There were 34 documents discussing the general concept of fidelity (see Table 2 for examples; the complete list is available from the corresponding author). A common conceptualization across all included studies was, as expected, similar to the inclusion criteria definition of fidelity: the degree to which the plan is implemented as intended; the correspondence between the intended plan and the actual plan. However, some variations were present within the different definitions. For example, these definitions sometimes

*Table 1: The number of studies discussing each category*

Categories	Number of studies
<b>Fidelity</b>	34
<b>Levels of Fidelity</b>	13
Implementation	13
Intervention	12
<b>Dimensions of Fidelity</b>	65
Adherence	39
Dosage	34
Timeliness	2
Quality	35
Differentiation	15
Adaptation	10
Reach	17
Exposure	8
Responsiveness	29
Enactment	9

included and specified dimensions, and sometimes didn't. Moreover, the envisioned ideal plan usually consisted of theories, essential components, research-based methods, best practice protocols, gold standards, or recommendations.

*Table 2: Examples of terms and definitions of the general concept of fidelity*

Author(s)	Year	Discipline	Term(s)	Definition
Dunst et al.	2013	Early intervention	Fidelity; adherence; integrity	"Fidelity, as used in this article, refers to the use of the key characteristics of an evidence-based practice in a manner that mirrors what was learned from research about the relationship between the characteristics and consequences of a practice." p. 89
Graham et al.	2012	Nursing	Monitor knowledge use	"Monitoring the adoption of the new knowledge introduced (i.e. adherence to BPG recommendations or clinical process changes)." p. 81 "Monitoring knowledge use provides: An indication of the extent to which BPG recommendations are known, accepted and applied." p. 85
Bianco	2010	Special Education	Fidelity of implementation; treatment integrity	"Fidelity of implementation or treatment integrity requires that teachers provide instruction and progress monitoring according to the research-based method prescribed or to a best-practice protocol." p. 6
Sanetti & Kratochwill	2009	Educational Psychology	Treatment integrity	"Treatment integrity is the extent to which essential intervention components are delivered in a comprehensive and consistent manner by an interventionist trained to deliver the intervention." p. 448
Dusenbury et al.	2003	Prevention/Health Education	Fidelity of implementation	"Fidelity of implementation refers to the degree to which teachers and other program providers implement programs as intended by the program developers." p. 240
Hogue et al.	1996	Center for Research on Adolescent Drug Abuse	Treatment adherence	"Treatment adherence research refers to the methodological strategies used to document that a given therapy has genuinely been carried out in accordance with essential theoretical and procedural aspects of the model." p. 333
Scheirer	1994	Program Evaluation	Process evaluation	"Process evaluation is the use of empirical data to assess the delivery of programs. . . . In contrast, process evaluation verifies what the program is, and whether or not it is delivered as intended to the targeted recipients and in the intended 'dosage.'" p. 40
Gresham	1989	Psychology	Treatment integrity	"Treatment integrity refers to the degree to which a consultation plan is implemented as intended." p. 37

### *Levels of Fidelity*

Thirteen documents distinguished between two levels of fidelity: implementation level and intervention level (see Table 3 for examples; the complete list is available from the corresponding author). The primary difference between these two levels is related to what is being evaluated. At the implementation level, the strategies being used to implement the intervention, such as training, workshops, or coaching, are the focus of the evaluation. At the intervention level, the intervention being implemented is the focus of the assessment, such as a language, reading, or behavioral intervention. These definitions are similar to those included in the general definition of fidelity. Therefore, we propose this integrative definition of implementation fidelity from findings of the review: “the degree to which the implementation strategies are implemented as intended; the correspondence between the intended implementation strategies and the actual implementation of strategies.” At the intervention level, the definitions are comparable to those for the general concept of fidelity since the authors usually conceptualize fidelity at the intervention level. Therefore, we suggest this integrative definition of intervention fidelity: “the degree to which the intervention is implemented as intended; the correspondence between the intended intervention and the actual implementation of the intervention.”

### *Dimensions of Fidelity*

The authors reported various dimensions of fidelity distributed across 65 documents. After we deconstructed the definitions of the dimensions and grouped them within similar definitions, we identified ten dimensions. Six dimensions were more related to the implementers, including adherence, dosage, timeliness, quality, differentiation, and adaptation. Four dimensions were more related to the receivers: responsiveness, enactment, reach, and exposure. Whether they are related to the implementers or the receivers, all ten dimensions can be evaluated at both the implementation and intervention levels.

### *Dimensions Related to the Implementers*

***Adherence.*** A total of 39 studies reported adherence as a dimension of fidelity (see Table 4 for examples; the complete list is available from the corresponding author). The definitions of this dimension are similar to the definitions included in the general concept of fidelity. However, the definitions were included under adherence and not under the general concept of fidelity when the authors divided fidelity into dimensions. Adherence is the degree to

Table 3: Examples of terms and definitions of the two levels of fidelity

Author(s)	Year	Discipline	Term(s)	Definition	Term(s)	Definition
Hulleman et al.	2013	Education; Implementation Science	Implementation fidelity	“Our definition of intervention fidelity is different from implementation fidelity, which involves the contextual factors that support the implementation of the intervention core components, such as staff selection, administrative training, and the provision of resources.” p. 68	Intervention fidelity	“Intervention fidelity is the extent to which the program, as designed, was actually implemented.” p. 68
Fixsen et al.	2005	Maternal and Child Health/ Implementation Research	Organizational fidelity	“Descriptions or measures of the correspondence in overall operations (e.g., staff selection, training, coaching, and fidelity assessments; program evaluation; facilitative administration) between implementation site and the prototype site. (Sometimes a standard measure that has been developed by the purveyors of a program; may be referred to as adherence, organizational fidelity measures or certification criteria at an organizational level).” p. 85	Intervention fidelity	“Descriptions or measures of the correspondence in service delivery parameters (e.g. frequency, location, foci of intervention) and quality of treatment processes between implementation site and the prototype site (Sometimes a standard measure that has been developed by the purveyors of a program; sometimes called an adherence or certification measure at a practitioner level).” p. 85
Gresham	1989	Psychology	Integrity of the consultation process	“That is, one can assess the degree to which a consultant follows a predetermined sequence of events in consultation or adherence to a consultation protocol.” p. 37	Treatment integrity	“A second type of integrity focuses upon the degree to which the intervention plan is implemented as intended.” p. 37

which the interventions or implementation strategies are similar to what was planned. It refers to the presence, number, or percentage of the components of the intervention or strategies that have been implemented.

**Dosage.** We found this dimension in 34 documents (see Table 5 for examples; the complete list is available from the corresponding author). This dimension represents the amount of time spent on intervention or implementation strategies. More specifically, it refers to the frequency, duration, length, intensity, and number of sessions.

**Timeliness.** Only two studies mentioned the timeliness dimension (see Table 6; the complete list is available from the corresponding author).

*Table 4: Examples of terms and definitions of the dimension adherence*

Author(s)	Year	Discipline	Term (s)	Definition
Kaderavek & Justice	2010	Department of Early Childhood, Special, and Physical Education	Procedure	"Fidelity measures should document active ingredients relative to procedure (i.e., did the interventionist follow right steps)." p. 372
Schulte et al.	2009	Psychology	Treatment delivery - Adherence	"Number of specified treatment elements delivered." p. 463
Jones et al.	2008	The Children's Hospital of Philadelphia; Clinical Psychology	Therapist adherence	"Percent of prescribed components administered; Rating of the quality of administration of prescribed components." p. 4
Rossi et al.	2004	Program Evaluation	Process evaluation; implementation assessment	"Usually, program process evaluation is directed at one or both of two key questions: . . . (2) whether its service delivery and support functions are consistent with program design specifications or other appropriate standards." p. 171



*Table 5: Examples of terms and definitions of the dimension dosage*

Author(s)	Year	Discipline	Term(s)	Definition
Poltawski et al.	2014	Institute for Health Research	Dose	“In rehabilitation, dose is a multi-dimensional construct, encompassing factors such as the number of repetitions of an activity, its duration and intensity level—all of which may impact upon the therapeutic effect of the activity (29).” p. 612
Dunst et al.	2013	Early intervention	How much	“How much is typically measured in terms of the frequency, amount, number, or other indicators of the dose of a practice.” p. 92
Century et al.	2010	Elementary Mathematics and Science Education	Exposure and dosage	“We decided to include the specific elements of exposure and dosage (e.g., time spent, frequency of sessions) in our framework but measure them as separate critical components in the structural—procedural category.” p. 207
Schulte et al.	2009	Psychology	Treatment delivery: Exposure	“Number and length of sessions; frequency with which a treatment was implemented” p. 463
Carroll et al.	2007	School of Health and Related Research	Frequency, duration, coverage	“Subcategories of adherence concern the frequency, duration, or coverage of the intervention being delivered, i.e., what is more broadly defined as “dose” in the existing literature.” p. 5
Baranowski & Stables	2000	Behavioral nutrition, Children’s Nutrition Research Center, Department of Pediatrics	Implementation of program: Extent	“Extent (number or amount of units delivered or provided)” p. 160

Table 6: Terms and definitions of the dimension timeliness

Author(s)	Year	Discipline	Term(s)	Definition
Schwarz et al.	2015	Psychology	Timeliness	“The three aspects of fidelity in the framework (content, coverage and dose) were complemented with a fourth aspect, namely timeliness: i.e. if the intervention is carried out at the right time.” p. 197
de Vos et al.	2013	Health Policy and Management	Timeliness	“Yet, we were unable to detect any measure of timeliness in the literature . . . Hence, we constructed dichotomous scales to capture the timing of these intervention components, i.e. (1) performed in time and (2) performed later.” P. 4

Timeliness is defined by the degree to which the intervention or implementation strategies are delivered at the right time. Being provided at the right time, for example, could mean at a specific time of day (Schwarz et al., 2015). For example, the right time to implement an intervention with students could be in the morning, when they are the most focused. Being delivered at the right time could also mean providing treatment for a patient or client within a certain period of time after admission (de Vos et al., 2013) or before a specific date because the treatment would be less effective if there were to be too much waiting.

**Quality.** This dimension was found in 35 studies (see Table 7 for examples; the complete list is available from the corresponding author). The label *quality* was often attributed to a definition similar to those included in the broader definition of fidelity or the adherence dimension. However, the quality dimension concerns the attitudes and skills of the individuals delivering the intervention or implementation strategies. For example, such an evaluation may say that the implementer is enthusiastic, well prepared, perceived as confident (Dunst et al., 2008), takes into account the context and variables (Waltz et al., 1993), and delivers the intervention smoothly (Sussman et al., 1993).

*Table 7: Examples of terms and definitions of the dimension quality*

Author(s)	Year	Discipline	Term(s)	Definition
de Vos et al.	>2013	Health Policy and Management	Competence	“The competence component is more complex and focuses on the interventionist’s skillfulness in the delivery of the intervention.” p. 2
Dunst et al.	2013	Early intervention	How well	“How well is typically measured in terms of the use of a practice in a manner that includes or mirrors the evidence-based characteristics of a practice.” p. 92
Reinke et al.	2013	Educational, School, & Counseling Psychology	Quality	“Quality refers to the preparedness, enthusiasm, attitude, and skill level of the interventionists when using the training methods, processes and learning principles employed in the original intervention model.” p. 495
Schulte et al.	2009	Psychology	Quality (or competence)	“Level of skill with which treatment was implemented” p. 463
Dunst et al.	2008	Early Literacy Learning	Exposure	“Exposure also includes the extent to which the training sessions were interactive, the trainer was well prepared and enthusiastic, and the trainer was perceived as confident and capable as part of his or her attempts to communicate the content of the training.” p. 3
Stein et al.	2007	Nursing	Competence	“The competence component is more complex and is focused on the interventionist’s skillfulness in the delivery of the intervention.” p. 54
Moos & Finney	1983	Psychiatry and Behavioral Sciences	Treatment quality	“Whereas information on treatment components taps the quantity of treatment activities, “treatment quality” refers to the manner in which such activities are conducted.” p. 1038

**Differentiation.** We found definitions of differentiation in 15 studies (see Table 8 for examples; the complete list is available from the corresponding author). The definitions revolved around ensuring that only the planned components are used in the intervention or implementation strategies and that no components from other interventions or strategies are added. This dimension is most relevant when evaluating fidelity in a research context, where there is more than one condition to compare. For some authors (Century et al., 2010), differentiation is not considered a component of fidelity. For others (Hutsebaut et al., 2012), there is an overlap with the concept of adherence. In fact, some definitions of adherence do include this aspect when referring to components that are proscribed. For example, one definition of adherence states that “Adherence is focused on the quantity of prescribed behaviors that are delivered in a treatment session or course, and compares the quantity of generic interventionist behaviors (common across psychotherapy) and behaviors that are proscribed by the protocol” (Stein et al., 2007, p. 54).

Evaluation of this dimension is a step that comes after monitoring adherence since adherence evaluation refers to verifying the planned components. In contrast, differentiation evaluation refers to verifying whether extra components were added. In addition to being useful in the research context, this dimension can be helpful in the context of implementation evaluation. For example, if implementers are implementing more components than required, this may impact outcomes by taking away some of the time needed for the most critical required components.

**Adaptation.** A total of ten studies mentioned this dimension (see Table 9 for examples; the complete list is available from the corresponding author). This dimension is the opposite of adherence. In other words, it deals with how the individuals involved are not adhering to the plan, detailing adaptations made to the intervention or implementation strategies. These adaptations can be considered as negative or positive factors. It can be beneficial to adapt the intervention or strategies with the help of the implementers’ professional experience, and according to the local context, the specificities, and the receivers’ needs, a practice also referred to as evidence-based practice (see APA Presidential Task Force on Evidence-Based Practice, 2008; Committee on Quality of Health Care in America Institute of Medicine, 2001). However, it can be harmful if the implementers make adaptations that affect the intervention or strategies’ underlying principles and theoretical bases (Schwarz et al., 2015). In both cases, it is important to document which adaptations were made in the intervention and implementation strategies so as to ensure the implementations are keeping true to the main underlying principles and theoretical bases of the intervention or strategies (Schwarz et al., 2015).

*Table 8: Examples of terms and definitions of the dimension differentiation*

Author(s)	Year	Discipline	Term(s)	Definition
Hulleman et al.	2013	Education; Implementation Science	Differentiation	“Differentiation—Are critical program components that differentiate treatment from control present?” p. 69
Schulte et al.	2009	Psychology	Treatment delivery: Program differentiation	“Extent to which only planned treatment elements were delivered; extent to which two comparison treatments match their underlying program theory and/or differ from one another” p. 463
Gearing et al.	2011	Social Work	Monitoring intervention delivery: Execution, Differentiation of treatments	“1) Differentiation of treatments: A. Adherence to intended core elements, B. Adherence to proscribed interventionist behaviour, C. Exclude non-proscribed components/ behaviors” p. 81
Beets	2007	Public Health	Program differentiation	“The final component of implementation is program differentiation. Program differentiation deals with assuring that control conditions (e.g., classrooms, schools, districts) are not adopting or implementing programs/curriculum of similar content and techniques as specified in the program schools.” p. 11
Dane & Schneider	1998	Department of Human Development and Applied Psychology, Ontario Institute for Studies in Education	Program differentiation	“Program differentiation: a manipulation check that is performed to safeguard against the diffusion of treatments, that is, to ensure that the subjects in each experimental condition received only planned interventions.” p. 45

### *Dimensions Related to the Receivers*

**Reach.** There were 17 studies that discussed this dimension (see Table 10 for examples; the complete list is available from the corresponding author). Reach corresponds to the number of receivers that received the intervention or implementation strategies. This number can be compared with that of the targeted population.

Table 9: Examples of terms and definitions of the dimension adaptation

Author(s)	Year	Discipline	Term(s)	Definition
Durlak & DuPre	2008	Psychology	Adaptation	“Finally, there is adaptation, (8) which refers to changes made in the original program during implementation (program modification, reinvention).” p. 329
Fixsen et al.	2005	Maternal and Child Health/ Implementation Research	Program drift	“Program drift: Descriptions or measures of variations in a program that are stated to be undesirable or that impede the achievement of the overall goals and effectiveness of implementation site.” p. 85
Sussman et al.	1993	Health Promotion and Disease Prevention	Reinvention	“Delivery fidelity is defined here as consisting of four levels of departure from ideal delivery: . . . reinvention (given that the whole curriculum was delivered, whether or not the curriculum was delivered as written) [etc.]”

**Exposure.** Eight studies discussed exposure (see Table 11 for examples; the complete list is available from the corresponding author). This dimension is similar to dosage. However, dosage is related to the implementers that deliver the intervention or implementation strategies, and exposure is the actual dosage received by the receivers. There may be differences between the dosage delivered, and the dosage received because of barriers to the reception, such as the absence of the receivers or the psychological state of the receivers due, for example, to personal or environmental distractions (Baranowski & Jago, 2005).

**Responsiveness.** A total of 29 studies mentioned responsiveness (see Table 12 for examples; the complete list is available from the corresponding author). This dimension refers to the quality of the receivers’ response to the intervention or implementation strategies. Their response is qualified by their engagement, interactions, involvement, satisfaction, enthusiasm, attention, participation, attitudes, etc. The responsiveness indicates the effect of the implementers on the receivers and whether the implementers are succeeding

*Table 10: Examples of terms and definitions of the dimension reach*

Author(s)	Year	Discipline	Term(s)	Definition
Haynes et al.	2016	Health Policy/Public Health	Structural items	“Structural items such as participant attendance and the number, . . . are easily observed and can usually be captured numerically.” p. 14
Grant et al.	2013	Quality, Safety and Informatics Research Group, Population Health Sciences, Medical Research Institute	Recruitment and reach in individuals	“Who actually receives the intervention in each setting? Are they representative?” p. 6
Durlak & DuPre	2008	Psychology	Program reach	“(7) Program reach (participation rates, program scope) refers to the rate of involvement and representativeness of program participants.” p. 329
Carroll et al.	2007	School of Health and Related Research	Coverage	“Coverage may also be included under this element, i.e., whether all the people who should be participating in or receiving the benefits of an intervention actually do so.” p. 2
Glasgow et al.	1999	AMC Cancer Research Center	Reach	“Reach is an individual-level measure (e.g., patient or employee) of participation. Reach refers to the percentage and risk characteristics of persons who receive or are affected by a policy or program.” p. 1323

in their delivery of the intervention or implementation strategies. Responsiveness can also display the fit between the intervention or implementation strategies and the receivers, i.e., if their needs are being met.

**Enactment.** Nine studies included enactment as a dimension (see Table 13 for examples; the complete list is available from the corresponding author). This dimension is defined as the degree to which the receivers understand and adhere to the activities proposed by the implementers. This dimension is influenced by the receivers’ characteristics, such as their abilities, skills,

*Table 11: Examples of terms and definitions of the dimension exposure*

Author(s)	Year	Discipline	Term(s)	Definition
Reinke et al.	2013	Educational, School, & Counseling Psychology	Exposure to Workshops	“Participant attendance and dose of workshop received” p. 497
Dabbs et al.	2011	Nursing	Receipt	“Receipt: the extent to which the intervention is received as intended” p.344
Schulte et al.	2009	Psychology	Treatment receipt: Participant exposure or dose	“Amount of the treatment received by the participant” p. 463
Jones et al.	2008	The Children’s Hospital of Philadelphia; Clinical Psychology	Participant: Dosage Received	“Percent of sessions attended; Number of clinical contact hours” p. 4
Baranowski & Stables	2000	Behavioral nutrition, Children’s Nutrition Research Center, Department of Pediatrics	Reach: Depth	“Reach: extent to which the program contacted or was received by the targeted group” p. 160 “Qualitative Aspect(s): Depth (aspects of components of the intervention received)” p. 160

and capacities. Like responsiveness, enactment indicates the fit between the intervention or implementation strategies and the receivers. This dimension can be informative to the implementers and help them adapt their intervention or implementation strategies to the characteristics of the receivers.

### *Relationships Between Levels and Dimensions*

The relationships that emerged from the study of the documents are amongst the following: levels of fidelity; levels and dimensions of fidelity; and dimensions of fidelity.

### *Levels of Fidelity*

Overall, three relationships between the two levels of fidelity were observed (e.g., Dunst et al., 2013; Lieberman-Betz, 2015). Firstly, implementation



*Table 12: Examples of terms and definitions of the dimension responsiveness*

Author(s)	Year	Discipline	Term(s)	Definition
Lieberman-Betz	2015	Communication Sciences and Special Education	Participant responsiveness	“Finally, participant responsiveness is a measure of engagement of the recipient of training or treatment, and can provide insight into how well-received implemented strategies are on the part of the parent and child.” p. 23
de Vos et al.	2013	Health Policy and Management	Participant responsiveness	“Participant responsiveness refers to how well participants respond to, or are engaged by, an intervention.” p. 8
Hulleman et al.	2013	Education; Implementation Science	Responsiveness	“Responsiveness—To what extent are participants engaged and involved in the treatment?” p. 69
Reinke et al.	2013	Educational, School, & Counseling Psychology	Engagement in Workshops	“Participant enthusiasm, attention, understanding, and participation in workshops” p. 497 (figure 1)
Keith et al.	2010	HSR&D Center for Clinical Management Research	Satisfaction	“Satisfaction represents organizational members’ expressed level of enthusiasm with using the distinct components of the intervention.” p. 2
Hulleman & Cordray	2009	Psychology and Human Development	Participant responsiveness	“Participant responsiveness was operationalized in two ways: (a) the frequency of responding to the instructions to write an essay, and (b) the quality of response in the essay.” p. 94
Fixsen & al.	2005	Maternal and Child Health/ Implementation Research	Consumer satisfaction	“Consumer satisfaction: Descriptions or measures of the satisfaction of the clients or other direct consumers with important aspects of a program.” p. 89
Hansen et al.	1991	Public Health Sciences, School of Medicine	Reception of the program	“The second component of program integrity deals with the reception of the program by the target audience.” p. 569

*Table 13: Examples of terms and definitions of the dimension enactment*

Author(s)	Year	Discipline	Term(s)	Definition
Jones et al.	2008	The Children's Hospital of Philadelphia; Clinical Psychology	Client Participation—Participant Adherence	"Percent of homework completed; rating of participant use of prohibited techniques." p. 4
Rossi et al.	2004	Program Evaluation	N/A	"Do participants engage in appropriate follow-up behavior after service?" p. 172
Steckler & Linnan	2002	Health behavior and health education at the School of Public Health	Dose received	"The extent to which participants . . . and/or use materials or recommended resources." p. 12
Baranowski & Stables	2000	Behavioral nutrition, Children's Nutrition Research Center, Department of Pediatrics	Exposure  Initial use	"Exposure: the extent to which participants viewed or read the materials that reached them" p. 160 (table 1)  "Initial use: extent to which a participant conducted activities specified in the materials." p. 160 (table 1)
Lichstein et al.	1994	Department of Psychology	Receipt  Enactment	"However, if the patient did not (a) fill the prescription, they never received the treatment, and, . . . they may not have achieved adequate treatment exposure." p. 2  However, if the patient did not, . . . and (b) consume the medicine as instructed, they may not have achieved adequate treatment exposure." p. 2

fidelity directly influences intervention fidelity. Indeed, if implementation strategies are not put in place as planned, the implementation of the intervention might fall off track. For example, if coaching did not occur as planned, the implementers might have difficulty implementing the intervention with fidelity. Secondly, implementation fidelity directly (or indirectly) influences the outcomes. For example, implementation strategies such as leadership from administration might positively affect the intervention receivers, improving their health, education, or performance. Thirdly, intervention fidelity directly influences outcomes. The better the intervention is implemented, the more impact it will have on the receivers.

### *Levels and Dimensions of Fidelity*

We observed a general trend regarding the levels and dimensions of fidelity. Each implementation and intervention fidelity level can be divided into the different dimensions of fidelity (Dunst, 2011; Dunst et al., 2008, 2013; Lieberman-Betz, 2015; Mattera et al., 2013). For example, an implementation strategy such as a workshop can be evaluated for the planned components, length, intensity, and timing. The implementers can be assessed for their quality, such as enthusiasm and preparedness when delivering the workshop. The workshop components have to be constrained to the planned components only, although the components can then be adapted to the context to ensure relevancy without compromising the core theoretical bases. The workshop should be offered to all the targeted staff who then attend as receivers. Has it been? And finally, have the receivers put into action the components of the workshop?

### *Dimensions of Fidelity*

According to various studies, the different dimensions of fidelity can be regrouped and divided into larger and smaller categories. As mentioned earlier, some dimensions are more related to implementers and others to receivers (e.g., Beets, 2007). In addition, the different dimensions can influence each other (Beets, 2007). According to some studies, the responsiveness dimension can mediate some relationships (e.g., Beets, 2007; Lieberman-Betz, 2015). More specifically, responsiveness has been reported as a mediator of the relationship between implementation fidelity and intervention fidelity, as well as the relationship between intervention fidelity and outcomes. The quality dimension has also been described as a mediator of the relationship between fidelity and outcomes (Reinke et al., 2013). However, these dimensions are already integral parts of both implementation and intervention fidelity, and these two levels of fidelity moderate each other as well as the outcomes. Consequently, they are already acting as moderators internally with the other levels and outcomes.

We illustrated the relationships we observed in the examined documents in the integrative conceptual framework of fidelity that we developed (Figure 2). Altogether, the levels of fidelity influence each other, as well as the outcomes. The dimensions also influence each other, and the dimension of adaptation is at the center of the other dimensions because it can influence any of those other dimensions.

## **Discussion**

This scoping review found the existing concepts, definitions, conceptualizations, facets, dimensions, conceptual frameworks, models, and theoretical

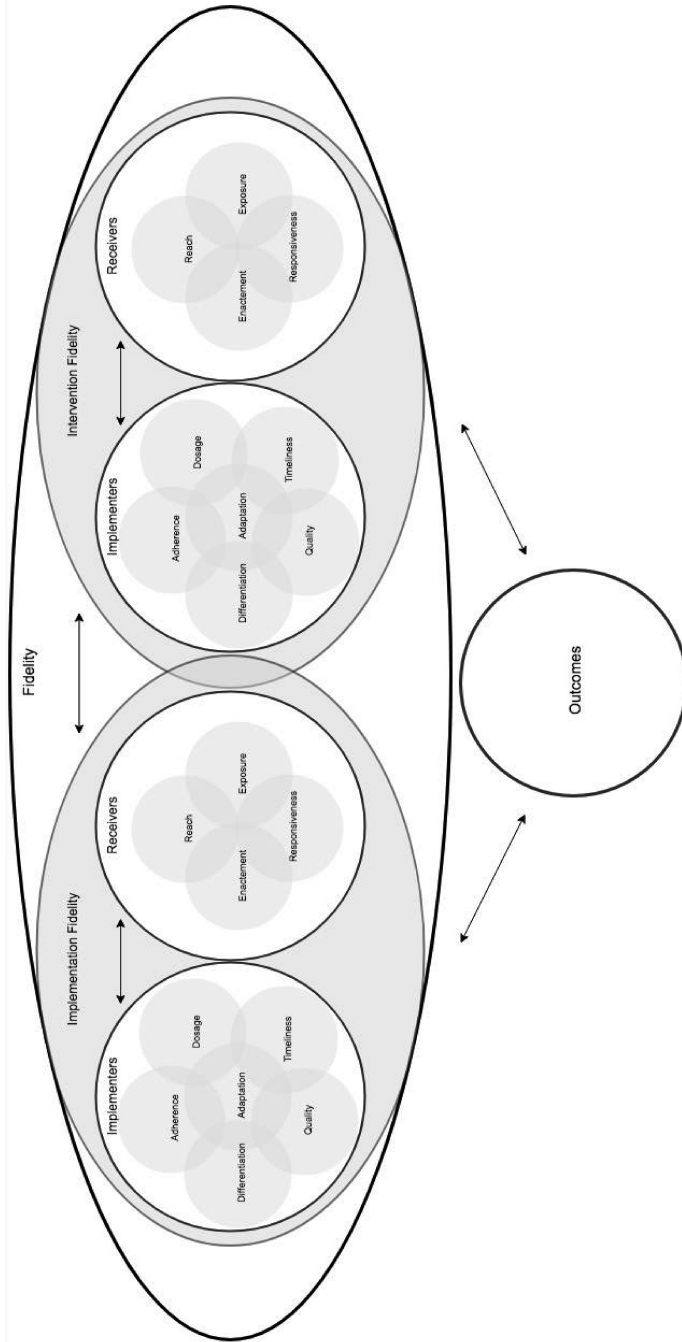


Figure 2. Integrative conceptual framework of fidelity. Conceptual framework of fidelity is divided into two main levels: implementation fidelity and intervention fidelity. Each of these levels is divided into ten dimensions, either the six implementers dimensions (adherence, dosage, timeliness, quality, differentiation, and adaptation) or the four receivers dimensions (reach, exposure, responsiveness, and enactment). The dimensions influence each other, and levels of fidelity influence each other as well as the outcomes.

models of fidelity in the context of implementation. A total of 77 documents met the inclusion criteria. The results were used to categorize all the terms for and definitions of fidelity employed within and across disciplines and create an interdisciplinary conceptual framework of fidelity to guide research and practice (Figure 2).

To our knowledge, this scoping review is the first to attempt to clarify the conceptualization of fidelity across disciplines. This scoping review is different from other reviews, as most have targeted work in specific disciplines or in a more restricted date range of publication than we did. For example, the review completed by Dane and Schneider (1998) was restricted to prevention research, and the review by Carroll et al. (2007) focused only on literature from 2002 to 2007. Another well-known review is by Fixsen et al. (2005) on the broad topic of implementation. However, this review was not specific to the conceptualization of fidelity, resulting in a limited review of that concept. The current scoping review has a broader scope than these reviews, as it includes studies from all disciplines up to 2016.

Some recognized research on fidelity was not used in this scoping review as it did not fit within the inclusion and exclusion criteria we established. For example, the framework of Power et al. (2005) did not add a new definition or conceptualization but lumped together the work of other authors. Pentz et al. (1990) and Mowbray, Holter, Teague, and Bybee (2003) also did not provide an innovative definition or conceptualization. Finally, Donabedian (1980, 1982) did not mention fidelity explicitly in his work. Instead, the work of Donabedian focuses on evaluating the quality of care. While the quality of care can overlap with fidelity, the two concepts are not the same. According to Donabedian (1980, 1982), quality of care can be evaluated with structure, process, and outcome categories. This evaluation focuses on the attributes of the settings in the structure, what practitioners and patients in the process currently do, and the effect of care on outcomes. This concept of quality of care focuses on the actual care within a setting without comparing the actual care and setting to a predetermined plan.

Some authors included in this review incorporated factors that can influence fidelity in their conceptualizations of fidelity. Factors are elements present in the context of an implementation that can affect fidelity positively or negatively. Examples of these factors include learning effect (Masterson-Algar et al., 2014), intervention complexity and facilitation strategies (Carroll et al., 2007), training (Bellg et al., 2004; Gearing et al., 2011), and resources and barriers (Baranowski & Stables, 2000), as well as context (Baranowski & Stables, 2000; Damschroder et al., 2009; Fixsen et al., 2005; Grant et al., 2013; Hasson, 2010; Haynes et al., 2016; Linnan & Steckler, 2002; McGraw et al., 1989; Saunders et al., 2005). Authors often mentioned the context, which could refer to the specific organizational environment or setting where the intervention

was being implemented or to the external organizational context such as the social, political, and economic environments. One must consider these factors when implementing or adapting interventions or implementation strategies. These factors can also help explain the results of fidelity evaluation.

The process of implementation can be evaluated at different stages, such as design or theory, adoption, recruitment, delivery, and maintenance (e.g., Baranowski & Stables, 2000; Bellg et al., 2004; Gearing et al., 2011; Glasgow & Eakin, 2000; Grant et al., 2013; Saunders et al., 2005). However, some authors included certain of these phases as integral dimensions of fidelity, particularly theory, recruitment, and maintenance. Theory refers to making sure there is a rationale regarding the intervention or implementation strategy before putting it in place. Recruitment is related to the procedures that are used to approach and attract receivers. Finally, maintenance resembles fidelity, as this phase aims to evaluate whether implementers and receivers are following the prescribed plan, though in this case, the evaluation is completed over a more extended period of time or after the initial implementation. Findings from our synthesis indicate that although these stages of implementation are not dimensions, they are phases that can help clarify at which points the fidelity evaluation should occur within the implementation process.

A strength of this integrative conceptual framework that we have developed is that it is comprehensive and applicable in all disciplines. One key finding is the need for the dimension of timeliness, which is rarely included in conceptual frameworks. Nonetheless, it can be an essential dimension of many interventions and implementation strategies. Furthermore, by dividing fidelity into two levels, this conceptual framework emphasizes the need to evaluate fidelity at both levels. It also highlights the idea that implementation fidelity must be assessed for all dimensions. This conceptual framework provides a clear distinction between implementer and receiver dimensions, which clarifies the concept of fidelity. This framework also helps clarify the conceptualization of fidelity concerning the factors and the stages of implementation.

Finally, we should note that this study brings together implementation science and interdisciplinary studies. We learned that, as an interdisciplinary field itself, implementation science can take advantage of the principles of interdisciplinary studies, particularly those that enable the integration of different perspectives, concepts, and theories from many disciplines in an interdisciplinary project. Specifically, we ourselves acted as interdisciplinarians as we completed the ten steps Repko and Szostak (2017) recommend for integrative interdisciplinary process: (1) we identified the complex problem, in our case, that of fidelity conceptualization, and defined research questions; (2) we justified the use of an interdisciplinary approach; (3) we identified relevant disciplines; (4) we completed a rigorous and structured literature

search, i.e., a scoping review; (5) we showed disciplinary adequacy by forming an interdisciplinary team; (6) we analyzed the problem and evaluated insights from each relevant discipline; (7) we identified conflicting findings; (8) we created common ground among insights using redefinition and mapping; (9) we constructed the integration we sought with our interdisciplinary conceptual framework of fidelity; and finally, (10) we reflected on and evaluated the integration.

The integration of material from various disciplines in implementation science is a challenge for all researchers and practitioners implementing research to practice. However, lessons learned from interdisciplinary studies can help implementation scientists – like the authors of this article—address complex problems (Morse, 2014). Interdisciplinary studies' methodology can help create a common language for better communication and collaboration, as well as conflict reduction within a team with members from different disciplines (Crowley et al., 2014; Laursen & O'Rourke, 2019; Pohl et al., 2019). Researchers and practitioners can better learn to cross disciplinary borders to achieve a more comprehensive understanding of complex problems and to consequently coordinate their actions to deal with them more effectively (Laursen & O'Rourke, 2019). It is also worth noting that interdisciplinarians may in turn benefit from better acquaintance with the work of implementation scientists—like that represented in this article; after all, they are themselves among the many researchers and practitioners who often have the need to evaluate fidelity in the course of their work.

### *Limitations*

There are some limitations to the review process we undertook and have reported on here. First, even though a great effort was put into the search for all the relevant documents, it is possible that some documents might not have been found. We completed this scoping review with implementers as the primary focus in an implementation context. Therefore, studies in a context other than implementation, as, for example, those focusing only on receivers, might have been missed or excluded. Second, the quality of the studies included in this scoping review was not appraised, as scoping reviews usually do not include this step. Had quality appraisal been used as an exclusion criterion, it could have influenced the development of the conceptual framework. Third, the analysis of the diverse definitions and the categorization process were conducted within the authors' subjectivity, thus shaping the results. However, to mitigate the impact of subjectivity, the first two authors independently charted the results and met regularly and frequently to analyze and synthesize the findings.

### *Practical Implications*

The interdisciplinary conceptual framework we have derived from our study can be applied in research and practice to assess fidelity for the purposes mentioned earlier such as evaluating the efficacy of an intervention, determining critical components of interventions or implementation strategies, and providing feedback that might improve interventions or implementation strategies and create better outcomes. In our education and health sciences examples, when the school principal and the speech-language pathologist decided to evaluate fidelity, they found out which components of the recommended interventions and implementation strategies had not been properly put in place. They then had feedback to help them improve the fidelity (i.e., adapt their interventions or implementation strategies) to obtain better outcomes. The school principal in our example might decide to offer a workshop that is better adapted to the teachers' needs and also provide them with continuous coaching to help them apply the theory in practice. In our other example, the speech-language pathologist might improve the fidelity of the intervention by increasing the frequency of sessions with the child and scheduling those sessions earlier in the day when the child will be alert and attentive.

As for the earlier example concerning our own interdisciplinary team and its efforts to improve reading instruction in schools, we were able to integrate the results of our scoping review into a common language and conceptual framework that served us well, enabling good communication and effective collaboration. Specifically, we used that interdisciplinary fidelity framework to develop fidelity instruments for the schools to use to monitor and evaluate the fidelity of the project. To develop these instruments, we first completed an extensive review of the literature on effective practices to prevent reading difficulties in children. We then used the interdisciplinary fidelity framework as a blueprint for this literature review of the essential components. We thus ensured that both the implementation and the intervention levels of the project were researched. We also made sure that we extracted all the available information from the ten different dimensions for the evaluation of fidelity in its entirety.

### **Conclusion**

Through this scoping review, the various conceptualizations of fidelity in the context of implementation of interventions or implementation strategies to improve outcomes were synthesized into one interdisciplinary conceptual framework. With the use of this framework, fidelity can be seen as a unitary concept that can be evaluated through many levels and dimensions. This interdisciplinary framework will allow researchers and practitioners from



all disciplines to easily access, understand, and assess fidelity. A common framework for evaluating fidelity will enable consistency in terminologies and definitions used by those conducting studies, avoid confusion among those involved in studies, and facilitate the comparison of studies within and across disciplines. Future research is needed to further assess the applicability of this conceptual framework in work undertaken in different disciplines and in interdisciplinary work, as well.

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# Easing the Uncertainty: How an Interdisciplinary Learning-Living Program Helped Undeclared Students Make Academic and Vocational Choices

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**Abstract:** This article presents case study findings about undeclared student experiences in a two-and-a-half-year interdisciplinary learning-living program that integrates the arts, humanities, and social science disciplines. The study examined how the program helped students make informed decisions about academic majors and vocational choices. Participants were a cohort of juniors who had begun the program as first-year undeclared (non-major) students, and who were interviewed one month after program completion. Findings revealed the program developed students' recognition of curricular connections and thereby positioned undeclared students for increased academic and vocational clarity. Findings also revealed the program contributed to participants' overall student development resulting from engagement in a tight-knit, intellectual learning-living community.

**Keywords:** interdisciplinarity, learning-living community, general education curriculum, vocation, undeclared students, academic major

## Introduction

Undeclared students who begin college without a specified major often lack a sense of direction in their academics and in their lives, and can benefit from exposure to a broad range of disciplines before declaring. Such range is found primarily within required general education courses traditionally taught in a single subject, distributed model approach. While exposure to disparate disciplines offers students variety, such curricular design limits integrative thinking and impedes students' ability to make connections across bodies of knowledge (Wells, 2016). Moreover, many students view general education courses as valueless curricular components and are unable to recognize why such knowledge is beneficial. For undeclared students searching for their

niche, such required coursework may seem especially disjointed and unrelated to an academic major. Gordon and Sears (2010) suggest students “have limited understanding of how knowledge is artificially divided into smaller units or disciplines and how the sum of this knowledge is interrelated and intertwined” (p. xiii). Moreover, as Wells (2016) asserts,

We lack a common vocabulary that serves as a basis for integrative questions of meaning. The predominant idea that general education is accomplished solely by being “distributed” is compelling evidence on its own that undergraduate education has been drawn away from the center. (pp. 56–57)

An interdisciplinary curriculum strives to counter the disconnect between compartmentalized academic disciplines. Interdisciplinarity helps students learn to value diverse viewpoints and recognize the connections among parts of a larger whole (Orillion, 2009). Higher education leaders further acknowledge a need for more intentional practices that help students identify connections between college experiences, academic majors, and their futures careers and adult lives (Cunningham, 2016).

### *Significance of the Study*

While previous research has explored widespread acceptance and implementation of interdisciplinarity in higher education, a notable gap exists in studies that examine how an interdisciplinary curriculum influences academic major choices and vocational awareness, especially among undeclared students. Expanding research to increase knowledge about how interdisciplinary programs like that examined in this study and described in this article contribute to students’ academic decision-making processes can offer valuable insight.

This article also sheds light on undeclared students’ understanding of vocation—a burgeoning topic in scholarly literature—and how their view of the concept can be developed through experiences in an interdisciplinary program. Wells (2016) asserts that “vocational reflection encourages us to affirm the major while also opening it up to integrative questions” (p. 61) that would connect it to future adulthood. Over the last two decades in higher education, multiple vocation exploration initiatives funded by the Lilly Endowment, Inc. have introduced programs to help students deeply ponder their academic choices and larger life questions about meaning and purpose in emerging adulthood (Parks, 2011; Clydesdale, 2015; Cunningham, 2016; Cunningham, 2017; Harward, 2016; Roels, 2017). Because vocational inquiry is infused within the program that is the subject of the study presented in this article, it is important to establish a contextual definition here. While the language of vocation used across the higher education landscape varies, for purposes of

this research, I have relied on the definition used at the University of Dayton (UD), the top-tier research university rooted in the Catholic, Marianist faith tradition at the center of this case study. It states that vocational inquiry involves “answering a call to discover one’s unique gifts and employ them in service for the common good in ways that are personally satisfying and bring meaning to one’s life” (University of Dayton Vocation, n.d.). This concept of vocation encompasses both what an individual wants to do and the type of person one wants to become, embodying the institutional mission of learning in community and servant leadership. The concept is so valued as a hallmark of a UD education that it is an institutional learning goal. And with the creation of a UD vocation implementation team tasked with educating students, faculty, and staff about the concept of vocation, vocational programming and related curricular modifications have become ever more widely integrated across the institution.

### *Purpose of the Study*

The purpose of this qualitative case study is to offer undeclared student perspectives on how the UD Core Integrated Studies (Core) Program—a two-and-a-half-year interdisciplinary learning-living program that integrates humanities, arts, and social science courses—fosters informed decision making about academic majors and vocational choices. Research participants included 13 juniors who began the program undeclared in fall 2016, and who were interviewed in spring 2019, one month after program completion. This article presents findings on five common themes that emerged about how the Core Program’s interdisciplinary curriculum coupled with a tight-knit learning-living community helped students achieve clarity about academic and vocational choices.

### **Literature Review: Curricular Shifts in General Education**

General education has undergone considerable change since its original inception and placement into the undergraduate college curriculum. Beginning in the early twentieth century, general education was the conduit for teaching “well-rounded students” (Nelson Laird et al., 2006, p.7). Key to the well-roundedness was a broadly framed curriculum that provided students liberal learning and knowledge of the larger world, distributed through humanities, natural, and social science courses (Gaff, 1994). By the middle part of the twentieth century, general education curricula were overshadowed by expanded and subdivided academic disciplines and the addition of specialized, professional studies. In the 1960s, due in large part to social movements, many institutions loosened

requirements, allowing students more latitude in choosing course options (Gaff, 1991). Subsequently, during the 1970s economic downturn, many students shifted from “impractical” liberal arts-focused coursework and opted for more “useful” fields (Gaff, 1991, p. 12). By the end of that decade, the haphazard state of general education had roused heavy scrutiny that birthed intensive reform initiatives by such highly regarded organizations as the Carnegie Foundation for the Advancement of Teaching and the American Association of Colleges and Universities (AAC&U) (Nelson Laird et al., 2006).

In the decades that followed and into the present, reform initiatives have become customary across the higher education landscape at the institutional level and beyond. Some reform efforts suggest a pivot back to early practices of prioritizing general education. In a 2000 national research study surveying 278 chief academic officers (CAO), 99.6% reported their institution placed higher priority on general education than it had just 10 years prior (Ratcliff et al. 2004, p. 10). However, a primary objective specified with overwhelming consistency in numerous general education reform studies is the importance of curricular cohesion (Gaff, 1991; Gaff, 1994; Ratcliff, et al., 2004; Hart Research Associates, 2016). And while cohesion is a widely shared aim for many institutions, it is often challenging to achieve with distribution models of curricular delivery (Ratcliff et al., 2004). Ratcliff et al. (2004) suggest “it is difficult [for students] to make linkages across courses developed, taught, and studied separately” (p. 13). Many institutions have become keen on prioritizing more innovative curricular practices that incorporate integrated approaches to academic work (Gaff, 1991).

Interdisciplinary courses, common learning experiences, and first-year seminars were among the top such innovative practices identified in the CAO study (Ratcliff et al., 2000)—findings that paralleled what Gaff (1991) had reported in a study 10 years prior. Equally significant findings from a second Ratcliff et al. (2000) study of general education administrators (GEA) revealed an increase in institutions requiring interdisciplinary coursework from just 19% in 1989 to 63.9% in 2000 (pp. 20-21). Moreover, required curricular themes and interdisciplinary courses were not only viewed as improving coherency, but also viewed as helping students make meaningful connections across disciplines and bridge content learned in class with experiences in the outside world (Ratcliff et al., 2004). In 2015, when the AAC&U sponsored a survey about trends in general education design, it found that 55% of its member institutions included interdisciplinary courses as part of their general education programs (Hart Research Associates, 2016, p. 11). Furthermore, the survey also reported 68% of its member institutions used integrative features, such as thematic coursework, learning communities, or a common intellectual experience, to name a few, to enhance the distribution model of general education (Hart Research Associates, 2016, pp. 12–13).

The scholarly literature on the implementation and execution of integrative learning offers a plethora of perspectives on curricular and pedagogical

approaches (Klein, 2010; Lattuca, 2001; Newell, 2008; Orillion, 2009). Since the earliest developments of interdisciplinarity stemming from the likes of Alexander Meiklejohn's Experimental College at the University of Wisconsin-Madison (Van Slyck, 2006), interest in and implementation of integrative teaching have gained popularity across today's higher education landscape. Institutions of all types and sizes are exploring curricular structures and pedagogical techniques that respond to new understandings of the changing ways students learn and make meaning of their education. Liberal education particularly embraces interdisciplinarity, and the number of humanities and social science programs that are interdisciplinary markedly surpasses the number of such programs in natural and applied science (Holley, 2017). The AAC&U and its subsidiary Liberal Education and America's Promise (LEAP) program continually foster numerous nation-wide initiatives and partnerships to promote integrative learning (AAC&U, 2018). Lattuca (2001) contends that interdisciplinarity has "moved from the academic periphery to a more central scholarly location" (p. 3), due in part to faculty who are more innovative and eager than their earlier counterparts to disrupt the status quo and cross disciplinary boundaries. Moreover, many faculty who become accustomed to innovative, interdisciplinary teaching are disinclined to return to conventional pedagogy (Van Slyck, 2006).

I turn now to an overview of the interdisciplinary learning-living program at the center of this study.

## The Core Integrated Studies Program

### *History*

Implemented in fall 1985, the Core Integrated Studies Program originated from the University of Dayton's initiative to reevaluate the humanities' role within the general education curriculum (Johnson & Benson, 1996). University of Dayton administrators and faculty acknowledged the need for more cohesion within the curriculum, such that students could formulate connections among general education courses. The university tasked a faculty committee to develop a pilot program for implementing a revised university-wide general education curriculum. The new curriculum was to not only align with UD's overall mission as a Catholic, Marianist institution, but to also embody the mission of the College of Arts and Sciences, which emphasized a "values-oriented approach to education" (Johnson & Benson, 1996, p. 2).

Working with grant funds from the National Endowment for the Humanities (NEH), the faculty committee incorporated elements of a cluster concept and developed a set of coordinated courses around the common theme "Human Values: The Roots of Pluralism and Its Contemporary Expressions"

(Johnson & Benson, 1996, p. 2). A motto, “Core docet cor,” Latin for “Core educates the heart,” was created to signify the program’s aim to provide students with a holistic learning experience that enabled critical reflection and values discernment in a diverse society and in the larger world (University of Dayton, 1998, p. 1). The program was designed to accommodate 150 first-year students and encompass many general education course requirements at the time, including those in history, philosophy, religious studies, natural science, arts, social science, and English composition (Johnson & Benson, 1996, p. 5).

### *Current Model*

Throughout its 36-year history, Core course requirements have undergone numerous revisions; however, the initial framework remains intact, and the same common theme grounds the curriculum, though the statement of theme has been shortened to “Human Values in a Pluralistic Culture” (Johnson & Benson, 1996, p. 4). Today, Core is a challenging two-and-a-half-year interdisciplinary program integrating courses in the humanities, arts, and social sciences. All Core courses satisfy components of the university’s general education curriculum. The program also doubles as a learning-living community where students engage in shared experiences in the classroom and in the residence hall. Open to students of all majors, the Core Program accepts approximately 120 first-year students, approximately a third of whom are undeclared students. Students matriculate into the program on a first-come, first-served enrollment basis. Most students learn about Core through recruitment efforts like university-sponsored open houses and mailings and through friend and family referrals of former Core Program students.

The Core Program curriculum begins in the fall semester of the first year and concludes after the fall semester of the junior year. Students in the first year take a two semester (15 credit hour), team-taught integrated course on the historical roots of Western and other world civilizations from the origins to the present, across narratives of history, literature, philosophy, rhetoric, and religious studies (Trollinger, 2018). The eight-person faculty team consists of two professors each from history, religious studies, philosophy, and English.

Most innovative in the first year, the Core Program is structured such that students meet twice a day (morning and afternoon), two times a week, for about six hours of weekly class time. Class meetings are split between one common morning lecture with the entire first-year cohort and smaller afternoon seminars of approximately 15 students each. The eight-person faculty team are present for morning lecture and take turns leading discussion of course content through the lens of their respective disciplines. Each member of the faculty team also leads one of the eight afternoon seminars where students discuss the morning lecture in more detail and analyze primary source material

from the four disciplines the faculty represent. Students engage with course content and learn how to synthesize disparate views and make connections across disciplines through group work, essay exams, and research, plus writing assignments—including a historiography paper at the end of the second semester and a writing portfolio (Trollinger 2018). The writing portfolio assignment in particular prompts students to not only reflect on their writing progress, but to also express their thoughts on their learning in an interdisciplinary fashion, studying four disciplines simultaneously in one course (Trollinger, 2018).

During the second year of the Core Program, students complete three Core courses in the arts and/or social sciences, some of which are linked to continue the interdisciplinary curricular approach. Second year coursework focuses on the role of an individual within society (Johnson & Benson, 1996). Students learn about diverse communities and develop an understanding of and appreciation for civic responsibility. Many students participate in various service-learning projects in the local and surrounding community. The Core Program coursework concludes in the fall of junior year with a professional ethics course. The following spring a culminating celebratory ceremony is held for students; attended by Core Program professors, it is affectionately dubbed “Core graduation.”

## Methods

This study followed research guidelines and protocol in that I gained approval from the UD Institutional Review Board (IRB). The Core Program director also granted approval of the study and provided access to student names and contact information.

To explore how the UD Core Program fostered undeclared students’ informed decision making about academic majors and vocational awareness, I addressed the following research questions:

- RQ1.** How do Core students who begin the program as Discover Arts (undeclared) describe their process of selecting an academic major?
- RQ2.** What role does the Core Program have in shaping Discover Arts students’ academic major selection process?
- RQ3.** What role does the Core Program have in shaping Discover Arts students’ vocation discernment?

Guided by a constructivist research paradigm that is contingent on participants’ positionality about a particular circumstance or phenomenon (Creswell, 2013), I sought to understand how participants constructed their own reality in reporting on specific decision-making processes about academic majors and vocational choices. Understanding how participants made meaning from experiences in the Core Program and how they used it to inform their decisions

was key in finding answers to the research questions. The constructivist paradigm was also conducive to my study because of its frequent use of qualitative analysis, a fundamentally iterative and interpretive process.

## Data Sample and Collection

I used purposeful criterion sampling (Mertens, 2015), and the sample included junior year Core Program students who had begun the program as Discover Arts<sup>1</sup> (undeclared) students—that is, as students who have potential interest in pursuing humanities, arts, or social science degrees. I chose junior year students because the Core Program concludes during the fall term of junior year, and students at this stage have experienced the program's entirety. All thirteen participants successfully completed the Core Program. Eleven participants were female and two were male; eleven were White, one was African American, and one was Latina.

As noted earlier, each year approximately one-third of the students in the Core Program are Discover Arts students. One hundred ten students comprised the 2016 Core Program cohort, and 31 of those students were Discover Arts. Thirteen out of these 31 Core Discover Arts students agreed to participate in the study.

To elicit a triangular strategy for data collection, I performed a document review of multiple Core Program artifacts including program flyers, brochures, and websites, all of which are unrestricted and readily accessible. Archived historical manuscripts such as course development grants, course sequence matrices, course development plans, and course syllabi were provided by the Core Program director.

Research data were collected using semi-structured, individual interviews. Interview questions pertaining to students' academic major selection process and vocational awareness were posed, along with questions pertaining to students' overall Core Program experience (see Appendix). To protect and maintain confidentiality, I assigned each student a pseudonym. Participants signed informed consent forms, and individual interviews were recorded with participants' permission. I took handwritten notes during each interview, and the audio recording was transcribed digitally. I reviewed interview transcripts for common patterns and coded for themes. Interview quotations used in the

<sup>1</sup> UD Discover Programs allow students to begin studies undeclared and explore majors by taking courses that fulfill general education requirements across the arts, humanities, social sciences (Discover Arts) and natural sciences (Discover Sciences). Students also take an introductory first-year experience course designed to help students through the exploratory process (University of Dayton Discover Programs, n.d.). Discover Programs also exist in the UD School of Education, School of Engineering, and School of Business.



study report were furnished to each participant to verify data accuracy and establish member checking (Creswell, 2013).

## Findings

All participants had declared an academic major by the end of their second year in the program. My findings revealed participants thought the Core Program had varying levels of influence on their choice of major and discernment of vocation. Some students noted their Core Program experiences linked directly to their academic major choice and sense of vocation, while others noted a more indirect link. Five dominant themes emerged from the interviews that I defined as (1) academic navigation: the process by which students selected a major; (2) interconnections: students' recognition of connections between disciplines; (3) cognitive awareness: students' broad, critical thinking about academics and life values; (4) advocacy: students' desire to help others, and (5) relationships: students' rapport with peers and faculty.

Table 1 below provides a summary of the study's three research questions and the five themes that emerged through the students' answers to each research question. The fifth theme, relationships, though not directly tied to the research questions, was so pronounced in the data coding process that it is also significant and justifiably included in the findings.

*Table 1: Themes associated with research questions*

Research Questions	Themes	Meaning
(RQ1) How do Core Program students who begin the program as Core Discover Arts (undeclared) describe their process of selecting a major?	Academic Navigation	The process by which students selected a major.
(RQ2) What role does the Core Program have in shaping Core Discover Arts students' academic major selection process?	Interconnections	Students' recognition of connections between disciplines.
(RQ3) What role does the Core Program have in shaping Core Discover Arts students' vocation discernment?	Cognitive Awareness	Students' broad, critical thinking about academics and life values.
(RQ3) What role does the Core Program have in shaping Core Discover Arts students' vocation discernment?	Advocacy	Students' desire to help others.
(No direct research question)	Relationships	Students' rapport with peers and faculty

## Analysis of Themes

### *Academic Navigation*

Research question one addressed the student process of selecting an academic major. Participants shared thoughts about being an undeclared student and the steps they took to declare an academic major. Participants declared their academic majors at various intervals during their time in the Core Program. Three declared after just two semesters in the program and four declared after three. The other six participants declared after four semesters in the program, a time that coincided with the university-mandated deadline—the end of sophomore year. No students indicated the mandate had forced them to decide; rather, those who took longer to declare a major reported using the allotted time to fully explore interests through various coursework.

Regardless of the timeframe involved, many students described their navigational experiences as markedly stressful, ridden with anxiety and uncertainty, reflecting Freedman's (2013) assertion that requiring students to make an informed decision about an academic major before a thoughtful inventory of self is a significant expectation. Students frequently expressed feeling overwhelmed about making a choice. Katie said,

It's a really difficult decision to choose what you want to major in. A lot of people say, "Oh, don't worry, just because you major in this doesn't mean you have to do it for the rest of your life."

Interestingly, confinement in a career is a common fear many undeclared students face (Bures, 2011). Well-intentioned but ultimately unhelpful peer advice was also a repeated thought in the study. For example, Ella commented,

Being undecided was stressful the entire time because everybody's like, "don't worry about it, you'll figure it out, you have so much time." I wish people would stop saying that because that doesn't change how I feel about it. It's still stressful that almost all your friends are in their majors.

Ella wished her peers had been more empathetic. Ella's comments also showed her to be like students Cueso (2005) has described as those who delay declaring because they are careful thinkers who are cautious and methodical about making academic decisions. She was also among students who have difficulty declaring because they have multiple interests and want to study more than one discipline (Cueso, 2005). As Gordon and Steele (2003) suggest, the fundamental key to major exploration is coursework. Ella reported interests in political science, rhetoric, and writing, and though the additional coursework she explored through numerous semesters delayed her decision, it helped her ultimately declare as a double major.

The Core Program director advises all Core Discover Arts students. This strategy provides special academic guidance to the undeclared students in the Core Program since all other Core students with declared majors receive advising from a faculty member or a professional advisor within the student's respective discipline. Many participants articulated how having the Core Program director himself as their advisor was particularly beneficial because he not only had in-depth knowledge about the program, but was also able to understand and support their unique academic needs. Victoria noted, "It was really helpful that my advisor was [the Core Program Director]. Choosing the major was probably the hardest part of my college career so far, but I think [it would have been] a lot harder without Core."

The participants also reported their responses to an exclusive first-year experience course taught by the Core Program director—another distinctive programming aspect. This introductory course served as an extension of his advising because it provided students with information about the multiple academic majors (and associated minors) within the College of Arts and Sciences. Cathy stated, "I think having [the first-year experience course] with other Core kids who were undecided was really helpful because it wasn't just like other kids were undecided, it was kids who were undecided and who were in Core." Students found the first-year experience course from the Core Program director coupled with the director's advising enhanced their academic major exploration.

### *Interconnections*

Participants described how Core's interdisciplinary curriculum helped them not only recognize connections between academic disciplines, but also see how their interest in certain course content could inform their decisions about selecting a major. Katie said,

I think the interdisciplinary part of Core is probably the most important part. I realized how things connect in ways I didn't realize. And one of the biggest reasons I actually chose my minor in human rights studies is because Core's interdisciplinary process focuses so much on human rights it led me to where my minor is and made me realize what I wanted to do.

An integrated curriculum like that of the Core Program allows students to analyze information across disciplinary boundaries, scrutinizing (in this case) historical events through multiple perspectives, and enhancing their ways of interpreting such course content (Ivanitskaya et al., 2002). Students also learn to connect prior knowledge with new knowledge, integrating the two. They learn how multiple kinds of knowledge can help them analyze issues "too broad or complex for a single approach" (Klein, 2010, p. 181). According to Anne,

“[The Core Program] shaped how I took on every academic course. I try and make connections and build off some courses even if they seem unrelated.” By learning to make connections within the Core Program curriculum and beyond, students shifted their perspectives about other coursework. Students broadened their approach to exploring other academic subjects and potential majors.

Some participants described how specific courses in the Core Program’s second year, particularly those focused on community and experiential learning, shaped their academic major choices. Such learning exemplifies high-impact practices—those practices identified by Kuh (2008) as being extremely effective in promoting student engagement, retention, and overall student learning. Ella explained how an Amish country field experience helped her realize the potential of a visual rhetoric English concentration. Another student, Allison, explained how a Core Program class on the death penalty opened her mind to contemporary politics, helping to affirm her interest in political science.

While some students found the Core Program curriculum directly shaped their choice of academic major, others acknowledged a more indirect link. Nathan commented, “I think it’s one of those things where [the Core Program] helps for secondary reasons not primary reasons.” Other students described how Core helped them recognize common threads in humanities disciplines that might have otherwise gone unnoticed had they not taken a two-semester course sequence studying the narrative of world civilizations through the lenses of history, philosophy, English, and religious studies. Belle commented, “It was more interesting to study the humanities that way. It just makes sense to study them together.”

Whether Core shaped academic major selection directly or indirectly, participants thought that Core influenced their choices. Anne captured this succinctly, saying,

I think [the Core Program] is really beneficial especially if [students] don’t have a career path in mind because it’ll give them those skills like critical thinking; it will open them up to new opportunities and it’ll help them really decide what they like and what they don’t.

Anne’s insights shed light on how the Core Program curriculum can develop broader thinking to help students formulate connections that will be useful throughout their academic careers and future professional lives, as well. Students “exposed to the ways that different disciplines consider an issue . . . can begin to form a more complete and meaningful perspective and make more informed decisions” (Carmichael & LaPierre, 2014, p. 60).

### *Cognitive Awareness*

Interdisciplinary courses are frequently credited with enhancing students’ critical thinking and problem-solving skills, and for this reason, many

of the current general education reform efforts include the implementation of interdisciplinary curricula (Orillion, 2009). My students described how the Core Program influenced their ability to think broadly and critically about academics, and about wider, more pervasive issues affecting their own lives and values. Tom said,

the things you study in [the Core Program] lectures and the different perspectives you're learning help open up your worldview and understand things from a way that you may not have tried before. [The Core Program] was extremely useful in development of thought processes.

Many other students also commented how Core shaped their deeper intellect. Charlotte said, "I just like the idea of being able to think differently than most of my peers. You're learning something for a reason, and you can basically tie in with everyday life." Another student, Belle, commented, "Even if we were talking about some time in history . . . I was always getting a deeper meaning out of it. It was always discussions that I felt applicable to the world today and to my life." As scholars have noted, an intentional pedagogical approach "that allows groups of students to turn their attention to common problems, issues, themes, or tasks . . . can prompt integrative learning if the topic is of sufficient scope and interest to be elucidated by insights from different disciplines and perspectives" (Huber et al., 2007, para. 9). My students were markedly mindful about how their active learning in the Core Program helped formulate big picture perspectives that affected the academic and vocational choices they were making.

### *Advocacy*

A strong desire to help others emerged as a recurring theme in students' comments about the Core Program's influence on their vocational discernment, the subject of research question three. Participants had varying levels of understanding about the meaning of vocation, often using the words "vocation" and "calling" interchangeably, but their answers made clear that many students' deep attraction to helping others through advocacy was especially evoked through Core Program service-learning experiences such as tutoring at inner-city schools or volunteering at community service organizations<sup>2</sup>. A Core project on food deserts fostered Michelle's interest in pursuing a certificate in non-profit and community leadership. Another student, Katie, explained that until she took a Core Program course on social inequality, she

<sup>2</sup> Vocation is derived from the Latin verb *vocare*, meaning to call or name (Cunningham, 2016), and historically it has had theological connotations, specifically in reference to religious life. It was not until the work of Martin Luther in the 16th century that the concept of vocation began to expand to include others who were not members of the clergy (Kleinhaus, 2016).

had not understood the intricacies embedded within the issue, and she ultimately declared a minor in human rights studies. Another participant, Allison, described her sense of vocation, saying,

I have a calling to do charity work. I'm not sure what that looks like in the future . . . but, I think being in Core and learning about different opportunities really led me to that path, and then I think that'll lead me to a different path.

For other students, a sense of calling was more obscure. Tom said,

I think the idea of calling is a pretty weird thing to think about. I don't know that I necessarily think I have a calling. It's not like some spiritual being beckoning me from beyond. I enjoy things and I care about certain things; and those needs to have a particular criterion met in my life are going to drive me to do things that I think will be useful.

Interestingly, while Tom denied a sense of calling, his remarks reflect developing awareness about his individual character and factors that will guide his choices in life. Such remarks suggest that even though some students do not identify the discernment process about what type of person to be or what type of work to do with a sense of vocation or calling, they have defined and experienced just that in their own way.

Most participants associated the concept of vocation solely with career, often conflating the two concepts and terms, indicating a narrow understanding of the former. The vocational literature offers a much more comprehensive view of vocation that includes multiple life aspects in which one can cultivate meaning and purpose (Cunningham, 2017). Vocational "language needs to *include* conversations about work and employment but should not be exhausted by those topics; it must be expansive in its capacity to attend to the many other aspects of a student's future life" (Cunningham, 2017, p. 9). The University of Dayton accepts this view. We know vocation can inform many non-career roles in life such as those involving family and friendships, community service, volunteer work, and even leisure pursuits (Fletcher, 2017). However, only one student who had attended a university-sponsored leadership retreat recognized vocation is really much broader in scope than a career. Ella commented,

I know your calling in [regards to] vocation isn't just your job. I think going on [the retreat] helped me to understand that more. And as a leader for [the retreat] you talk about your calling. I've learned how to be a person . . . how I want to act and treat others, and who I want to be

Ella's experience is significant because, as the university actively seeks to increase intentional programming in this area through the vocation implementation task force mentioned earlier, it suggests one additional way students may be brought to grasp a deeper understanding of vocation. As attention to

vocation expands in the higher education landscape, more institutions, even secular ones, may also come to see vocation “is closely allied with concerns about meaning and purpose, about character development, and moral formation” (Cunningham, 2017, p. 3).

### *Relationships*

Although not so directly responsive to my three main research questions, my findings about students’ views of their relationships with peers and faculty were so pronounced, I have included them here as a prominent and significant theme. Because the Core Program is also a learning-living community where students from the same cohort not only take multiple classes together but also live with each other on designated floors in a residence hall, students spend a considerable amount of time together. Such consistent togetherness fosters tight bonds, friendships, and rapport. And it does more, much more. Learning-living communities are yet another type of high-impact, values added educational practice (Kuh, 2008). The literature shows students who participate in learning-living communities are more likely to be involved and interact with peer groups and professors than those in non-learning-living communities (Pike, 1999; Inkelas & Wiseman, 2003). And the literature shows such experience increases levels of student engagement, creates deeper student learning, and boosts retention (Kuh, 2008; Brownell & Swaner, 2009).

The participants in my study remarked how the communal atmosphere of the Core Program enhanced their learning. Anne said, “I had a solid base of intellectual students that I could bounce ideas off. It was very academically focused, but also just focused on being with holistically educated people . . . that environment was really beneficial.” Katie shared, “You’re constantly surrounded by people who are also going through that experience with you, which heightens how powerful it is and how much it affects you.” Students valued the camaraderie peers provided and being part of an intellectual community with other students who valued the importance of learning. For many, the relationships built in the program were enormously impactful and a hallmark of their overall Core experience.

Many students also spoke of making connections and building rapport with Core professors. Students commented on how faculty took genuine interest in their successes. Ivy commented on how her professor’s active engagement on campus impacted her own involvement at the university. Tom credited a Core professor for helping him form relationships with other students involved in a campus program to preserve the city watershed.

The findings about peer and faculty relationships demonstrate how a sense of community is nurtured throughout the students’ time in the program, cultivating deep levels of student engagement. And they also demonstrate how

that experience of engagement contributed to the students' overall sense of development. Ella remarked, "I think I've learned more about myself than I have about exactly what I want to do." Tom added, "I think generally the program as a whole has largely shaped my entire college experience rather than just some of the academic aspects of it." When asked where he would be had he not enrolled in the Core Program, Tom said, "I think I'd be substantially less happy." He further said,

I think early in college I probably would have been nervous enough that I would just throw myself into the first thing that seemed easy. And I would have taken an economics class and been like, "I'm going to do this until I figure out what I like," and then I would have gotten stuck in that for too long for me to find out what I like; and I think that can be very dangerous. I think Core helped me wiggle out of that because I was undeclared when I came in.

Clearly, these and the other comments I have reported on here demonstrate the broad range of impact the program has had on its participants from an academic, personal, and social perspective.

## Discussion

This article contributes to the scholarly literature by offering insight on how an interdisciplinary learning-living program fosters informed academic decision making and vocational discernment. In particular, it expands scholarly knowledge about programs that may contribute to undeclared students' success in these important areas. As national organizations such as AAC&U and its subsidiary LEAP initiatives strongly advocate integrated, liberal learning programs, this study illustrates the benefits of such programming.

Themes drawn from the data reveal how the Core Program created a means for students, even the most undecided, to navigate the uncertainty of decision-making processes by immersing them in robust interdisciplinary curricular content, challenging course projects, and thought-provoking experiential opportunities, all while fostering a tight-knit intellectual community. The interdisciplinary curriculum coupled with the learning-living component of the program offered students a highly impactful experience.

The formative nature of the Core Program, especially in the first year, provided participants a framework to navigate difficulties about selecting a major. Advising from the Core Program director helped alleviate uncertainties related to academic navigation. So, too, did the director's dual role, teaching both the Core Program's first-year curriculum and the Core Discover Arts first-year experience course. Recurrent contact between the program director and Core Discover Arts students offered a strong support structure for undeclared students, not just "a once-a-semester meeting with a person the student



hardly knows, but an ongoing set of conversations about issues students are facing in real time” (Kuh, 2008, p.14). Key to assisting undeclared students is helping them recognize the factors contributing to their undecidedness, and helping them explore academic and career possibilities, while supporting their decision making throughout the process that does finally enable them to declare a major of some sort (Gordon & Steele, 2015).

Of course, vocational choices are as important as academic ones. Much of the growing literature on vocation exploration programs in higher education emphasizes the importance of students’ formation of character through the fostering of values that will yield purposeful work and meaningful living (Clydesdale, 2015; Cunningham, 2016, Cunningham, 2017, Parks, 2011, Roles, 2017). Interestingly, one of Core’s main objectives is related: to develop students’ ability to critically evaluate “the value structure underlying their own choices, the choices of others, and the social structures of which they are a part” (Johnson & Benson, 1996, p. 4.) While most students in the study viewed vocation narrowly through an occupational lens, analysis of their comments revealed they saw the Core Program as providing opportunities to grapple with complex and meaningful questions about vocational adult life issues (more broadly defined) through integrated curriculum, course assignments, writing projects, and field experiences. While Core does not explicitly label aspects of its program vocation-specific, its components align with the university-wide learning goal of vocation. As noted earlier, UD is an institution that understands what the vocation literature suggests, that the sense of career calling is but one pathway to a purposeful life. And while “preparing graduates for employment is crucial, [it mustn’t become so] to the point that we neglect the longstanding commitment of higher education to nurture a sense of purpose and social responsibility” (Wells, 2016, p. 57). As Harward (2016) asserts, college campuses should be places where students can be holistically engaged in conversation to understand such greater purposes as they might wish to pursue. Our students’ comments suggest the Core Program provides them with a place to reflect on what vocation might entail for them.

Themes that emerged from this study also reveal how much our students benefit (and see themselves as benefitting) from the intrapersonal and interpersonal relationships they develop in the program. The findings indicate these relationships have a significant impact on students’ overall Core experience, reflecting Astin’s (1993) remark that “the single most important environmental influence on student development is the peer group” (p. xiv). One may conclude from the findings that the Core Program would be significantly less influential in the absence of the strong personal bonds that the learning-living aspect of the program cultivates. As Parks (2011) posits, “it is vital to recognize that a network of belonging that serves emerging adults . . . may offer a . . . powerful learning and social milieu and play a critical role in the formation of meaning, purpose, and faith” (p. 174). Through Core, transformative

relationships with like-minded peers and dedicated, engaged faculty provide support that establishes a strong foundation not just for academic life but also for future adult life.

## Limitations and Suggestions for Further Research

While this study addressed various curricular and co-curricular student experiences from each year of the two-and-a-half-year Core Program, it was limited to one sub-group of students—junior Discover Arts (undeclared) students who were studied at the end of the program. Thus, it was not a comprehensive study of all Core Program students throughout their time in the program. A larger, more diverse sample could provide further substantiation of the program's influences on its participants. A broader study could examine Core's influence on students who begin with a declared major and subsequently switch to a different major. An analysis of how the Core Program shapes students' change of major might provide further insight about the program's curricular impact on academic and vocational choices. Also, while my data have prompted me to posit a connection between the Core Program's interdisciplinary curriculum and the academic and vocational choices students make, a larger sample size and inclusion of faculty perspectives might provide further evidence to support the connection. Inquiry about how specific course assignments or experiential learning within the Core Program shapes students' academic and vocational choices might also provide additional substantiation of connection. Further research could examine quantitative data on student learning outcomes to empirically measure the development of students' interdisciplinary learning and the effectiveness of curriculum components in that regard. And finally, a study comparing how undeclared students make academic and vocational decisions in a non-interdisciplinary and/or non-learning-living community with how undeclared Core Program students do the same could provide further insight on best practices for supporting the undeclared.

## Conclusion

Like most college students, the undeclared student population strives to make meaning of their education, seeking connections between specific academic majors and life pursuits after college. The process is difficult, especially for the undeclared student population who may remain academically undecided for multiple semesters. As Nash and Jang (2015) suggest, “college students . . . seek to find the delicate balance that exists in the difficult space between idealism and realism; macro and micro meaning” (p. 5). Institutions intentional about offering interdisciplinary learning-living models like the

Core Program may help by serving students' deeper learning needs and fostering key developmental progression, thereby, "at the very least, . . . [allowing] students to develop a more holistic view of their world and to better understand the way they each can navigate in it" (Carmichael & LaPierre, 2014, p. 55). Students involved in an interdisciplinary learning-living community where they are not only introduced to multiple disciplines and the opportunities that lie in both disciplinary and interdisciplinary work but are also encouraged to augment their moral consciousness and cultivate a sense of self can be positioned for emerging adulthood in a manner that fosters increased academic and vocational clarity.

## Biographical Note

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## Appendix

### Interview questions

1. What was your level of indecision about selecting an academic major when you began Core as a Discover Arts student?
2. What was the main reason you began UD as Discover Arts?
3. What leaning, if any, did you have toward any specific academic major(s)?
4. What attracted you to the Core Program? How much did you know about the program?
5. Describe your process for choosing a major? When did you declare and what was your choice?
6. What challenges did you encounter during the process for selecting a major? Who or what helped you overcome those challenges?
7. Did the interdisciplinary nature of Core help shape your decision about your academic major selection? In what way? If not, what factors did help you decide?
8. Do you have a sense of calling or vocation about your future?
9. Did any particular Core experience shape your decisions about a sense of calling or vocation? If so, which experiences?
10. Tell me about your opinion of the Core Program?
11. Tell me one takeaway you have about your Core experiences?
12. What are your goals after UD?
13. Is there anything I didn't ask that you think is important for me to know?
14. May I contact you to follow-up or for clarification if anything is unclear?

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