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IN THIS ISSUE:

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'Intercultural Endeavors' Explored at 'TD-Net' Conference

By Julie Thompson Klein, Machiel Keestra, and Rick Szostak

The 2017 international meeting of the Swiss-based Network for Transdisciplinary Research, known as td-net, took place September 11-15 on the campus of Leuphana University (pictured) in Lüneburg, Germany. It highlighted the theme of "Intercultural Endeavors" in transdisciplinary research and education, explored in keynote addresses, plenary panels, and concurrent sessions supplemented by training workshops and special meetings. This report is an overview of the program, a copy of which is available at <http://www.transdisciplinarity.ch/en/td-net/Konferenzen/ITD-2017/Detailed-programme.html>.

Leuphana University in Luneburg, Germany was the site of the 2017 international TD-Net meeting.

The Swiss Academic Society for Environmental Research and Ecology launched td-net in the year 2000. When the Swiss Academies of Arts and Sciences became its sponsor in 2008, td-net began a series of international conferences focused on transdisciplinary research process. The first meeting, held in 2008 at the ETH in Zurich, highlighted "Problem Framing" as a decisive initial phase. The 2009 conference at the University of Berne concentrated on "Integration," the 2010 conference at the University of Geneva on "Implementation," and the 2011 conference at Berne on "Evaluation." After a four-year period of Swiss-oriented conferences td-net resumed international events in 2015 at Basel, turning to the theme of "Sustainability and Health" while meeting in parallel with the European Conference of Tropical Medicine and International Health. The Basel event also featured an international panel presenting online resources: including td-net's toolbox "Co-producing Knowledge," the US-based National Cancer Institute's "Team Science Toolkit," the "Resources" link on the website of the Integration and Implementation Sciences network (I2S), the Association for Interdisciplinary Studies' "About Interdisciplinarity" webpages, and a set of wiki-based "Short Guides" to interdisciplinarity by Catherine Lyall, et al.

The Theme of Interculturality

The Leuphana conference took a major step beyond the 2015 panel featuring online resources by scheduling plenary and concurrent sessions with speakers from multiple world regions and cultures. Conference organizers also arranged parallel co-conferences in Mexico, New Zealand, Uruguay and Chile, with periodic live reports. To get a glimpse of the scope of representation: Tuesday's sessions included clusters of individuals from Europe, South America, and South Africa; from Europe, China, and Australia; from the USA, Europe, and Japan; from the UK, Netherlands, and Mexico; and from Europe, South Africa, Canada, and South America. Likewise, a Wednesday plenary panel

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on "Research Integration and Implementation" explored commonalities and differences across the UK, USA, and Brazil. Two additional presentations also contributed international and intercultural perspectives. In a virtual plenary session Rawiri Smith from New Zealand compared the Maori greeting ceremony Powhiri with a model of transdisciplinary research collaboration. And, building on experience in Brazil, Danilo Streck asked "What can participatory action research and transdisciplinarity learn from each other?"

Both presentations provided powerful comparative lenses throughout the conference. The indigenous ritual of Powhiri starts with an invitation to all participants, followed by explicit recognition of differences. It then formulates respect for other belief systems, "weaving" together different participants or positions. The final step is sharing experiences to gain confidence. In this manner, Powhiri triangulates recognizing differences, integrating knowledge, and building trust. Participatory action research, which is more prominent in Brazil than elsewhere, is influenced by thinkers such as Kurt Lewin in the 1940s and Paolo Freire in the 1970s. Instead of assuming neutrality, researchers are responsible for producing knowledge that potentiates social transformation, making "practicability of knowledge" a criterion of validity. Streck suggested transdisciplinarity also evokes democratization of knowledge and intercultural dialogue.

While noting how slowly universities adjust to young academics' current expectations, they also noted many universities are co-developing "hybrid spaces" that facilitate transdisciplinary collaboration.

In addition, Machiel Keestra hosted a plenary on 'Teaching and Learning in Transdisciplinary Environments." Panelists from Australia, Brazil, Germany, and Switzerland debated whether the academy can provide students the necessary knowledge, skills and competencies to operate in the extra-academic world with its multiple dimensions. While noting how slowly universities adjust to young academics' current expectations, they also noted many universities are co-developing "hybrid spaces" that facilitate transdisciplinary collaboration. Yet, students and faculty alike need to appreciate the extra effort and time it takes to communicate with individuals from other groups. Julie Klein and Bianca Vienni from Uruguay also co-hosted a double session on institutional and cultural conditions for change. They invited representatives from Brazil, Scotland, Australia, and Germany to describe how historical and geographical conditions have shaped their theory and practice, modifications and transformations over time, and related challenges and opportunities. The session began with a conceptual framework for change based on a robust portfolio that accounts for both structure and behavior, while orchestrating transformative and incremental approaches, strategic targeting and general loosening of barriers, and bottom-up and top-down initiatives. The session underscored the need for a systemic approach to rethinking institutional space that bridges organizational structure, administration, and policies; leadership, advocacy, and stewardship; funding; infrastructure and support; recognition and rewards.

The AIS Open Meeting

On Monday of the conference we hosted an open meeting of AIS. The purpose was two-fold: to describe our mission, activities, and resources and to explore with participants ways of serving common interests. Many who were present were representatives and/or members of kindred organizations, such as td-net, Integration and Implementation Sciences (I2S), the Science of Team Science (SciTS) network and the Center for Interdisciplinarity (C4I) Toolbox Dialogue Project. In welcoming participants, Keestra explained how AIS since its birth in 1979 has taken an interest in, on the one hand, assembling best practices for greater consistency and rigor and, on the other hand, appreciating the increasing diversity of approaches. Over the years individual AIS members made connections with other organizations, leading to collaborations and presentations at each other's conferences. At the same time, the Board and larger membership were becoming aware of other sources of diversification. As a result, membership on the Board and the presidency expanded to include Canada and Europe. More recently the AIS mission has also ex-

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plicitly included cultural diversity as an integral component of interdisciplinarity.

Klein then presented an overview of the AIS website and commitment to building a professional community for interdisciplinary studies, including developing standards for learning assessment, program accreditation, and tenure and promotion. Julie further recalled William Newell's reflection on the state of theory in 2013. He admonished AIS to reconsider its mission at a time when the primary locus of activity and funding had shifted from the organization's traditional focus on teaching to research, from undergraduate to graduate students, from humanities and social sciences to natural sciences and medicine, from individual to team activity, and from the ivory tower to real-world stakeholders. Newell highlighted in particular "Transdisciplinary Studies" and SciTS, raising concern they might prioritize teamwork and the "messy world of interpersonal dynamics" over "interdisciplinarity itself," as well as political and social activity and problems of technology over intellectual inquiry into interdisciplinary process.

Rick Szostak then highlighted a number of resources on the AIS website, including the (recently updated) list of publications and the discussion of the Scholarship of Interdisciplinary Teaching and Learning. In addition, he noted AIS links to a variety of kindred organizations and a list of consultants vetted by the association. In devoting particular attention to the "About Interdisciplinarity" and the "Interdisciplinary General Education" sets of webpages, Rick emphasized both resources provide a great deal of advice to interdisciplinary scholars. Each is written in a way that provides brief introductions to important issues then suggests resources for further reading. He also stressed AIS has tried to include references to the literatures produced internationally by scholars associated with several groups represented at the Leuphana conference. In closing, he invited conference attendees to let him know of additional resources that should be mentioned, an invitation Rick also extends to readers of this newsletter.

We were particularly struck by the number of new scholars who had been seeking precisely the sort of information that AIS and other websites provide. This realization reinforced our conviction that increased international collaboration between AIS and kindred organizations could potentially expose more people to the valuable resources each has to offer. We were particularly struck by the number of new scholars who had been seeking precisely the sort of information that AIS and other websites provide.

After the presentations focused specifically on AIS, Keestra mentioned that in 2010 several individuals and most organizations present at Leuphana were involved in an effort to start an International Network of Inter- and Transdisciplinarity (INIT). Its mission was to "provide an international platform for discussion and promotion of interdisciplinary and transdisciplinary research, teaching, and policy." More concretely, INIT aimed to "inventory existing understandings, facilitate and enhance communication, and stimulate new research." Yet after an international symposium, hosted by the Universities of Utrecht and Amsterdam in 2011 on the topic of "Exploring, Mapping and Anchoring the Field of ID and TD," and an online series of "Virtual Seminars on Inter- and Transdisciplinary Horizons," an attempt to obtain funding for a series of symposia failed. Lacking shared practical goals for collaboration and regular contacts between group members, the network could not stay afloat. The AIS Open Meeting was a step toward new conversations about how to foster inter-organizational exchange and collaboration.

The discussion following formal presentations was wide-ranging though two themes stood out: exploring ways of achieving greater cooperation across organizations and, in response to a number of participants who had never heard of AIS, helping them decide whether and how any organization might serve their immediate interests. We were particularly struck by the number of new scholars who had been seeking precisely the sort of information that AIS and other websites provide. This realization reinforced our conviction that increased international collaboration between AIS and kindred organizations could potentially expose more people to the valuable resources each has to offer. When this session was formally at an end, several individuals expressed interest in continuing to talk. So, we remained with them to further explore ideas for inter-organizational cooperation–an aim that would later during the week materialize in a new proposal.

Debating Interdisciplinarity Featuring AIS Responses

On Tuesday of the conference Roderick Lawrence, a member of the td-net board and honorary faculty at the University of Geneva, moderated a

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session in which we addressed current challenges to inter- and trans-disciplinarity. Lawrence linked our session to the INTREPID/COST initiative, funded by the European Union to investigate the nature of interdisciplinarity and its place in the academy. (See below for further discussion of INTREPID.)

Klein responded to two recent books. In making a "case against interdisciplinarity," Jerry Jacobs contends its promises are illusionary, blurring boundaries does not promote more integrated research and teaching, interdisciplinary structures and topics balkanize knowledge by creating more units, and administrative prioritizing shifts power and decision making to centralized control by deans and presidents in the interest of product development and biomedical fields. In glossing the title of his book, *In Defense of Disciplines*, Jacobs rejects the charge disciplines are static "hermetically sealed silos" impeding the flow of ideas, stifling innovation, and thwarting integrated solutions to complex problems. He correctly acknowledges limits of citation analysis, criticizes Penn State's proliferation of separate centers for homeland security, interrogates the narrow promise that application is an integrative force, identifies multiple types of interdisciplinarity in journals, and questions whether it is a transitional phase or permanent form. Yet, Jacobs dismisses terminological distinctions as a "jungle," claims all proponents of interdisciplinarity aim to overthrow the disciplinary system, and ignores literature documenting the variety of majors, complexity of interdisciplinary fields that operate both within and beyond disciplines, and the need for strong communities of practice. In the end, he favors confining interdisciplinarity to centers or institutes, with new hires occurring within departments.

Readers interested in Klein's review of the second book–Harvey Graff's *Undisciplining Knowledge*–can access it in the December 2015 issue of the AIS newsletter (Vol. 37, No. 4). She describes the rich though uneven sets of case studies: comparing Genetic Biology & Sociology, Humanities & Communication, Social Relations & Operations Research, Cognitive Science & New Histories, Materials Science & Cultural Studies, and Bioscience & Literacy Studies. Graff sorts through their trajectories of success and failure: benchmarked in terms of integration and synthesis versus multidisciplinarity. He rightly counters overstated claims but is quick himself to generalize, asserts a science-dominated "standard version" of interdisciplinarity prevails, and dismisses terminologies and typologies. He also claims AIS is not about interdisciplinarity, rather "a miscellany of additive and multiplicative disciplinarities that cannot substitute for problems, questions, and intellectual relationships of knowledge, theory, method and practice." Any field should be subject to critique, but based on deep understanding of its literature. Graff's claim to originality is belied by existing studies of what he claims is unique to his book: including historical and comparative case studies, institutional and organizational factors, the centrality of problems & questions, conflicting definitions and purposes, the vitality of disciplinary relations, and overstated claims, exaggerations, myths, and errors.

Szostak responded to misperceptions in Frickel, et al.'s edited collection *Investigating Interdisciplinary Collaborations*. Readers interested in a fuller account may access Rick's review in the January 2017 AIS newsletter (Vol. 39, No. 1). This volume criticizes an interdisciplinarity, Rick contends, that bears little resemblance to the type generally pursued within AIS. The editors argue proponents of interdisciplinarity consider it superior to disciplines, criticize disciplines as silos that constrain free development of knowledge, seem oblivious to ongoing interactions among disciplines, and purport interdisciplinary interactions are free of status hierarchies and power asymmetries within disciplines. The major question, Rick asked, is whether we should ignore such critiques or respond to them. They clearly have an audience. If we do not define the nature of interdisciplinarity and best practices, he admonished, critics will seize upon other practices and arguments as evidence of the dangers of interdisciplinarity. It is tempting to be sanguine in an era in which granting agencies and university presidents laud interdisciplinarity. However, many chapters

[Rick] Szostak responded to misperceptions in Frickel, et al.'s edited collection Investigating Interdisciplinary Collaborations . . . [which] criticizes an interdisciplinarity, Rick contends, that bears little resemblance to the type generally pursued within AIS . . . The major question, Rick asked, is whether we should ignore such critiques or respond to them . . . . Such critiques of interdisciplinarity, [Machiel] Keestra observed in turn, often assume in addition to continuing fragmentation that the current pluralism and divergence prevalent in academic disciplines make it implausible interdisciplinary integration is a feasible and valid goal.

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document failures of institutionalization, providing fertile ground for those who misunderstand its nature and thereby limit opportunities for quality scholarship

Such critiques of interdisciplinarity, Keestra observed in turn, often assume in addition to continuing fragmentation that the current pluralism and divergence prevalent in academic disciplines make it implausible interdisciplinary integration is a feasible and valid goal. Acknowledging multiple forms of pluralism flourish in most disciplines–e.g., causal, theoretical, methodological, and explanatory pluralism–Machiel questioned implications of pluralism for interdisciplinarity. Is it the only option for integration, as a form of monism in which multiple theories or explanations are reduced to one? Or a plurality of perspectives, each functioning on its own merits and downsides in isolation? One alternative is to seek balance between different perspectives, while rendering explicit aims and background assumptions. Language philosopher Nelson Goodman proposed examining how we shape conceptual categories, constantly weighing whether to revise category boundaries in light of new experiences or observations. Similarly, political philosopher John Rawls proposed an ethical process of "Reflective Equilibrium," in which ethical norms are weighed against each other, with specific theories such as human psychology and economy in a background role. This process accommodates differences between perspectives, while avoiding the Skylla of isolationist or monist forms of interdisciplinarity and the Charybdis of rejecting a possibility of integrating perspectives altogether.

Yet, conceptual frameworks are still needed for solving real-world problems, the role of complexity needs wider recognition, and transdisciplinarity is still hindered by lack of wide credibility and a weak capacity to influence change and guarantee institutional or political support.

Taking Stock

When we wrote our report on the 2009 td-net conference in Berne, we reflected on the state of transdisciplinarity (TD) at the time. We highlighted

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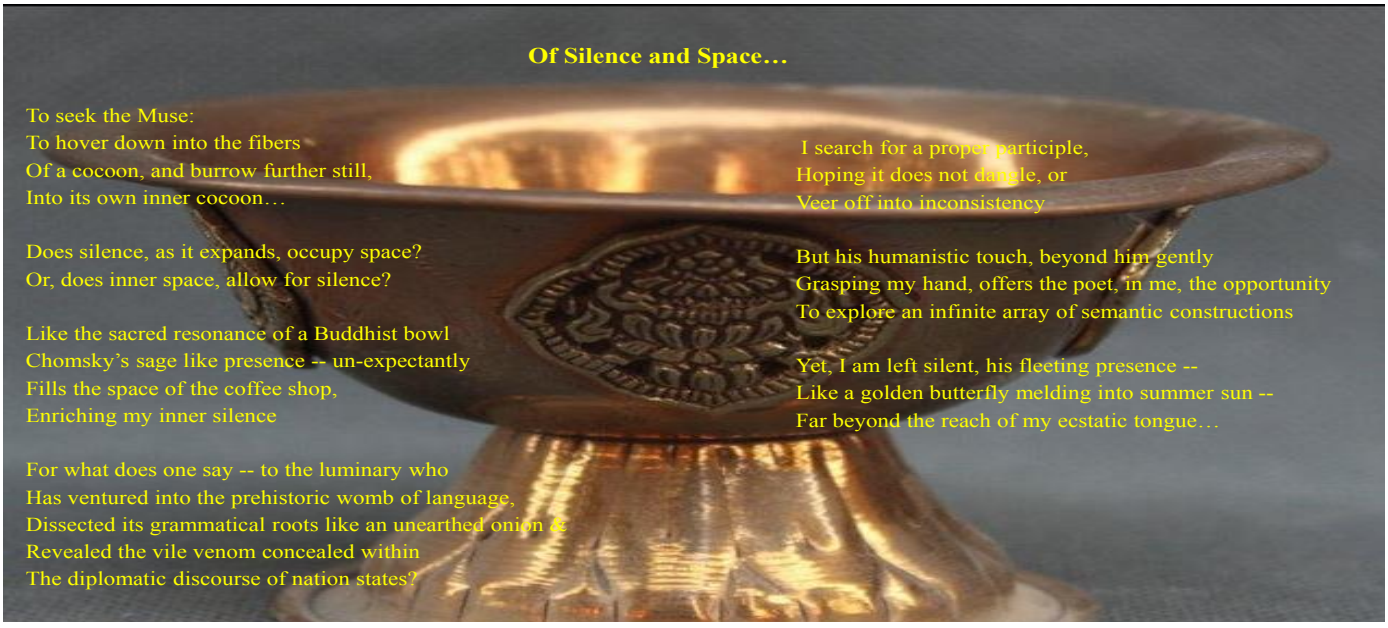
Of Silence and Space

By John DeCarlo



Oct. 11-13 • Wayne State • Detroit

AIS Calls for Proposals for 2018 Fall Conference

The 2018 Association for Interdisciplinary Studies (AIS) Annual Conference, hosted by Wayne State University in Detroit, MI, Oct. 11-13, invites proposals on the conference theme: "'Inter/diversities': Intersecting Race, Gender, Class, Abilities, Theories and Disciplines."

Proposal deadline is April 1, 2018, with responses to presenters by email anticipated by June 1, 2018.

The term, "inter/diversities," has been explored at previous AIS conferences, displaying both broad appeal and depth of meaning and allowing it to be an important, relevant, and timely conference theme for 2018.

According to conference planners, this emergent concept, "Inter/diversities," ranges from going beyond an "either/or" approach to an awareness of multiple definitions of "diversity" at work coinciding simultaneously. This developing term signifies interest in integrating diverse disciplinary insights—a significant feature of interdisciplinary work—while at the same time being aware of and embracing the diversity among people and/or cultures with unique world views.

The Conference Planning Committee welcomes proposals reflecting a variety of formats: papers, workshops, panels, roundtable discussions, poster sessions, and performances that explore interdisciplinary approaches to this far-reaching and important theme. Emerging scholars (graduate or undergraduate students) are especially encouraged to submit.

Proposal topics include:

- Pedagogical issues, such as teaching concepts of inter/diversities in an interdisciplinary studies classroom and teaching diverse student populations.
- Ethnic and/or racial diversities, disabilities, gender, socioeconomic diversity, regional diversity.
- Integrating diversity within the disciplines.
- Theorizing inter/diversities and interdisciplinarity.
- Inter/diversities of abilities.
- Inter/diversities of expression, creative thought and presentation.
- Inter/diversities and activism.
- Inter/diversities of gender, sex, sexuality, and identity politics.
- Inter/diversities and intersectionality.
- Inter/diversities and issues of race, ethnicity, and cultural dominance.
- Inter/diversities and the intellectual history of the disciplines.
- Inter/diversities and science, religion, and spirituality.
- Inter/diversities and social justice.

As always, AIS also welcomes more general presentations that advance its mission to promote the interchange of ideas among scholars, administrators and practitioners in all of the arts and sciences on intellectual and organizational issues related to advancing interdisciplinary studies.

All submissions must be made electronically using the proposal submission form on the 2018 Conference website, which is accessible through the AIS website (http://www.oakland.edu/ais/).

The following are required for all submissions: contact information for presenters and co-presenters, a proposal title (20 words or less), a short description (50 words or less), an abstract (250 words or less), and type of presentation (paper, panel discussion, roundtable, or other). For more information, contact AIS2018@wayne.edu.

Current graduate students (verification of student status is required) are eligible for up to $200 in travel funds if their proposal is accepted. Up to 10 such awards may be granted on a first-come-first-served basis. Anyone who receives a notice of acceptance may obtain more information from AIS Office Manager Shaunda Mankowski (mankowski@oakland.edu).

Call for Proposals

2018 Annual Conference
Association for Interdisciplinary Studies

"Inter-diversities': Intersecting Race, Gender, Class, Abilities, Theories, and Disciplines"

Oct. 11-13
Wayne State University • Detroit, Mi.

Papers • Workshops Panels • Roundtable Discussions •
Poster Sessions • Performances

AIS also welcomes more general presentations that advance its mission to promote the interchange of ideas among scholars, administrators, and practitioners in all of the arts and sciences on intellectual and organizational issues related to advancing interdisciplinary studies.

Deadline for Submissions:
April 1, 2018

Accepted presenters will be confirmed by June 1.

All submissions must be made electronically using the proposal submission form on the 2018 Conference Website, accessible through the AIS website http://www.oakland.edu/ais/

New section focuses on Latin American interdisciplinarity

By Bianca Vienni Baptista
Associate Professor, Academic Department, Espacio Interdisciplinario, Universidad de la República (Uruguay)

In 2016, the Association for Interdisciplinary Studies presented a special section on Latin American interdisciplinarity in its journal (Volume 34, 2016). The collection of articles from across the continent was a first step in understanding related themes and reflections on interdisciplinarity, with the aim of promoting a more interdisciplinary scientific practice. It was based on the premise of reflecting about the challenges faced by interdisciplinary knowledge production, focusing on the institutionalization processes, cultural transformations and characteristics of the communities emerging from these processes.

In the same way, the collection was a response to the renewed interest on interdisciplinary issues in some countries and universities in Latin America, as evidenced by the recent discussion of research methods and dissemination activities that critically engage theory and practice (Vienni, 2016). But it is also constituted a means for reflection by building from our differences (Vilsmaier, personal comm.) and the lessons learned in each continent.

The special section left out other initiatives and experiences from groups and institutions from different Latin American countries. As a second step towards actualizing this significant goal, the Integrative Pathways Newsletter inaugurates a new section to integrate other voices in the discussion of how to foster and improve interdisciplinary education, teaching and research. This section is a compendium of contributions from various Latin American countries revolving around three linchpins: institutions, cultures and communities constructed around interdisciplinary knowledge production. Reflection about these practices constitutes an effort to position the interdisciplinary realm, with an understanding that the local cultural contexts are the foundation upon which to create dialogue.

The different texts that will be presented in this section bring up the need to build an intercontinental dialogue based on interdisciplinary experiences that have been unfolding in different countries and regions for more than five decades . . . .

The different texts that will be presented in this section bring up the need to build an intercontinental dialogue based on interdisciplinary experiences that have been unfolding in different countries and regions for more than five decades (Simini and Vienni, 2017). This history requires a framework with which to reflect about and analyze them in light of certain issues that are currently being imposed on researchers (Vienni, 2016). I hereby suggest naming this emerging field "Studies on Inter- and Transdisciplinarity" (Estudios sobre Interdisciplina and Transdisciplina, ESIT for its acronym in Spanish) (Vienni, 2016). This does not constitute an attempt to build another field of study different from what other authors have already proposed (Darbellay, 2015). Instead, it seems reasonable to think about certain questions that are currently being asked of Latin American researchers (Vienni, 2016).

Some questions were addressed as a standpoint for the contributions from Latin American colleagues, namely:

- What are the main features of interdisciplinary research and teaching in Latin America?
- What lessons can be systematized from those experiences in Latin American universities and academic contexts?
- Which national policies encourage and discourage interdisciplinary programs across Latin America, respecting both cross-cutting and locally situated imperatives?
- What impact does interdisciplinarity have on cultural processes in Latin America?
- What traditions shape interdisciplinary teaching in undergraduate and postgraduate programs?
- How can learning processes for inter- and trans-disciplinary training be constructed that are appropriate to local and hemisphere contexts?

The relevance of these issues lies in their theoretical contributions to interdisciplinarity. The contributions hereby compiled share general goals including: (i) to make the characteristics of interdisciplinary work in Latin America visible to other interdisciplinary communities; (ii) to promote a dialogue between researchers from different countries who face the challenges and opportunities of interdisciplinary and transdisciplinary

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Latin America Initiative

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approaches; and (iii) to construct a common understanding.

Articles in this section utilize diversity as a criterion to illustrate the current development of interdisciplinary research, teaching and outreach in different institutions and organizations in the Latin American continent.

Studies on Interdisciplinarity and Transdisciplinarity

The substantial goal of Studies on Inter– and Transdisciplinarity (ESIT) (Vienni, 2016) is to systematize research into the scope of inter- and transdisciplinary work, and propose developments for the strengthening of these practices in Latin American contexts.

It thus aims to contribute toward the well-founded design of instruments to promote and evaluate knowledge production within the framework of interdisciplinarity and transdisciplinarity in institutions, as well as between universities and other institutions and stakeholders. Likewise, this field can substantially contribute toward the promotion of interdisciplinary studies.

The approach guiding this proposal is based on the field of Science, Technology and Society (Albornoz et al., 1996; González García et al., 1996; Iranzo and Blanco, 1999; López Cerezo and Sánchez Ron, 2001; Pérez Bustos and Lozano Borda, 2011; to mention a few), and Development (Arocena, 2003; Arocena and Sutz, 2001; Arocena et al., 2015).

The consolidation of a field such as the ESIT requires the creation of a platform in which to debate and promote interdisciplinary and transdisciplinary research and teaching. The core of this proposal is: (i) to move forward in the construction of a cognitive analysis of inter- and transdisciplinarity as knowledge producing spaces; (ii) to generate knowledge on inter- and transdisciplinarity; (iii) to enable the emergence of interdisciplinary approaches in different fields (academia, institutions, etc.); and, (iv) to design dynamics to promote interdisciplinarity and transdisciplinarity in different contexts.

In order to define these objectives, it is relevant to conduct research on inter- and transdiciplinary theories and practices, and carry out an exploration of the interdisciplinary nature of certain methodological approaches and how they create and shape research fields and disciplines in particular (Strathern, 2004).

Let's reflect about interdisciplinary practices, the time and the resources they require (Lyall et al. 2010), and the institutional investment needed to construct them. Is it reasonable to think that an effort like interdisciplinary work, which implies institutional, cultural, political, and educational changes, can be linked to the goal of solving the problems faced by underdevelopment.

Examples of this are provided in this issue with the contribution from NGO 360 in Chile. The authors recognize the importance of establishing flexible organizational designs that may allow for the development of a paticipative community and encourage an appropriate appreciation and promotion of transdisciplinary research from a pluralist perspective. The creation of bridges among actors and different types of knowledges are two distinctive features of the work conducted by NGO 360.

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Home-Enhanced Study in Chile/ De Estudio en Casa en El Contexto Chileno

By Laura Olmos Mondaca and Erika Mena Morales
Translated by Nancy Saporta Sternbach
Research Team of NGO 360º

ONG 360º is an organization formed in 2014 of the Fire of Valparaíso, on that occasion a transdisciplinary practice was carried out in an emergency context. After that event, we were forced to form the collective 360º to present a formal proposal to the community. ONG 360º is dedicated to building from Latin America and the Caribbean bases for intelligent development and integration, around the dialogue and the emotion of its groups through the exchange of multicultural tools (Technology in its broadest sense; we will soon write about this with greater depth.) Currently the group has its operating center in Chile, specifically in the City of Viña del Mar and has a team, where transdisciplinarity makes sense builds intelligent, integrating models, methods and Eco-bio-psycho-social-productive theories, to analyze and build on, from and for practice, looking at all angles (360º) where we work with agronomists, psychologists, social workers, culture specialists, educators, engineers, environmental specialists, lawyers, etc.

SUMMARY

One of the greatest challenges educators face is how to keep students engaged in a desire to learn and how to maintain their enchantment with the process. This article proposes a transdisciplinary model, one that enhances the learning process by including the home and other spaces within the Chilean context by suggesting a methodology whose core is motivational activity and construction of learning, both of which permit students to develop holistically in a safe space.

INTRODUCTION

In order to contextualize our proposal, we make reference to the Chilean educational system, which is structured around four levels: preschool (parvularia), basic (básica), intermediate (media) and higher education (superior). Students fulfill these requirements by attending state-supported public schools or private schools, and must pass exams in institutions assigned by the Chilean Ministry of Education (Ministerio de Educación Chileno or MINEDUC). Within this system there are three distinct modalities: standard education (regular), special education (educación especial), and adult education. The entire system is regulated by the Chilean Constitution of 1980, the General Law of Education (LGE), and the Constitutional Education Law (LOCE).

Within the Chilean constitution, the Law of Education proposes that Basic Education should consist of an educational level geared towards an integral formation of students with the understanding that each of the following is part of the Basic Curriculum (LEY GENERAL DE EDUCACIÓN N°20.370, Art. 19) (Bases Curriculares 2013, p. 27-28):

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ONG 360º es una Organización constituida el 2014 a partir del Incendio de Valparaíso, en esa ocasión se realizó una práctica transdisciplinaria en contexto de emergencia. Luego de aquel suceso nos vimos obligados a formar el colectivo 360º para dar a conocer una propuesta formal a la comunidad. ONG 360º se dedica a construir desde Latinoamérica y el Caribe bases para el desarrollo inteligente e integración, en torno al diálogo y el emocionar de sus agrupaciones a través del intercambio de herramientas multiculturales (Tecnología en su amplio sentido), próximamente escribiremos de ello con mayor profundidad. Actualmente el colectivo tiene su centro de funcionamiento en Chile, específicamente en la Ciudad de Viña del Mar y cuenta con un equipo, donde la transdisciplinariedad cobra sentido construyendo modelos, métodos y teorías Eco- bio-psico-social-productivas inteligentes e integradoras, al analizar y construir en, desde y para la práctica, mirando de todos los ángulos (360º) en donde trabajamos Agrónomos, psicólogos, trabajadores sociales, especialistas en cultura, profesores, ingenieros, especialistas medioambientales, abogados, etc.

RESUMEN

Una de las grandes preguntas que se realiza en educación hace referencia a cómo lograr en los estudiantes un deseo por adquirir nuevos conocimientos y encantarse con el proceso de aprender. El presente artículo plantea una propuesta transdisciplinaria que potencia el proceso de aprendizaje en casa en el contexto Chileno, planteando una metodología cuyo eje central es la actividad motivante y la construcción del conocimiento que le permita desarrollarse integralmente en un espacio seguro.

INTRODUCCIÓN

Para dar contexto a la presente propuesta educativa, se hará referencia al sistema educacional en Chile. Éste se estructura en cuatro niveles: parvularia, básica, media y superior. Estos grados se aprueban asistiendo a establecimientos educacionales públicos, subvencionados, privados, o rendir exámenes libres en establecimientos asignados por el MINEDUC (Ministerio de Educación Chileno). La educación escolar considera tres modalidades: educación regular, educación especial y educación para adultos. El sistema educacional es regulado por la Constitución Política de la República de Chile de 1980, la Ley General de Educación (LGE) y la Ley Orgánica Constitucional de Enseñanza (LOCE).

La Ley de Educación chilena plantea a la Educación Básica como el nivel educacional que se orienta hacia

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Physical: Includes caring for the self and mutual respect for others. Valuing and respecting one's body, promoting physical activity and healthy habits for life.

Emotional: Personal growth and development of students through an understanding of their personal identity, and strengthening of their self-esteem and self-worth. Development of friendships, value of their role in their families and peer groups, and a thoughtfulness regarding their actions and life decisions.

Cognitive: The objectives of the cognitive dimension are oriented towards knowledge acquisition and understanding of reality. Students develop of analytical capacities, research, and theorizing. They are taught critical purposeful thinking when faced with new problems and challenges.

Socio–cultural: These objectives situate students as citizens of a democratic entity, engaged with their surroundings and with a sense of social responsibility. This dimension promotes the capacity and skill to develop multiple styles of social interaction based on mutual respect and peaceful resolution of conflicts. Their knowledge includes appreciation of their environment and the groups with which they are engaged.

Moral: This dimension suggests that students be trained to formulate ethical judgments concerning their reality when facing moral dilemmas. Using their knowledge of and adherence to human rights as fundamental critical criteria as tools that orient their personal and social behavior.

Spiritual: This dimension asks students to reflect on their own sense of their human existence, its purpose, finality and transcendence, in such a way that they begin to search for answers to life's larger questions.

We have given the example of the Chilean educational system as a basis from which to develop our own methodology of transdisciplinary education which uses the home and other common spaces as learning environments.

MUTUALLY-AGREED UPON CONCEPTS FOR THE DESIGN OF THE PROPOSAL

Transdiscipline as an epistemological research tool:

In this case study, the task force chose the following criteria as the basis for the terminology to be used in the project:

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la formación integral de los alumnos (LEY GENERAL DE EDUCACIÓN N°20.370, Art. 19) Y se entiende cada una de estas dimensiones como (Bases Curriculares 2013, p. 27-28):

Física: Integra el autocuidado y el cuidado mutuo, y la valoración y el respeto por el cuerpo, promoviendo la actividad física y hábitos de vida saludable.

Afectiva: Crecimiento y desarrollo personal de los estudiantes a través de la conformación de una identidad personal y del fortalecimiento de la autoestima y la autovalía, del desarrollo de la amistad y la valoración del rol de la familia y grupos de pertenencia, y de la reflexión sobre el sentido de sus acciones y de su vida.

Cognitiva: Los objetivos que forman parte de esta dimensión orientan los procesos de conocimiento y comprensión de la realidad; favorecen el desarrollo de las capacidades de análisis, investigación y teorización, y desarrollan la capacidad crítica y propositiva frente a problemas y situaciones nuevas que se les plantean a los estudiantes.

Socio–Cultural: Los objetivos de esta dimensión sitúan a la persona como un ciudadano en un escenario democrático, comprometido con su entorno y con sentido de responsabilidad social. Promoviendo la capacidad de desarrollar estilos de convivencia social basadas en el respeto por el otro y en la resolución pacífica de conflictos, así como el conocimiento y la valoración de su entorno social, de los grupos en los que se desenvuelven y del medioambiente.

Moral: Promueve que los estudiantes sean capaces de formular un juicio ético acerca de la realidad, situándose en ella como sujetos morales. Contemplando el conocimiento y la adhesión a los derechos humanos como criterios éticos fundamentales que orientan la conducta personal y social.

Espiritual: Esta dimensión promueve la reflexión sobre la existencia humana, su sentido, finitud y trascendencia, de manera que los estudiantes comiencen a buscar respuestas a las grandes preguntas que acompañan al ser humano.

Para la realización de la propuesta metodológica se plantea como base el contexto de la educación Chilena, antes expuesta, como base para proyectar una propuesta educativa transdisciplinaria en casa.

CONCEPTOS CLAVES CONSENSUADOS PARA

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• Transdisciplinarity intentionally crosses disciplinary borders and gives rise to other kinds of knowledge construction; however, it does not, stop at "interactions and reciprocal ties between knowledges bases and specialized research, but rather situates these relations between disciplines, inside a system without borders between disciplines" (Piaget, 1972:138).

• Transdisciplinarity is not a new discipline, and a transdisciplinary researcher is not some new kind of specialist. The solution would be to create workshops for transdisciplinary research within every teaching institution. These workshops would be the locus for gathering together a group of teachers and students from a particular institution who generate and oversee their own organization and are all animated by the transdisciplinary attitude. The same experiment could be carried out within various enterprises, and within other collectives, as well as within national and international institutions. (Basarab Nicolescu, 2013).

• Only in action we can build bridges between different levels of perception and reality, such as our emotions, intuition, our body, our mental and our analytical capacities. It is in action that the hidden third comes into being. (Basarab Nicolescu, 2013).

• Transdisciplinarity is a new form of learning and problem solving, involving cooperation among different parts of society and academia in order to meet the complex challenges of society. Transdisciplinary research starts from tangible, real-world problems. Solutions are devised in collaboration with multiple stakeholders. A practice-oriented approach, transdisciplinarity is not confined to a closed circle of scientific experts, professional journals and academic departments where knowledge is produced (Klein et al. 2001).

Within the ONG 360º community, the concept of transdisciplinarity relies on the fact that we believe that research should emerge from the necessities of a community (Minutes, "Diálogos" ONG 360º) based on the knowledge and experiences of that community as a whole. We begin by initiating research methods consistent with knowledge production and problem solving, which is when transdisciplinarity as a tool takes on relevance. It is then that we see barriers breaking down between the interface of science and society. Our goal is to engage multicultural tools with the aim of bilateral flow of knowledge.

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EL DISEÑO DE LA PROPUESTA

Transdisciplina como visión epistemológica y práctica de investigación:

Para este caso de estudio, las principales concepciones base seleccionadas por el equipo de trabajo para la conversación, y que posteriormente dan pie a los conceptos consensuados, fueron las siguientes:

• La transdisciplina está relacionada con el cruce de fronteras disciplinares y de otro tipo de saberes en la construcción del conocimiento; sin embargo, no se detiene en las "interacciones y reciprocidades entre conocimientos e investigaciones especializadas, sino que sitúa esas relaciones entre disciplinas al interior de un sistema sin fronteras entre las disciplinas" (Piaget, 1972:138).

• La principal tarea es la elaboración de un nuevo lenguaje, de una nueva lógica, y de nuevos conceptos que permitan un diálogo genuino entre diferentes dominios. La transdisciplinariedad no es una nueva disciplina, una herramienta teórica, o una super-disciplina. Es la ciencia y el arte de descubrir puentes entre diferentes objetos y áreas de conocimiento. (Basarab Nicolescu,1987)

• Este tipo de investigación surge desde los problemas tangibles del mundo real y sus soluciones son concebidas de manera colaborativa entre distintos actores. Siendo una aproximación orientada a la práctica, la transdisciplinariedad no está confinada a un círculo cerrado de expertos científicos, publicaciones especializadas o departamentos académicos universitarios: idealmente, todo aquel que tenga algo para decir sobre un problema particular y desee participar tiene un rol para cumplir. (Klein et alt. 2001.)

El concepto de transdisciplina que emerge desde la comunidad ONG 360º considera que las investigaciones emergen de las necesidades de la comunidad (Actas diálogos ONG 360º) a partir de los conocimientos y experiencias de la comunidad completa, se inician procesos de investigación para la generación de conocimiento y resolución de problemas y necesidades, es entonces que la actividad transdisciplinaria toma relevancia al desaparecer la "barrera" de la interfase ciencia sociedad, dando paso al intercambio de herramientas multiculturales y por consecuencia en la generación y traspaso bidireccional de conocimientos.

A partir del contexto Chileno y propuesta de Transdisciplina consensuada se desarrolla el siguiente modelo o esquema para representar los diálogos, consensos para

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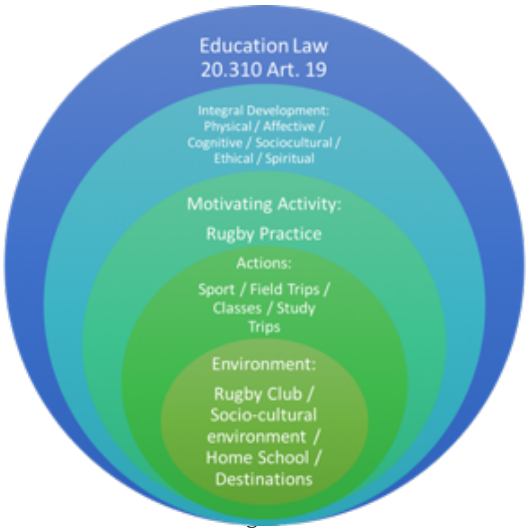
Using Chile as a case study, our Transdisciplinary approach and proposal have been developed through the following model (Figure 1) to represent our educational aims through dialogue and consensus. In this model, we use as a base an Educational Ecosystem which grows out of our national legislative context and general Educational goals set out by the government of Chile. Finally, we address each student's needs, activities, and actions such as sports, study and field trips, formal classes, all within the context of the locality where these activities occur: physical spaces within the context of social, cultural, environmental and relational factors.



Motivational Activity

At the present time, the development of a student's abilities is precisely what is required in order for that student to become involved in the acquisition of and possession of knowledge. In this new era, they must also develop creativity, critical thinking, and the ability to work in groups and collaborate.

Our work stems from the question of what happens when a student lacks the motivation to generate all these learning processes? According to Cabanach's discussion: "We can affirm that learning is characterized by a cognitive as well as a motivational process simultaneously" (G. Cabanach et al., 1996, p. 9).

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el desarrollo de la propuesta educativa (Figura 1). En el cual pone como base del Ecosistema-educativo, el contexto Legislativo y directrices Educativas del Gobierno de Chile. Luego el tema trascendente para el niño, donde se vincula las actividades y acciones como deporte, salidas a terreno, clases formales, viajes de estudio y finalmente los espacios: físicos, sociales, culturales, ecológicos, relacionales.

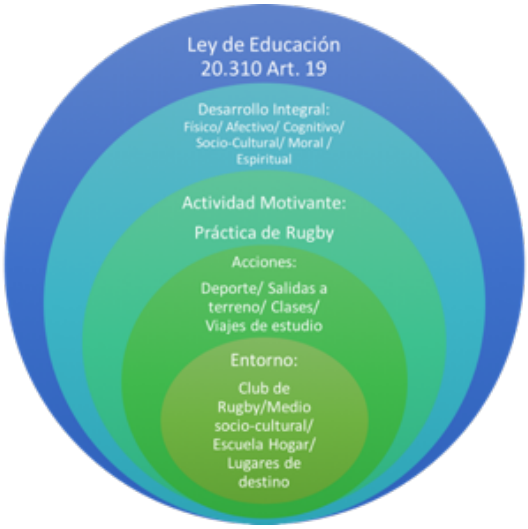

Figura 1

Actividad Motivante

En la actualidad se requiere el desarrollo de habilidades que permitan a un estudiante desenvolverse ante el acceso a la información y todos los requerimientos de esta nueva era, necesitando desarrollar creatividad, pensamiento crítico y colaboración.

Pero qué ocurre si un alumno no tiene la motivación para generar procesos de aprendizajes, ya que como lo plantea Cabanach "Se puede afirmar que el aprendizaje se caracteriza como un proceso cognitivo y motivacional a la vez" (G. Cabanach et al., 1996, p. 9)

El significado básico que toda situación de aprendizaje

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We begin with the basic common denominator that all learning situations must create the possibility for students to increase their capacities, making them more competent, and helping them enjoy the use of those capacities. (Dweck & Elliot, 1983; Alonso Tapia, 1997a). When this happens, we say that students are "intrinsically motivated" (Deci & Ryan, 1985), and capable of become absorbed in their work with no sign of boredom or anxiety (Ciskcentmihalyi, 1975). In this state, they search for information spontaneously and only ask for help if they really need it to solve a problem (Jagacinsky, 1992). All of this makes them able to autoregulate their learning process in such a way that they begin to address learning as a personal achievement.

We begin with a concept that we have defined as motivational activity (henceforth designated as MA), which we consider an interest that motivates students. Falling into this category are: Those activities that spark my interest in my own development and incentivize me to to generate other activities where effort, time and resources are not the factors that measure my success. For example: interest in a playing a musical instrument, learning dance, playing a sport, and many others would qualify here. When we consider students from the point of view of their MA, everything begins to make sense, for this perspective allows them to focus on their personal development in an integral manner consistent with their sense of interest. Once we perceive these multiple planes that contribute to long and short-term learning, then we begin to notice an increase in interest and effort on the part of the student. (Alonso Tapia, in press, a & b).

In order for students to be able to recognize and then express which activity is the motivational one in their lives, they must already be comfortable and acclimatized to a Safe Space (henceforth designated as SS), which we define as a physical space whose dynamic incorporates respectful interpersonal relationships among those people in that space and consequently generates confidence and trust to express opinions and feelings.

CASE STUDY: PARTICIPANTS AND METHODOLOGY

General Objectives:

• To generate meaningful learning environments for a 14-year-old student in year 8 of Basic Education. For example, playing Rugby.

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debería tener para los estudiantes es el que posibilita incrementar sus capacidades, haciéndoles más competentes, y haciendo que disfruten con el uso de las mismas (Dweck y Elliot, 1983; Alonso Tapia, 1997a). Cuando esto ocurre se dice que el alumno trabaja intrínsecamente motivado (Deci y Ryan, 1985), siendo capaz de quedarse absorto en su trabajo, superando el aburrimiento y la ansiedad (Ciskcentmihalyi, 1975), buscando información espontáneamente y pidiendo ayuda si es realmente necesaria para resolver los problemas que encuentra (Jagacinsky, 1992), llegando a autorregular su proceso de aprendizaje que, de un modo u otro, llega a plantearse como el logro de un proyecto personal.

Si se considera el interés que motiva al alumno y que se puede definir como actividad motivante (la que en adelante se designará como AM), entendiendo este concepto como aquella actividad que mueve mi interés por desarrollarme y que me incentiva a generar actividades que no miden esfuerzos, tiempos y recursos para poder realizarlas. Como por ejemplo: interés por tocar un instrumento musical, practicar baile, un deporte, entre otras. Cuando se considera al estudiante desde su AM todo cobra sentido, ya que se puede focalizar todo su desarrollo de manera integral con un sentido de interés. En la medida en que se perciban las múltiples utilidades -a corto y a largo plazo- que puede tener aprender algo, aumenta la probabilidad de que el interés y el esfuerzo se acreciente (Alonso Tapia, en prensa a y b).

Para que un Estudiante pueda reconocer y expresar cuál es la actividad motivante en su vida requiere estar inserto en un a ambiente seguro (lo que se asigna como AS), es decir, aquel lugar físico que incorpora una dinámica de relaciones interpersonales de respeto entre quienes la conforman y que por consecuencia provocan en el estudiante la confianza para expresar opiniones y su emocionalidad.

PARTICIPANTES Y METODOLOGÍA

Objetivo General:

• Generar aprendizajes significativos a un estudiante de 8º año básico de 14 años de edad, desde su Actividad Motivante, la práctica del Rugby.

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Specific Objectives:

• To generate a transdisciplinary educational proposal of home-enhanced study as a case study.

• To establish and incorporate interpersonal and participatory transdisciplinary concepts and methodologies for educational development in a communal environment.

Work Team:

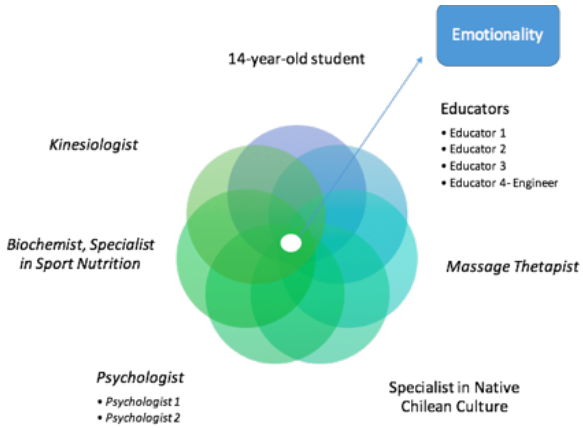

Figure 2

Work Spaces:

1. **A Safe Space**: The student's home where various intergenerational family members reside: Grandmother (educator and massage therapist, 61), aunt (educator and academic secretary, 36), uncle (specialist in native Chilean culture and analyst, 29), close family friend (Educational psychologist, 29), mother (education specialist and businesswoman, 45) and Jacke, family pet (Cocker Spaniel, 8).

2. **Rugby Club**: Purpose-built space with specialized personnel for the sport.

3. **Socio–cultural Space**: Includes field trips to cultural sites such as cities, museums, work spaces of family members (as sources of information and points of interaction and development).

4. **School-at-Home**: A space in the home whose purpose is for classroom use. It will include blackboards, projector, audio system and other technological resources for pedagogical interaction and student-generated knowledge and practices.

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Objetivos Específicos:

• Generar una propuesta de educación transdisciplinaria en casa, en un estudio de caso.

• Establecer conceptos y metodología transdisciplinaria para el desarrollo integral, de forma comunitaria y participativa.

Equipo de trabajo:

Figura 2

Espacios de desarrollo:

1. **Espacio Seguro**, su hogar en donde se relaciona con abuela (docente y masoterapeuta de 61 años), tía (docente y secretaria académica de 36 años), tío (especialista en Cultura Tradicional y Analista de 29 años), tía cultural (Psicóloga Educacional de 29 años), madre (especialista en educación y empresaria de 45 años) y Jacke (Perro Cocker Spaniel, mascota de la casa de 8 años).

2. **Club de Rugby**, espacio condicionado y con los especialistas para la práctica del deporte.

3. **Espacio Socio–Cultural**, que incluye los lugares que visita, como museos, ciudades, lugares de trabajos de familiares y conocidos como fuentes que proporcionan información e interacción de desarrollo.

4. **Colegio en Casa**, espacio en el hogar para destinar a la realización de clases formales que incluye pizarras, proyector, sistema de audio, entre otros recursos para la interacción pedagógica y generación de aprendizajes y conocimientos.

5. **Viajes de exploración**, son oportunidades de trasla-

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5. **Travel**: Exploratory opportunities to new destinations to interact with rugby teammates, their families, and other people related to the sport.

Step-by-step Methodology

Phase I: ***Group Diagnosis***. The first and most crucial step for work to begin is for the group as a whole to define the situation, outline the problem, harness resources, and gather study materials. Included in this phase are the emotional components of the group in general and the student in particular. Once the group has defined the situation, specified the need, this step can segue into Phase II.

Phase II: Consensus and Dissent. In this phase, we invite participants to suspend their beliefs and put "objectivity" aside or, as Maturana has written: "under objectivity in parenthesis each versum of the multiversa is equally valid if not equally pleasant to be part of, and disagreements between observers, when they arise not from trivial logical mistakes within the same versum but from the observers standing in different versa, will have to be solved not by claiming a privileged access to an independent reality, but through the generation of a common versum through coexistence in mutual acceptance. In the multiversa coexistence demands consensus, that is, common knowledge." (Maturana, 1996). Consensus and dissent are what enrich the possibility of a common language, and they generate complicity and synergy in the work team.

Phase III: Plan of Action: Design and Execution of the Project. In this stage of the research, we plan to solicit a vision from each member of the community. Crucial to the success of the project is a constant meta-discussion in order to design and evaluate the investigative progress and the execution of the project itself. A minimum of one week in which all participate would give students an opportunity to dialogue and reflect on on their learning using the learning tools that we have outlined: techniques, scene analytics, investigative methodology, general system theory, Delphi method, brainstorming, etc.

Phase IV: Evaluation and Diffusion among communities. In this case, two forms of evaluation were established: the first was to measure according to the parameters established, utilized and chosen by Integral Education in the Basic Chilean system; the second was to establish networks to disseminate the project and the feedback with other learning communities.

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darse a un destino para interactuar y compartir con sus compañeros y/o personas relacionadas a la práctica de rugby.

Fases Metodológicas

Fase I: Diagnóstica comunitaria. Se plantea que para iniciar una investigación, el precursor clave es la necesidad de la comunidad, la que define el problema o elementos de estudio y posterior desarrollo, desde una emocionalidad base, una necesidad. Una vez que la comunidad nuclear reflexiona sobre lo que sucede dando figura a la necesidad, es que finaliza la etapa uno dando lugar a la siguiente.

Fase II: El consenso y disenso. Esta fase es una invitación a suspender los supuestos y poner la objetividad entre paréntesis, como dice Maturana "bajo la objetividad entre paréntesis cada versum del multiversa es igualmente válido si bien no como parte idénticamente idónea del conjunto, y los desacuerdos entre los observadores, cuando surgen no de errores lógicos triviales dentro del mismo versum, sino de la posición de los observadores en diferentes versa, tendrán que resolverse no por el reclamo de un acceso privilegiado a una realidad independiente, sino mediante la generación de un versum común a través de una coexistencia de aceptación mutua. En el multiversa la coexistencia exige consenso. esto es, un saber común" (Maturana, 1996). El consenso y disenso es un elemento enriquecedor que genera un lenguaje en común, complicidad y sinergia en el equipo de trabajo.

Fase III: Plan de acción de investigación y ejecución del diseño del proyecto, obteniendo una visión compartida de cada uno de los participantes y/o comunidad escolar. En esta fase es crucial establecer una constante meta discusión tanto como para diseñar, o evaluar la realización del proceso investigativo y ejecución del proyecto educativo, con una periodicidad mínima de una semana en donde todos participan y el mismo niño dialoga y reflexiona de su mismo aprendizaje, utilizando técnicas, análisis de escenarios, método de sondeos, teoría general de sistemas, método Delphi, lluvia de ideas, etc.

Fase IV: Evaluación y difusión entre comunidades, en este caso se estableció dos formas de evaluación, la primera es medir de acuerdo a los parámetros de educación Integral, debido al modelo utilizado y escogido (Bases curriculares Chilenas) y en segundo lugar esta-

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RESULTS

The challenge begins to articulate "integral development" considering each one of its components:

Physical: In this area, we consider that playing a sport (the membership in the rugby club) three times a week serves as a propeller for physical conditioning and development of the student. Whether this takes place on the grounds of the club itself or involves other group or team activities, the student is fully integrated into the matches and activities of the club. We complement this athletic conditioning with the acquisition of new knowledge concerning healthy eating habits. A biochemist specializing in the nutrition of high-performance athletes is brought in and students follow a regime based on knowledge of their own bodies.

Emotional: An upsurge in self esteem and a respect for one's being are components of weekly sessions with a psychologist who, though not part of the community, evaluates and exchanges tools with members of the group to determine questions such as: self-perception, tolerance for frustration, self-knowledge, generation of expectations and achieving goals.

Cognitive: Using the game of rugby as a base, a specialist in education is brought in to match the basic requirements as established by Chilean law with examples from the sport. In this manner, for example, using subjects such as History and Geography, rugby is understood in its world context and national context following major historic events on the international scene and in Chile. In the area of Natural Science, the body is studied in its relation to the sport: its capacity, its use of healthy food and the process of nutrition as it might apply to a rugby player, knowledge of injuries and how to prevent them, among other useful scientific facts.

Socio-cultural: In this area, again we use Rugby as our base: the knowledge of the rules of the sport, the values imparted by the sport, how to implement the rules when applied to relationships with team members, opponents, romantic relationships, and how to incorporate these into a way of life.

Moral: Knowledge of the values of respect as delineated in the sport. Alignment of the way of behaving in the world as an ethical person who observes, evaluates and decides how to put their values into practical use in their daily lives.

Spiritual: Within the Safe Space, and at appropriate times, students are given the potential to reflect on their

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blecer redes para la difusión de la propuesta y retroalimentación con otras comunidades de aprendizaje.

RESULTADOS

Comienza El desafío de plantear un desarrollo integral considerando cada uno de los aspectos:

Físico: en esta área se considera la práctica en sí del deporte potenciando la integración del alumno en un club de rugby, en donde se entrega el desarrollo del condicionamiento físico tres veces por semana en un gimnasio de propiedad del club y la entrega de técnicas en la práctica del deporte, a través de actividades de cancha junto al equipo de M-14 tres veces por semana, además de participar en partidos organizados por el club.

Esta actividad deportiva se complementa con la adquisición de conocimientos de alimentación saludable entregada por un especialista en alimentación para deportistas de alto rendimiento, (bioquímico) quién además lleva un seguimiento de sus avances en su estructura física.

Afectivo; se potencia su autoestima y la valoración de su ser a través de sesiones semanales con una psicóloga externa a la comunidad, quien acompaña, evalúa e intercambia herramientas en relación a su autopercepción, tolerancia a la frustración, autoconocimiento, generación de expectativas y metas.

Cognitivo: desde el desarrollo de esta área una especialista en educación plantea la adquisición de conocimientos planteados como mínimos por el MINEDUC, articulados a la temática de rugby según los consensos y diseño del proyecto. Como por ejemplo: desde los contenidos de Historia y Geografía el conocimiento de la formación del deporte articulando a los acontecimientos históricos universales y de nuestro país. En los contenidos de Ciencias Naturales el poder entender el funcionamiento de su cuerpo para poder potenciar su rendimiento en el deporte, conocimiento de alimentación saludable para generar un proceso de nutrición requerida para un rugbista, conocimiento de lesiones y cómo prevenirlas, entre otros conocimientos.

Socio–Cultural: desde esta área se considera el conocimiento de las reglas y valores planteados por el Deporte Rugby, para ser aplicadas como forma de relacionarse entre compañeros, con sus oponentes, entre pares e incorporarlos como forma de vida.

Moral: El conocer los valores de respeto planteados por el deporte, se alinea la forma de actuar como una persona ética que observa, evalúa y decide aplicarlos en

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lives as students, visualizing and projecting in this interactive process their own transcendence as future members of society.

CONCLUSION

• When students are sure of their MA, their interest changes and they begin to achieve meaningful learning experiences.

• When students are included in the thinking process, and when they think about the thinking process, no matter their age, their vision is receptive to an exchange of knowledge. This entails a systemic vision of their needs, of really putting "objectivity in parenthesis," and the true generation of knowledge from a transdisciplinary perspective. Such a process prepares students to become leaders, problem solvers, investigators and actors in the exchange of multicultural tools. In this way, they become both researchers and problem solvers by forming egalitarian and sustainable relationships within their own communities.

According to David Ausubel, this kind of learning has the significance of permitting students to relate their new knowledge with information they already possess to become "a person who learns." Such relationships must be "substantive and not arbitrary," Ausubel argues. This means that learners must give meaning to what they want to learn, and this is only possible when it comes from a base of what they already know, modified by outlines and structures that are personalized for their particular learning situation.

In order for these learning situations to function, new cognitive learning structures have to be established. This is not only so that new knowledge can be assimilated, but also because of the revision, modification, and enrichment that these new connections and relationships entail among each other. For example, significant memorization arises from the same assimilation and integration since what has been learned not only integrally modifies the structure but also modifies what has been integrated. For that reason, there is no rote memorization, no word-by-word reproducing of what the professor said. We may summarize by the phrase: Whatever I learn, I understand. And if I understand it, I can express it in my own words.

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sus relaciones diarias.

Espiritual: en los momentos de reflexión propiciados en su espacio seguro, se potencia la reflexión sobre las proyecciones de vida del estudiante, visualizando en este proceso de interacción su trascendencia y proyección futura como miembro de la sociedad.

CONCLUSIÓN

Cuando el estudiante tiene clara cuál es su AM, su interés cambia y llega a lograr aprendizajes significativos.

Cuando el estudiante es parte del pensar y de pensar el pensar, cual sea su edad, abre su visión al intercambio de conocimiento, a la visión sistémica de las necesidades, a la puesta entre paréntesis de la objetividad, y generación del conocimiento desde la transdisciplinariedad, preparándolo para ser un acompañante del intercambio de herramientas multiculturales y un líder en la solución de problemas e investigación en la comunidad que pertenece, de forma horizontal y sustentable.

Para David Ausubel un aprendizaje tiene significatividad, si le permite relacionar el nuevo conocimiento con el conocimiento que ya posee, a la persona que aprende. Estas relaciones deben ser "sustantivas y no arbitrarias" exige Ausubel. Así que quien aprende debe darle significado a aquello que quiere aprender y esto solo es posible a partir de lo que ya se conoce y mediante la modificación de esquemas y estructuras pertinentes con la situación de aprendizaje.

La funcionalidad de un aprendizaje se establece a partir de que las nuevas estructuras cognitivas permiten, no solo asimilar los nuevos conocimientos, sino también su revisión, modificación y enriquecimiento, estableciendo nuevas conexiones y nuevas relaciones entre ellos. La memorización significativa surge de la misma asimilación e integración, ya que lo aprendido no solo modifica la estructura que integra sino también aquello que se integra, esto impide la reproducción nítida, exacta y precisa. Aquello que aprendo, lo comprendo y si lo comprendo, lo puedo expresar con mis propias palabras.

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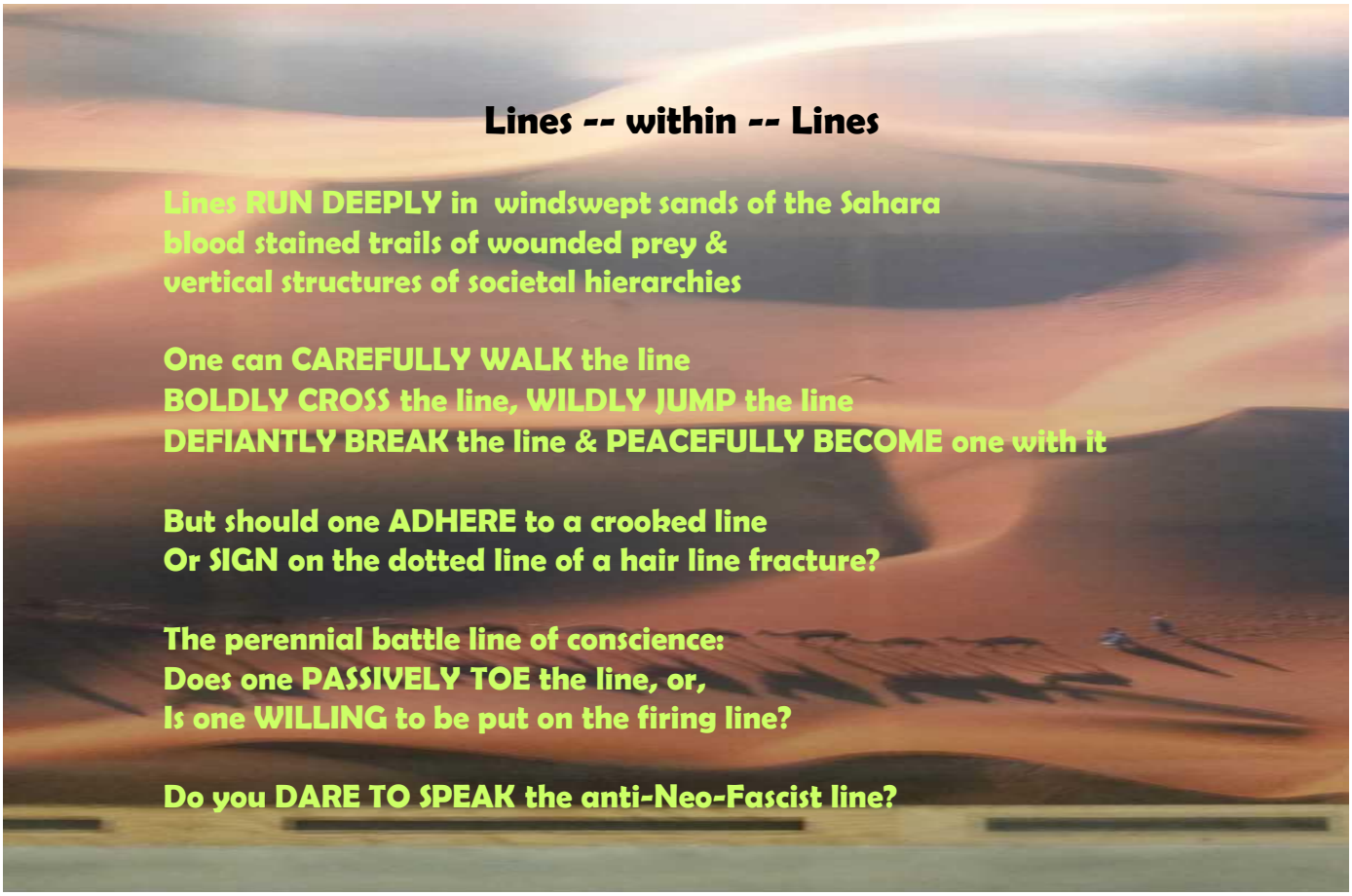
A Poem by John DeCarlo



Summer Symposium set for June 1-2 in Hamden, Ct.

Registration is now open for the 2018 Symmer Symposium of the Collaborative for Interdisciplinary and Integrative Studies, based at the College of Arts and Sciences at Quinnipiac University.

Registration fee is $100, and registration is available through May 1. Meals are included with the fee.

Plenary speakers for the symposium include Kwami Coleman, assistant professor at New York University, and Robert Frodeman, professor of philosophy and religion at the University of North Texas.

Coleman is a musician, composer, and musicologist specializing in improvised music. His research interests incude histories of experimentalism in music, jazz historiography, the music of the African diaspora, music aesthetics and technology, political economy, and cultural studies.

Coleman is a founding member of the Afro-Latin@Forum, a nonprofit organization devoted to the study and and increased visibility of Latinos of African descrnt in the United States, affiliated with NYU's Steinhardt School. In 2017, he released his debut album, *Local Music.*

Frodeman is the founding director of the Center for Study of Interdisciplinarity. He is the author of several articles and books on interdisciplinarity, including *Sustainable Knowledge: A Theory of Interdisciplinarity* (2013) and he served as editor-in-chief of the *Oxford Handbook of Interdisciplinarity* (2017), now in its second edition.

Frodeman's research interests include continental philosophy, environmental ethics and philosophy, philosophy of science policy, and science and technology studies.

The mission of the Collaborative for Interdisciplinary and Integrative Studies is to afford students and faculty opportunities to put into practice the relevance and value of the arts and sciences for their everyday lives.

Participants may contact the Best Western Plus North Haven Hotel, 201 Washington Ave., North Haven, CT, 06473. A block of rooms has been set aside at a special rate for the Quinnipiac Summer Symposium.

Further information may be obtained from Dr. Mary Paddock, Director for the Collaborative for Interdisciplinary/Integrative Studies, at 203-582-8951 or mary.paddock@qu.edu.

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in particular expansion of the earlier definition of TD as an overarching synthetic framework to involve stakeholders in the research process on societal problems. In a closing address for the Leuphana conference Klein tallied progress over time, building on Roderick Lawrence's closing keynote at the Basel meeting in 2015 in which he tallied strengths and limits of inter- and trans-disciplinarity to date.

• In the realm of *Publications,* Lawrence depicted significant increases measured by bibliometric tools. They are partial indicators, however, since major databases such as Web of Science and Scopus do not capture books, chapters, and regional non-English authors from social sciences, humanities, and some applied fields. They also omit reports that assess progress and miss some socially relevant interactions. Adding books, as well, affirms Lawrence's journal-based measurement, including works of td-net scholars such as the 2007 *Principles of Transdisciplinary Research* and the 2008 *Handbook of Transdisciplinary Research*. Two special issues of the journal *Futures* in May 2004 and January 2015 tracked further developments. And, the topic of transdisciplinarity has expanded presence in particular domains: including Doucet & Janssens' 2011 collection on Transdisciplinary Knowledge Production in *Architecture and Urbanism* and Huutoniemi & Tapio's 2014 anthology *Transdisciplinary, Sustainability Studies.*

• *Theoretical Advances* of transdisciplinarity, Lawrence reflected, are marked by a growing body of concepts, definitions, and models. Yet, conceptual frameworks are still needed for solving real-world problems, the role of complexity needs wider recognition, and transdisciplinarity is still hindered by lack of wide credibility and a weak capacity to influence change and guarantee institutional or political support. The INTREPID/COST initiative featured in Monday and Tuesday sessions of the Leuphana conference affirmed the challenge of capacity: contrasting widening rhetoric of support for interdisciplinarity with limited influence on science policy, funding, and academic status, structure, governance. INTREPID is aimed at

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informing the next EU programming period (FP9) and final phase of the Horizon 2020 project.

• The strengths of *Methodological Advances* include a shift from conventional knowledge production to innovative processes and civic science activities that redefine contributions of stakeholders. Yet, integrated strategic research projects are still needed to address broad social and political dimensions of research. That said, in recent years new scholarship on methodology has advanced the repertoire of approaches: including the work of Bergmann, et al. comparing transdisciplinary methods; and MacDonald, et al. on dialogue methods. The 2017 conference also included a Monday workshop on the methodological framework of "Generic Picturing" and a Thursday session on "Methods & Methodologies Revisited."

• *Looking Back to the Future*, Lawrence continued, strengths include building on achievements, accounting for fundamental values, and calling attention to the crucial role of social sciences and humanities and arts. Yet, the plurality of transdisciplinarity still needs to be recognized rather than privileging particular approaches, expanding for example to include translational sciences and empowering stakeholders. Our participation in the session on debating interdisciplinarity, discussed above, is an example of responding to narrow conceptions, along with parallel sessions at Leuphana on facilitating institutional change, presenting philosophical and action-oriented perspectives on transdisciplinarity, and making implicit heterogeneities visible.

• In weighing *Advances in Higher Education*, Lawrence noted a number of strengths including active learning practices, team teaching, contributions of humanities and social sciences, and recognition of cultural dimensions. Multidisciplinary teaching, though, is often more comfortable than integrated approaches, scientific knowledge still tends to dominate, and the added value of transdisciplinarity is not fully appreciated by academics and students. A forthcoming volume on transdisciplinarity and learning, though, signals new understandings: *The Art of Collaborative Research and Collective Learning*, subtitled *Transdisciplinary Theory, Practice, and Education,* is edited by Dena Fam, Linda Neuhauser, and Paul Gibbs. Parallel sessions at Leuphana also tracked an expanding repertoire of approaches including transformational learning, brokering beyond education, and building student capacity to address complex societal challenges.

Multidisciplinary teaching, though, is often more comfortable than integrated approaches, scientific knowledge still tends to dominate, and the added value of transdisciplinarity is not fully appreciated by academics and students.

At this historical point, inter- and trans-disciplinary research and education also entail multiple forms of boundary crossing involving more than academic "disciplines," implied in their names. Four developments stand out. In addition to the prominence of stakeholder inclusion in research, aimed at co-producing more "socially robust knowledge," research is taking place increasingly across boundaries of the academy, government and industry. Although often conflated with the term "interdisciplinary," the growing practice of "interprofessionalism" also signals renewal of research and patient care in the health system, bringing together not only insights from academic disciplines but also occupational professions of physicians, nurses, therapists, social workers, and other caregivers. Given emphasis on Interculturality, the Leuphana conference also called attention to crossing cultural and political boundaries of the South and the North.

Next Steps

Recommendations abound. The 2016 LERU report on interdisciplinarity from the League of European Research Universities declared disciplinarity and interdisciplinarity are equally important for advancing science and solving societal problems. However, disciplines still dominate even though research increasingly takes place elsewhere. Moreover, many of the 66 recommendations in the LERU report have been voiced repeatedly. The 2004 EURAB report from the European Research Advisory Board, the 2005 report on Facilitating IDR from the US-based National Research Council (NRC), the 2014 NRC report on Convergence, and the 2015 report on Enhancing the Effectiveness of Team Science present a range of familiar recommendations, including calls for removing institutional barriers, creating education and training programs, building and sustaining collaborative research cultures. Two sessions on Monday at Leuphana also focused on the topic of inter- and trans-disciplinary careers.

In its double session on Monday of the conference, organizers of the INTREPID/COST initiative also invited conference participants to join them in exploring the topic of "Thinking about The Future of Universities." This topic echoed their call in their fourth INTREPID report in May 2017 to imagine

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future "As If Inter- and Transdisciplinarity Mattered." Acknowledging tensions between differing imperatives, especially commercialism versus democratization, and innovation versus critique, they posed two further questions. How will knowledge be generated, distributed, owned and used in future? And, where will it be generated, distributed, owned and used? The AIS Open Meeting and ensuing conversations offered a partial answer to these questions. Conference participants representing kindred organizations were also acutely aware of the value and need to strengthen inter-organizational ties and to seek ways for collaboration: not just for sustainability of their organizations but shared commitment to solving complex problems the world is facing and depend upon collaborations across multiple dimensions of diversity. Only then can insights and solutions emerge that are robust enough to not easily fail when tested or implemented outside the academy or under other societal and environmental conditions.

Reporting on the Berne conference in 2009, we also noted initial conversations aimed at building a network of organizations known as INIT. Participants in new conversations about inter-organizational cooperation at the Leuphana meeting have developed a proposal and timeline for developing a new network, federation, or alliance of organizations involved in both interdisciplinarity, transdisciplinarity, and other related practices. The next step is discussing prospects with related governing boards, a move the AIS board already endorsed during its meeting at the October 2017 conference held at the University of Maryland Baltimore County. We will post further details as they emerge on the INTERDIS listserv and in this newsletter.

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Note: All plenary sessions from the Leuphana conference can be viewed online at <http://tinyurl.com/ITDconf>. For a report on the 2009 meeting in Berne, see our account in the March 2010 issue of the AIS newsletter Integrative Pathways (Vol. 32, No. 1). Newell's remarks on the state of theory appear in Vol. 31 of the AIS journal, along with Szostak's account of re-search and Klein's on institutionalization. Szostak has also published thoughts on his presentation about challenges to interdis-ciplinarity as a blog on the I2S website, and Keestra has done the same for the plenary session on teaching and learning. To access the blog, go to < https://i2insights.org>.

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Rick Szostak is Professor and Chair of the Department of Economics at the University of Alberta. He is author and co-author of books on interdisciplinary knowledge organization and the theory and process of interdisciplinary research as well as teaching and program administration. He has also been a consultant to interdisciplinary research groups and coordinated development of About Interdisciplinary and Interdisciplinary General Education on the AIS website. He received the AIS Kenneth E. Boulding Award in 2017 for his long-term contributions to interdisciplinary scholarship.

NOTE: Klein, Keestra, and Szostak have all served as Presidents of AIS, in 1987-88, 2014-16 and 2011-2014, respectively.

About AIS

The Association for Interdisciplinary Studies is the U.S.-based international professional association devoted to interdisciplinary teaching (including service learning), research, program administration, and public policy. Interdisciplinarity integrates the insights of knowledge domains to produce a more comprehensive understanding of complex problems, issues, or questions. AIS serves as an organized professional voice and source of information on interdisciplinary approaches and the integration of insights from diverse communities to address complex problems in education and research. Founded in 1979, it is incorporated as a non-profit 501(c)3 educational association in the state of Ohio.

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