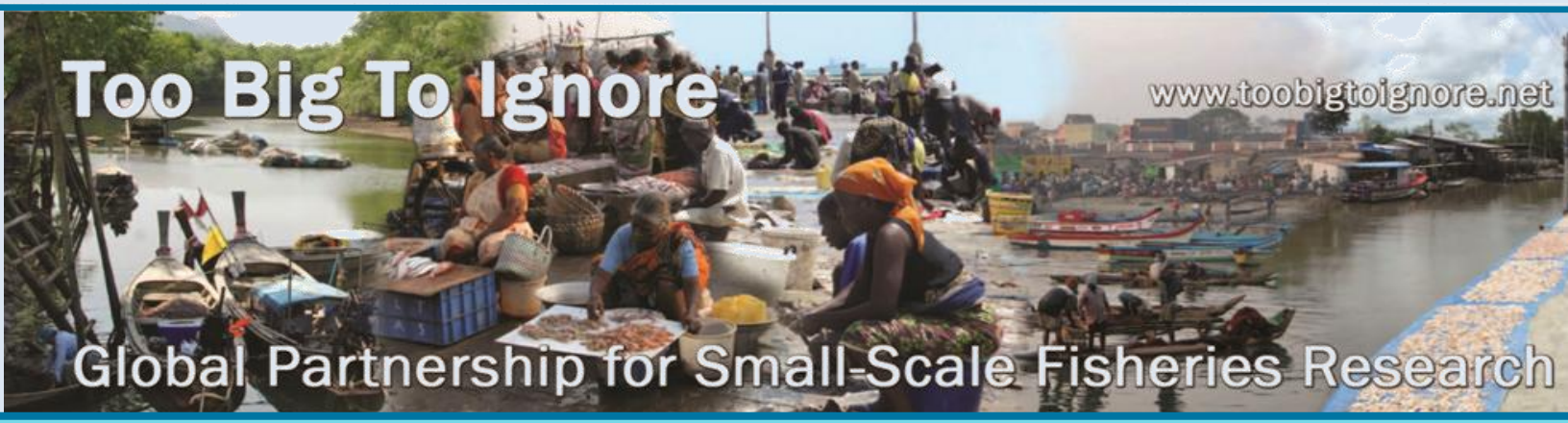
Too Big To Ignore Research Report

Number 05.1/2015



Transdisciplinary Fisheries Course Development - Collaboration Report

February 8th – April 10th, 2015

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RESEARCH

POLICY

MOBILIZATION

Too BIG To IGNORE
Global Partnership for Small-Scale Fisheries Research

Prepared by
Danika Kleiber and Ratana Chuenpagdee
Memorial University

With Contributions from
Ana Minerva Arce-Ibarra, Lindsay Aylesworth, Maria Jose Barragan, Hannah Bassett, Mauricio Castrejón, Sarah Freed, Miguel Gonzales, Hugh Govan, Ellen Hines, Michael Hurley, Moenieba Isaacs, Andrew Johnson, Ron Jones, Kurt Korneski, Marc Léopold, Rebecca Lewison, Patrick McConney, Marcia Moreno-Bãjez, Kimberly Orren, Ana Isabel M Pérez, Joonas Plaan, Jorge Ramirez, Hans Ruperti, Katharina Schneider, Alison Simmance, Fiona Simmance, Andrew Song, Fanny Vessaz, Charlene Walsh, and Tara Whitty

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Too Big To Ignore
Memorial University
St. John's, NL
Canada A1B 3X9

toobigtoignore@mun.ca
toobigtoignore.net

Summary

A transdisciplinary approach is needed to properly frame and fully engage with the complexities of fisheries systems. The TBTI transdisciplinary fisheries cluster was created to address this need. During the 2014 World Small-Scale Fisheries Congress in Merida, a transdisciplinary workshop was held to explore the transdisciplinary principles that should be applied to fisheries, and to create some preliminary thoughts about the materials needed to teach a transdisciplinary approach to a diverse audience.

The TBTI transdisciplinary fisheries cluster was established after the Merida Congress to raise awareness about the need for transdisciplinary thinking in fisheries research and capacity development, particularly in relation to small-scale fisheries. The cluster aims to develop a 'transdisciplinary fisheries course' that can be taught as part of a degree program or as part of a training program to develop local capacity. One of its first tasks was to bring together a diversity of researchers to exchange ideas and perspectives about transdisciplinarity and, building from the Merida conference, work collaboratively to develop some elements of the transdisciplinary learning materials.

The collaboration took place from February – April 2015 and involved 28 people from 14 countries (Table 1). We used the on-line teaching space supported by the Distance Education, Learning and Teaching Support (DELTS) office of Memorial University, to facilitate the collaboration of this international group of participants, as well as to test the capabilities of the on-line environment in the actual delivery of the course once it is developed. In addition to DELTS, which is TBTI partner, we received guidance and support from Charlene Walsh of the Marine Institute, which is also a TBTI partner.

Outputs from the first phase of the collaboration include course principles, philosophy, and goals, as well as preliminary suggestions for course content. The next step is to obtain feedback on this material and finalize the course content and topics through broad consultation with TBTI members and other interested people. Once the topics are agreed upon, we will proceed to develop the transdisciplinary fisheries course, for beta testing in September 2015.

Introduction

Transdisciplinary Fisheries Approach

Transdisciplinary approaches have been developed to frame and address complex and interacting systems often found in sustainability and health sciences (Hadorn *et al.* 2006; Pennington *et al.* 2013). It adds an important dimension to multi-disciplinary and interdisciplinary approaches because it offers a dynamic framework to go between, across and beyond disciplines. In so doing, it embraces complex systems and interactions, resulting in science that not only informs, but also transforms society (Lang *et al.* 2012). The transdisciplinary process can also help "develop trust, common vision, and common values" (Paterson *et al.* 2010).

Similar to other sustainability sciences, fisheries contain interacting and dynamic factors that are inescapably interwoven; yet rarely addressed together. To engage with fisheries, and particularly small-scale fisheries, we focus on transdisciplinary principles that emphasize collaboration among diverse academic disciplines, as well as practitioners, managers, and fishers in an inclusive participatory process. This "open" transdisciplinary approach helps to address the imbalance in policy, research, and priorities that often leave small-scale fisheries marginalized (Chuenpagdee *et al.* 2015).

Transdisciplinary Fisheries Cluster

The objective of the TBTI Transdisciplinary Fisheries Cluster is to engage researchers, practitioners, community members, fishers, and policy makers with the diversity, complexity, dynamics, and scale issues surrounding small-scale fisheries systems. We will do so by modeling transdisciplinary approaches to learning and capacity development in both the creation and delivery of graduate course and community training materials.

Using the results of the Merida transdisciplinary workshop as a starting point, we facilitated a nine-week collaboration to further develop transdisciplinary learning materials (more information on the collaboration process below). The materials developed through the collaboration process are still in progress, and this report provides an opportunity to review and tailor these materials further (See Box 1: Key Elements of Course Synopsis for materials to be reviewed).

Once the materials have gone through several more stages of input, they will serve as a foundation for anyone who would like to use what we have developed and add their own materials that could be tailored for a specific audience or learning context. We envision many potential ways these materials could be developed and used. For example, the materials could be used to build a graduate course, administered on-line or in person,

or intensive on-site training of fisheries extension officers, or local capacity development among fishing people. These materials will be freely available to anyone who wishes to use them. This open access is in the spirit of the transdisciplinary process, and done to respect the voluntary participation of the collaborators.

In this report we outline the methods used in this collaboration, present the major outputs from the collaboration that we welcome feedback on, and how the feedback and revised materials will be used in the next steps of the transdisciplinary course development process.

Collaboration Process

Overview

As part of this objective of the transdisciplinary fisheries cluster we conducted a collaborative development of a transdisciplinary fisheries course and training materials that reflect the principles, philosophy, and goals outlined by this TBTI cluster. This was intended as a first step in the transdisciplinary course development process and these materials will later be refined and used as a basis to create course and training materials in the future.

The collaboration was initially designed to be divided into three modules that focused on 1) the course philosophy, 2) the course goals and topics, and 3) the course delivery and assessment (Figure 1). Each week would build off the output of the previous week and follow a course development pathway where the course philosophy and principles would inform the goals, which in turn would shape the topics (Figure 2).

The initial weekly plan was ambitious (Figure 1), and while we did not accomplish everything, we were still able to achieve a great deal (see Outcomes). The collaboration coordinators took an agile approach to the creation of collaboration tasks so that they could respond to rapid changes in priorities or suggestions by the collaborators. This flexibility allowed for multiple iterations on specific outputs when more input was needed. Taking this time was important to creating well-supported outputs, but also meant that we did not accomplish everything in the initial outline. The course topics were only preliminarily discussed, and delivery and assessment strategies were not directly addressed. These portions of the course development will be part of the next stages of the transdisciplinary fisheries cluster (see Next Steps).

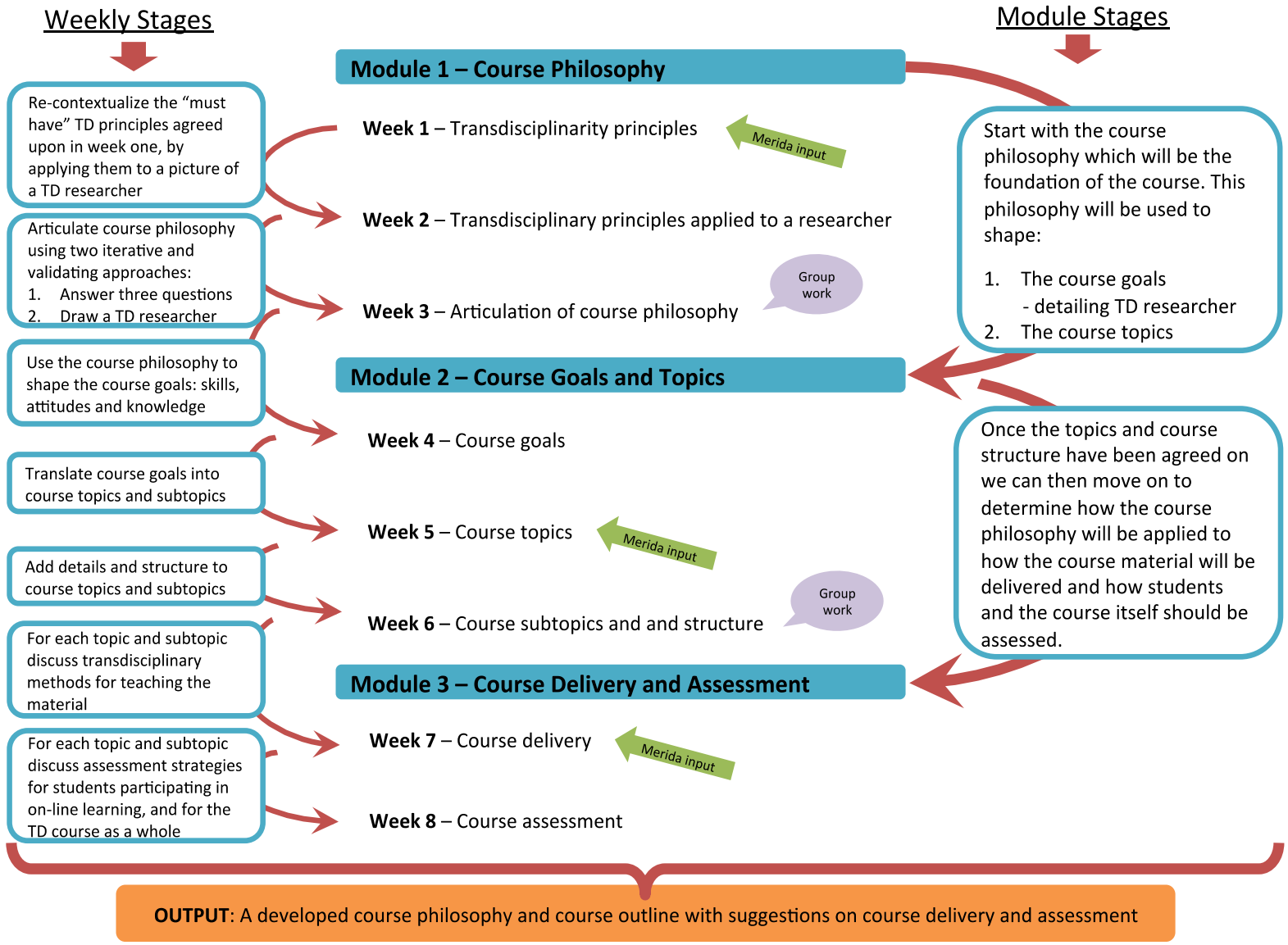

Figure 1. Overview of collaboration process

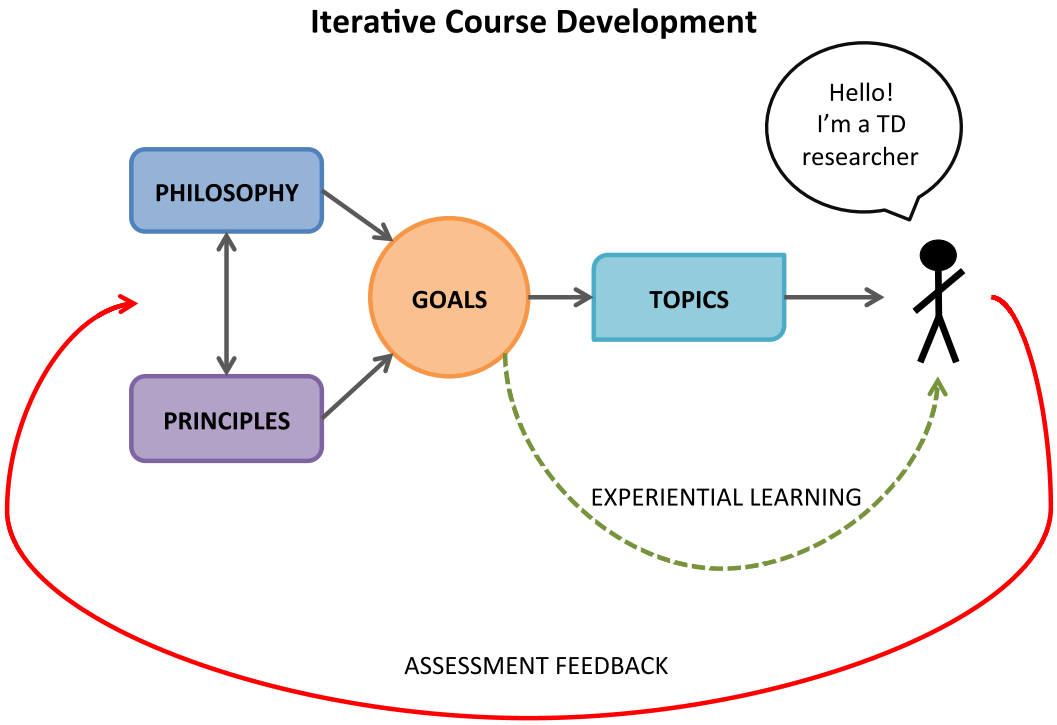

Figure 2. Course development pathway

Collaboration Participants

The collaboration brought together a diversity of participants that volunteered their time and expertise. Ratana Chuenpagdee, Charlene Walsh, Kurt Korneski, and Danika Kleiber from Memorial University coordinated the collaboration. We announced the collaboration in January 2015, and included all registrants in the collaboration. In the end we had 28 participants representing many different regions, and included academics and practitioners, but not fishers (Table 1). Nine of the collaborators had also participated in the transdisciplinary workshop in Merida.

Table 1. Collaboration Participants

Name	Location
Patrick McConney	Barbados
Ron Jones	Cambodia
Andrew Song	Canada
Joonas Plaan	Canada
Kimberly Orren	Canada
Lindsay Aylesworth	Canada
Mauricio Castrejón	Canada
Miguel Gonzales	Canada
Ana Isabel M Pérez	Columbia
Jorge Ramirez	Ecuador
Maria Jose Barragan	Ecuador
Hugh Govan	Fiji
Marc Léopold	France
Katharina Schneider	Germany
Ana Minerva Arce-Ibarra	Mexico
Moenieba Isaacs	South Africa
Hans Ruperti	Spain
Fanny Vessaz	Switzerland
Alison Simmance	UK
Fiona Simmance	UK
Andrew Johnson	USA
Ellen Hines	USA
Hannah Bassett	USA
Marcia Moreno-Bãjez	USA
Michael Hurley	USA
Rebecca Lewison	USA
Sarah Freed	USA
Tara Whitty	USA

Collaboration space

The collaboration occurred primarily in the on-line learning environment called D2L, provided by Memorial University, and supported by the Distance Education, Learning and Teaching Support (DELTS) office (www.delts.mun.ca). DELTS is a TBTI partner and provided technical support with the D2L program.

The D2L program is primarily used as an on-line environment for students to interact with their instructors and peers outside of the traditional classroom environment. The

flexibility of the D2L space allows for participation of geographically dispersed users, and has communication tools that allow information to be shared and captured in an open environment. We decided to use these features to facilitate collaboration among participants around the world, but also to test the features for use as an on-line teaching platform.

Weekly tasks were designed to demand no more than two hours per week from each collaborator. In most cases the tasks could be done asynchronously at a time that best suited the collaborator. However, to allow for some live communication, we did organize real-time meetings at three points during the collaboration.

Collaboration Assessment

The use of the on-line environment for the collaboration allowed us to assess its potential as a platform for the delivery of an on-line course. The assessment of the space was done throughout the collaboration through voluntary and solicited feedback from the collaboration participants. Feedback was given through written communication, during live session meetings, and as part of a survey.

The survey results suggested overall satisfaction with the collaboration space (Figure 3), although in live session meetings many participants stated that it took some time to learn how to navigate the space and use the tools, a sentiment that was also shared in written communications. In the final live session there was some stated desire to continue to use the space now that they had learned the tools. However several members continued to find the space difficult to navigate which impeded participation. Participation, particularly in live sessions, was also impeded by slow or unreliable Internet connections of some collaborators, as well as software incompatibility with some older computer models. While this on-line environment may have potential for use in course delivery in the future, the limitations it could place on full engagement of some participants should be considered before proceeding.

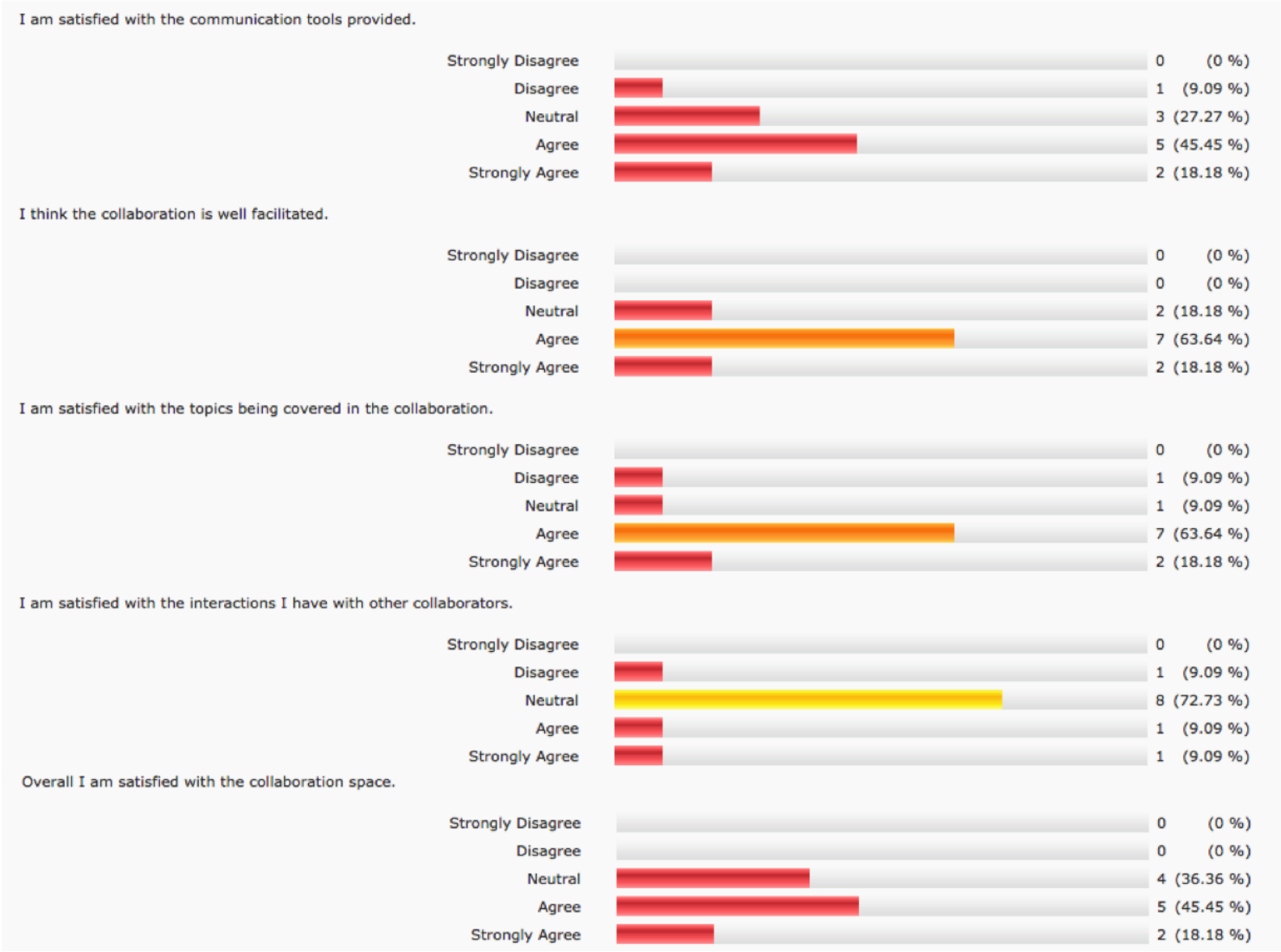

Figure 3. Collaboration assessment survey results

Outcomes

This section contains the completed portions of a course synopsis, which will be later used as a basis for the course syllabus. At the end of this collaboration we had completed the course philosophy, principles, and goals, and had some preliminary suggestions for course topics. The course content presented here is a proposal for the course structure. The course topics that will make up the course content must still be agreed upon (Please see Next Steps for more details on how to participate in course topic selection).

Box 1. Key Elements of Course Synopsis

Philosophy

The transdisciplinary fisheries course emphasizes development of research and collaboration skills, allowing participants to transcend their previously acquired disciplinary knowledge. The course takes a holistic, and problem-solving approach, which demands working across and beyond academic disciplines, as well as across spatial and temporal scales. Transdisciplinary work is viewed as a process, emphasizing inclusiveness and valuing the diverse viewpoints and knowledge of all the stakeholders. As part of the developmental practice of the course, the evaluation of power relations in knowledge access and production are included, aiming to create a reliable interactive multi-sector engagement based on trust.

Principles

1) Approach principles

When defining transdisciplinary work, it is first important to describe the overarching approach that will be taken. Several of the identified approaches focus on how the topics will be framed such as holistic, multi-scale, and systemic. Other approach principles focus on the process of work, such as problem solving (the process is also more specifically detailed below). Both framing and process approaches are supported by working through and across disciplines.

2) Personal trait principles

The personality traits identified as being important for transdisciplinary work included empathy, which allows participants to see problems from multiple perspectives and value different opinions. Innovation and out of the box thinking to engage with dynamic and complex contexts, and commitment to transdisciplinary approach to sustainability were also identified as important traits for transdisciplinary fisheries researchers.

3) Process principles

The process principles describe specific steps to betaken during the transdisciplinary process. Many of the process principles focus on inclusion of diverse viewpoints and knowledge, and the need to recognize power relations in all steps of the process (stakeholder identification, and knowledge access, production, and sharing) to ensure that potentially marginalized groups are included in the transdisciplinary process. This is explicitly an open transdisciplinary process that includes academic and non-academic actors with interactive stakeholder engagement throughout the process (including the choice of research questions). To facilitate interactions, there is also a focus on the promotion of common language and exchange.

4) Outcome principles

The outcome principles outline the expected results of a transdisciplinary approach. By integrating theory and practice a transdisciplinary approach would 1) produce and communicate a new and holistic perspective and understanding of the problem, 2) open pathways for ongoing problem solving, and 3) facilitate change, with the ultimate goal of supporting the sustainability of fisheries and fishing communities.

Goals

The overarching goal of the course is to promote and model transdisciplinary approaches to fisheries. A transdisciplinary approach embraces the complexity of fisheries systems and the diverse viewpoints and priorities of different stakeholders. This course aims to examine the different theoretic perspectives and holistic, systems, multi-scale, and multi-stakeholder approaches used to identify and frame fisheries issues. It will outline pathways for ongoing problem solving by exploring the collaborative, iterative, and context-dependent transdisciplinary process. This will include examining and assessing methods for knowledge production, integration, and communication (both among and beyond academic disciplines), methods of stakeholder identification and active engagement in all stages of the transdisciplinary process, and methods of data collection and presentation. Particular attention will also be paid to power relations and its influence on fair and representative stakeholder engagement in all stages of the transdisciplinary process.

Course Content

A. KNOWLEDGE

1) Theoretical – Framing fisheries

i. **Fisheries context:** An introduction to the complexity of the fisheries systems to indicate why a single disciplinary approach may not be appropriate.

ii. **Transdisciplinary theories and approaches:** Review transdisciplinarity by examining how it has been applied in the past, and the principles associated with it. Also review current approaches used to frame fisheries systems and discuss their utilities and limitations.

2) Conceptual – Systems and interactions

iii. **Fisheries case study introduction:** This section will begin with introduction of a fisheries case study (or case studies), discuss what the problems are, how they may be defined by different stakeholders and conclude whether a transdisciplinary approach is called for. This case study will be used to explore the fisheries systems and their interactions.

iv. **Ecological systems:** The history of stock assessment and the current scaling up to including ecological interactions will be explored, and then applied to the case study.

v. **Social and economic systems:** This will include economic approaches such as value chains, and social systems such as culture, gender, social inequality and power relations that can limit and dictate participation. Again this knowledge will be applied to the case study.

vi. **Governance systems:** The governance system, whether formal or informal, traditional or modern, will be examined to understand how they are structured, how they function, and what principles underlie their operation. Concepts related to governance, such as legal pluralism and governability, will be explored.

vii. **System interactions:** Once students have a grasp of the ecological, social, and governance systems, both broadly and applied to their case study, they will be asked to map out the interactions within and among these three systems.

B. SKILLS

1) Analytical – Transdisciplinary approaches to analysis

viii. **Problem solving:** Using the case study from the conceptual knowledge section, student will engage with the systems and interactions from a problem solving perspective.

ix. **Data collection and analysis:** This section will review forms of analysis frameworks (institutional, social networks, stakeholder etc.), and data collection used in the field (institutional mapping, social cartography, systems modeling etc.). Each form of analysis and data collection will be related back to the questions they are designed to answer.

2) Process ---Transdisciplinary approaches to process

x. **Engagement:** This section will outline the key steps of stakeholder engagement, from determining the question, to feedback and research iterations. Steps could include capacity building, trust building, stakeholder identification, participatory planning, participatory data collection, long term monitoring, knowledge sharing, etc. The process is also context dependent, and so will be examined in several different scenarios.

xi. **Collaboration:** Once the steps of the transdisciplinary process have been explored, the next step will be to examine the collaboration skills needed to work as part of a transdisciplinary process. This can include the personal approaches researchers can be expected to take, but also the use of critical theory to identifying power relationships and skills needed to facilitate inclusivity.

xii. **Data dissemination:** A key step in the transdisciplinary process is sharing knowledge. This section will examine the many ways used to share knowledge (community presentations, academic presentations, reports, peer reviewed literature), and the role of knowledge sharing in the transformative nature of transdisciplinary research.

Next Steps

Cluster member participation

We welcome your continued participation in the development of the transdisciplinary fisheries learning materials. For instructions on how to participate please visit our website: http://toobigtoignore.net/research-cluster/transdisciplinary-fisheries/

Timeline

May – June 2015

- Review of course synopsis and case study development

  We will solicit feedback on key elements of the course synopsis, the course topics, and transdisciplinary fisheries case studies. This feedback will be used to help develop the course structure and content.

June – September 2015

- Course development
  Once the feedback on the course synopsis and topics is completed, we will focus on developing the course materials by topic. The materials we have already gathered will be used to populate each topic with more detailed course materials and case study examples.

September – December 2015

- Course testing

  In the fall of 2015 we will test materials that have been developed for two different audiences:

  1. Graduate training course: Social and philosophical issues of fisheries management on-line course offered by the Marine Institute and taught by R. Chuenpagdee starting in September 2015.

2. Local capacity development: On-site training session with a TBTI partner group working in fishing communities.

Assessments of the graduate course and local capacity development will be done and used to inform and refine future iterations of the course outline and materials. The updated outline and materials will be openly available to anyone that wishes to adapt it to their own course or capacity development project.

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Memorial University
St. John's, NL
Canada A1B 3X9

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