

# Interdisciplinary Teams Achieve Outcomes through Shared Vision, Trust and Communication, and Leadership

## INTRODUCTION

The Useful to Usable (U2U) project convened a large multi-state interdisciplinary team to address climate concerns and to support the long-term goal of increased farm resilience amid increasingly variable and extreme weather and a changing climate. The project was funded by the United States Department of Agriculture (USDA) Agriculture and Food Research Initiative (AFRI), and purposefully crossed disciplinary boundaries and integrated the science and knowledge of climate scientists, agronomists, computer scientists, social scientists, Extension and outreach specialists, evaluation specialists, graphic designers, and marketing and communications specialists. The project integrated three types of complementary knowledge: disciplinary, systems relationships, and stakeholders (Morton et al. 2015). This integration enabled the U2U project to effectively construct climate-based decision support tools for farmers, crop advisors, and Extension-outreach educators in the region.

This fact sheet will explore:

**Benefits and challenges of interdisciplinary teams in an academic setting**

**Examples from the U2U Project**

- Shared Vision
- Trust and Communication
- Leadership

**Key skill sets that contributed to project success**

## BENEFITS & CHALLENGES OF INTERDISCIPLINARY TEAMS IN AN ACADEMIC SETTING

Interdisciplinary research is an increasingly common form of collaboration and is essential for answering complex environmental questions (Goring et al. 2015).

In large interdisciplinary projects, the tendency is for people to compartmentalize by discipline to produce parts of the whole. The whole is cobbled together but is not necessarily enriched by the diversity of perspectives included in the entire project. In contrast, the U2U project was intentionally designed to be integrated from the beginning (Prokopy et al. 2015).

### What does interdisciplinary mean?

Chech and Rubin (2004) define interdisciplinary as: “Interdisciplinary science entails the collaboration of scientists with largely non-overlapping training and core expertise to solve a problem that lies outside the grasp of the individual scientists.”

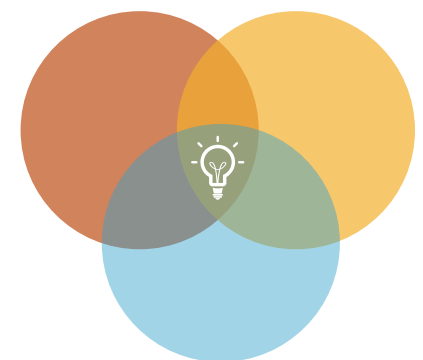
### The U2U Team identified benefits and challenges

#### Benefits

- ★ Specialized knowledge of system components provides essential building blocks
- ★ System level problems addressed by integrating and synthesizing different kinds of knowledge, views and perspectives.

#### Challenges

- ✚ Bridging disciplinary concepts, methods, and unique languages to create shared goals and objectives across disciplines
- ✚ Building trust and an open environment that encourages innovation while staying focused on project objectives
- ✚ Creating a structure of mutual dependencies that foster integration of knowledge



## EXAMPLES FROM THE U2U PROJECT

### Shared Vision

**Agreeing on a shared vision at the start of a project can improve the overall impact the project will have.** Everyone on the U2U team was involved in creating a project concept map, which included outcomes and theory of change. The team used two primary techniques for developing a shared vision and informing project planning – concept mapping prior to funding and a team survey early in the project (Prokopy et al. 2015).

#### Concept Mapping

Concept maps are visual tools for organizing and communicating knowledge. They have the advantage of being non-linear, an effective option for mapping complex projects and systems. The U2U team, with the assistance of an evaluator, developed a project concept map as part of the grant writing process. The team began with project outcomes and worked toward the products and inputs that would be necessary to achieve project success. Team members could see which products they would be responsible for, how the products were connected (including dependencies), and how the entire project portfolio would lead to project outcomes. The concept map was refined when the project started and as the team learned and adapted to project changes.

#### Team Survey

The U2U team conducted a survey at the beginning of the project to guide the process of developing a shared vision (Prokopy et al. 2015) Ongoing evaluation throughout the project duration ensured this shared vision remained intact. The initial survey and knowledge gained from it, combined with in-person and electronic communication, can ensure that a diverse and interdisciplinary team is able to facilitate achievement of common objective. The survey served as a baseline and revealed important differences among team members concerning:

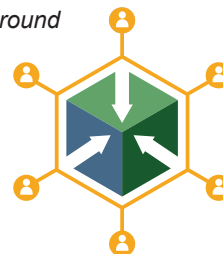
- 1 Perceptions of how stakeholders use climate information
- 2 The types of decisions that U2U climate tools should address
- 3 The way the U2U decision tools should function


The Useful to Usable project used a survey to answer these questions:

- 1 **Were there significant differences among team members regarding project priorities and directions?**
- 2 **How can survey data be used to foster improved communication over time?**

*The differences in answers could primarily be explained by disciplinary background and project role and provided valuable opportunities to learn from each other and build consensus on what decision support tools should be developed.*

The way U2U maintained our shared vision on a team with professional diversity was by regularly revisiting our goals and vision as the project progressed to ensure we were effectively working towards our objectives.



 Bridging disciplinary concepts, methods, and unique languages to create shared goals and objectives across disciplines.

#### Survey Benefits

- ★ Opened lines of communication
- ★ Made discussions around different perspectives straightforward and non-confrontational
- ★ Enabled ongoing discussion; people couldn't assume others on the team agreed with them

★ System level problems addressed by integrating and synthesizing different kinds of knowledge, views and perspectives to expand the knowledge.

## Trust & Communication

### Building Trust

In order to meet project goals and objectives, ongoing internal assessments were conducted. Feedback was kept anonymous which allowed team members to voice concerns and share praise without fear of damaging relationships or being singled out. This played an integral role in maintaining relationships and building trust. **Careful attention must be paid to the interpersonal skills of team members (eg social sensitivity, emotional engagement) and team functioning (eg communication patterns)** (Cheruvellil et al. 2014). The U2U team developed a culture that valued effective internal functioning, and this contributed to the overall success of the project.



Building trust and an open environment that encourages innovation while staying focused on project objectives

### Communication

Large interdisciplinary teams need frequent communication including “face time” in order to build a cohesive unit. **Communication among all project team members was frequent and occurred in various formats.** The full team and advisory committee gathered in person for a two-day meeting to assess progress over the past year and plan work for the upcoming year. There were also monthly conference calls for various groups, monthly full team conference calls, email and web communication, listservs created specifically for the project, and an internal collaboration website. Coordinated communication became even more important as the team grew and transformed and allowed the team to proactively identify potential issues before they became problems.



Creating a structure of mutual dependencies that foster integration of knowledge

**The project director and project manager were engaged with the team throughout the project which kept the team enthusiastic and committed.** They treated all team members as an integral part of the project’s success no matter how small their role.

## Leadership

One of the reasons the team worked together effectively was due to the direction from the leadership. Relationship building, team rapport, and team culture were at the forefront of their visions for what would make a successful team. It was these stronger relationships among team members that promoted follow-through and accountability.

**The project leadership set the tone for the positive team environment and actively pursued opportunities to build relationships and an exceptional experience.**



Specialized knowledge of system components provides essential building blocks.

The role of more experienced collaborators is to support new colleagues’ personal journeys into these dynamic relationships (Brown 2015).

The original project team was comprised of 22 co-project directors located at 10 universities. Over the six-year project duration, 122 faculty, staff, post docs, graduate students, and undergraduate students contributed to U2U. Graduate students, staff and postdocs are all considered part of the team and engage in team meetings, conference calls and email communication.

## KEY SKILL SETS THAT CONTRIBUTED TO PROJECT SUCCESS

Having a team with a diverse professional background and skill set was key to the success of the project.



### Project Management

Fully in-tune with all aspects of the project, maintained constant communication with team members and acted as morale builder throughout, setting the tone for the entire project



### Social and natural science mix

Synthesized and integrated disciplinary data and knowledge to effectively guide product development and technical support



### Technical Support

Adapted quickly to requests from stakeholders enabling co-production of science between information users and developers which improved credibility of the project



### Evaluation

Developed the evaluation plan and data collection instruments participatorily with the team. Engaged in continuous evaluation research to ensure the team was working towards intended objectives.



### Research and Outreach

Communicated with and trained stakeholders on the products; vast knowledge and familiarity with who the target audience was allowed for proper promotion of the tools



### Communication, Marketing, and Design

Had an understanding of successful marketing campaigns and branding principles

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#### PARTNERS



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