



## **Relational versus transactional community engagement: An experience of the benefits and costs.**

**Dr. Linda Vanasupa, California Polytechnic State University**

Linda Vanasupa has been a professor of materials engineering at the California Polytechnic State University since 1991. She also serves as co-director of the Center for Sustainability in Engineering at Cal Poly. Her recent work is focused on creating ways of learning, living and being that are alternatives to the industrial era solutions—alternatives that nourish ourselves, one another and the places in which we live. Her Ph.D. and M.S. degrees are in materials science and engineering from Stanford University (1991 and 1987) and her B.S. degree in metallurgical engineering from the Michigan Technological University (1985).

**Dr. Lizabeth T Schlemmer P.E., California Polytechnic State University**

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### Abstract

Learning through community engagement (CE) is widely considered a high-impact practice with the potential benefit of accelerated cognitive development, deeper learning and moral reasoning compared to traditional classroom approaches. However, not all efforts of community engagement are alike. We see insufficient distinction in articles on community-engaged learning to enable faculty to design an experience of CE learning that meets their learning aims and are experienced as successful by all participants. To serve faculty members' ability to establish successful CE experiences, we propose a framework to differentiate the forms of CE and their associated features. This paper makes clear the differences in forms of CE using two primary axes, the compatibility with learning objectives and the scope of shared societal commitments between the collaborators. Within this framework, there are four types or forms of CE, each with different consequences for the students, the faculty, and the community partners. Through narratives of project partners, faculty and students, we contrast the experiences of two types of CE projects and their impact on participants. From this two-year case study involving 88 freshmen, 16 faculty members and 15 community partners, we conclude that *successful* CE learning requires that all participants have an awareness of the type of CE project that is intended. This paper implies that appropriate choices in the initial phases of creating the community-engaged collaboration are critical to a result that satisfies the participants.

### Background and motivation

Community-engaged learning is often recognized as a high-impact practice in higher education. Advocates note that learning in the context of producing something of social relevance gives meaning to what are normally abstracted concepts in science and engineering<sup>1,2</sup>. Additionally, authentic community-based projects, unlike the practice of reproducing known technical solutions to closed-form "problems," contain all the complexity that one encounters in "real life." As such, learning through community-based projects are opportunities for learners to develop critical professional competencies<sup>3,4</sup> such as "understanding of the human condition, cultures and society; an ability to work effectively with public policy, business and government;...an ability to work in synergy with persons from other disciplines , including both other science and engineering fields and non-science/engineering fields." (p. 2)<sup>5</sup>.

However, while community-engaged (CE) learning contains the promise for developmental benefits for engineering students, the actual benefits (and costs) of this type of pedagogical format is often omitted in published narratives of "successful" initiatives. Additionally, what constitutes "success" also varies. Indeed, authors often recognize that there are differences between the broad spectrum of community-engaged learning, such as volunteerism, service learning, and community-based project learning, but "service learning" or "community engaged learning" is often cited as an undifferentiated pedagogy with presumed general characteristics of working with non-university partners in the learning process. In this paper, we present an organizing scheme that differentiates the type of community-engaged learning based on two dimensions: the degree of overlap with the learning objectives for the students and the scope of

the shared societal commitments between the participating organizations. This framework allows those who would seek to participate in community-engaged learning to see into the potential benefits and costs of the type of CE that they are envisioning. The framework also supports that possibility of “success,” where we define success as meeting the expectations of the participants. We begin with describing the theoretical basis of the organizing scheme and the methodology by which it was derived.

### Theoretical foundations and methodology

We begin by recognizing that a learning collaboration across students, faculty and community partners, is a dynamic human system. In the general case of CE, humans are designing together. It is widely recognized by organizational behavioral researchers<sup>6</sup> that the visible actions (“events”) of a dynamic human system are rooted in the underlying and hidden mental models that the participants hold. Peter Senge popularized these organizational dynamics in his books on systems thinking<sup>7</sup>, based on anthropologist, Edward T. Hall’s metaphor of an iceberg<sup>8</sup>, Figure 1, where the tip represents the visible actions (the visible 10%), which proceed from the 90% of the iceberg structure that is hidden beneath the surface: patterns of behavior which have created the events; beneath the patterns lie organizational structures that cause the behavioral patterns; beneath the organizational structures lie beliefs and values out of which the structures have formed; beneath the beliefs and values lie mental models and paradigms<sup>9</sup>.

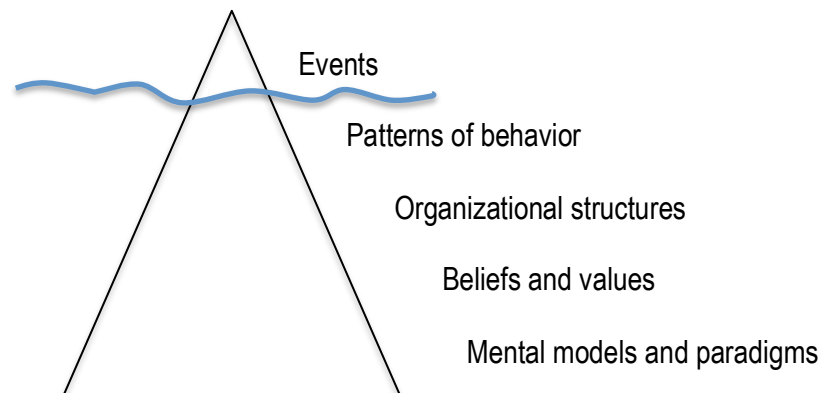


Figure 1. Iceberg model of the dynamics in a human system, adapted from Edward T. Hall<sup>8</sup>.

Because these mental models that lie at the foundation of the iceberg are second nature to those who hold them, they function in “the background” and are literally invisible to the participants. In the model of the iceberg, they are deeply hidden beneath the surface. The decisions and actions of the participants, however, are correlated to these invisibly-held schemas. In the design arena, this is known as “Conway’s Law,”<sup>10</sup> where the structural dynamics of the design team (e.g., hierarchical, egalitarian, etc.) get unconsciously embedded in the design.

When a CE project goes awry, participants look to the visible 10% for the “cause.” In other words, the first instinct is to “blame” the learning pedagogy of community engagement as the cause of the problem. However, from the viewpoint of systems theory, the problematic “events” are not traceable to a single cause; they are a natural result of the system functioning as intended, based on the paradigms and mental models, deeply embedded and hidden beneath the structure. Because of the profound way in which the beliefs and values affect the outcome, one dimension of our CE framework incorporates the *degree of shared beliefs and values*.

We have derived this framework through a process of action research<sup>11, 12</sup> in the context of a series of CE projects from 2001 through the present. Unlike objective, third-person research, which is more familiar to engineers and scientists, action research is a methodology appropriate to the dynamic human systems found in education<sup>13, 14</sup>. In this method, the researcher acknowledges their own biases, including their choice of what to study in the research. By contrast, “objective” research seeks to reduce all known sources of variation, including observational biases, in an attempt to determine cause/effect relationships. The usefulness of objective methods is to establish general patterns that can be then applied to other systems in an effort to predict or control outcome. Objective research approaches normally do not consider the questions of bias embedded in the research questions themselves (e.g., What is the underlying assumptions beneath the questions that are being asked? Who defines the system of study?) Objective research is best utilized in the study of inanimate objects which can be manipulated with fewer ethical concerns; However, it is less applicable to human systems where manipulation and control of human subjects raises ethical questions. In action research, the aim is to serve the creation of the desired outcome. In our case, our research was initiated with the intent of creating social value toward thriving communities. The result of action research is “meaning,” derived through reflexive contemplation of the patterns, to include the thought patterns of the researchers, who are themselves subjects in the research.

A model of community engagement: relational or transactional

We propose that CE efforts can be viewed on a two dimensional space shown in Figure 2. In this space, the dominant factors to consider are the degree of overlap with learning objectives (x-axis) and scope of shared societal aspirations amongst the collaborating partners. This leads to four potential types of CE efforts as shown, which we categorize as either transactional or relational in its foundational nature. Each type of CE effort is valuable and fit for different purposes.

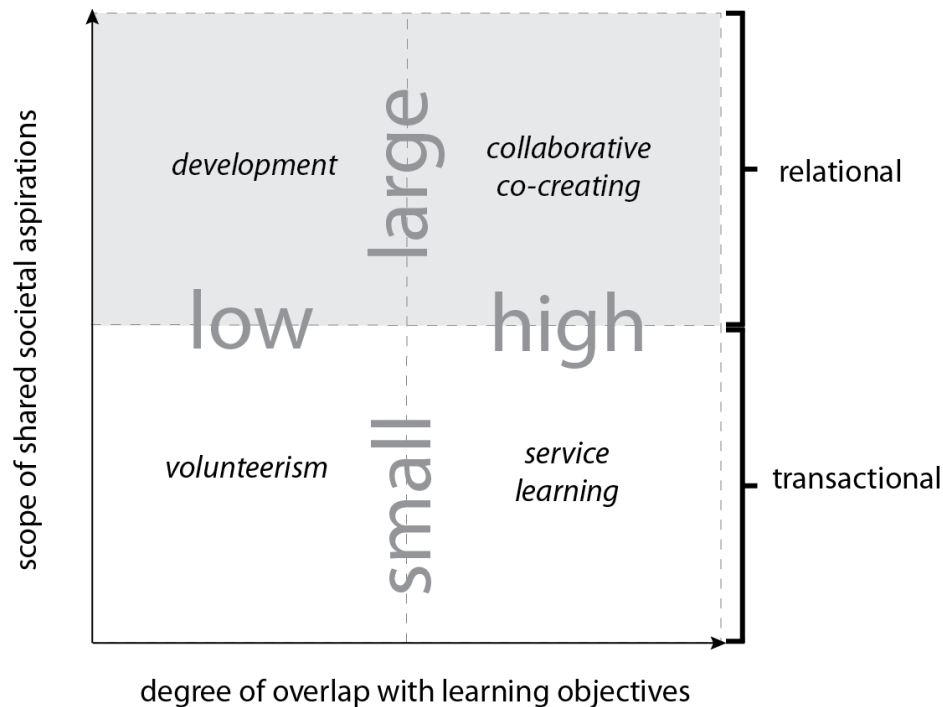


Figure 2. Our model of community-engaged learning. The different types can be differentiated by the degree of overlap with the learning objectives (low to high) and the scope of the shared societal aspirations (small to large)

Transactional CE: Organized around an exchange of goods and services

*Volunteerism: Low overlap with learning objectives, small scope of shared aspirations*

This type of CE activity is fit for a purpose in which the participants have a low priority on the kind of learning that might take place. The participants might share a desire to complete a shared task of social value, such as cleaning up a beachfront. The transaction may be something along the lines of an organizational providing an opportunity for college students to meet required community service in exchange for “free” labor.

*Service Learning: High overlap with learning objectives, small scope of shared aspirations*

Traditional service learning takes place where participants come together around a particular need, often defined by the community agency. For example, an engineering design class may partner with an agency that assists those with physical challenges to live independently in their own homes. Here, the exchange is around something where the learning that takes place matches the needs of the organization: the organization desires something functional that involves technical expertise in design, the faculty and students desire to complete a design task that enables them to learn certain things for their course grade.

Relational CE: Organized around the quality of the relationship

*Development: Low overlap with learning objectives, large scope of shared aspirations*

This type of CE activity is fit for a purpose in which the participants have a low priority on the kind of learning that might take place, but share a larger scope shared aspirations that specifically serve the professional development of the partners. The VIP-Americorps or the Peace Corps

might be in this category. In *Americorps*, the sponsor commits to the developmental guidance for the volunteer. The volunteer commits to helping develop the agency's volunteer base. Specific tasks, or the form that the project takes, is not stipulated up front, as it would be in a service learning project. That is, these efforts are often along the lines of producing developmental gains for the participants, rather than a specific product or task that is to be completed.

*Collaborative co-creating: High overlap with learning objectives, large scope of shared aspirations*

This type of community engagement is more emergent in nature, with participants committed to a larger set of shared commitments, such as the long-term well-being of a community. The tasks that are completed are done so with a priority placed on the social value. For example, a group may commit to developing a green economy for a local region. This commitment extends beyond what can be accomplished in a college semester and if achieved, can have profound positive impact. Collaborative co-creating is suited to longer-term organizational commitments organized around shared aspirations such as "thriving communities."

How the models differ in consequences: observed patterns

As stated, each model is fit for a particular purpose. Since 2001, the authors have been engaged in projects that represent all four quadrants. What we have noticed in retrospect is that the mental models from which the CE types (*volunteerism, service learning, development, collaborative co-creating*) are derived function to (often unconsciously) condition the behavior of the participants, each resulting in different consequences that one might think of as benefits and costs. These are summarized in Table 1 below. We've titled the "relational" models as such because the organizations share a large scope of societal aspirations, putting a priority on the social needs and overall well-being within the human system, including the relationships between the participants. In the "transactional" model, the priority is on completing the task around which the partnership is formed.

Both models have a profile of investment and return on the investment for the participants and imply a different process in establishing the partnership. The transactional generally requires lower investment in finding the opportunity, with an also lower potential developmental return. In the transactional model, all parties are, in a sense, objectifying one another as a means to a transactional end. In this scenario, partners tend to put a priority on their personal aims, rather than the needs of the partners. However, tasks usually are "completed," although often not in a way that best serves the community partner.

*An example of the service learning type:* For example, one of the authors (Vanasupa) initiated in a service learning "collaboration" in which part of the team held the mental models associated with traditional service learning while the other part of the team was in a development frame of mind. It involved construction management seniors and engineering freshmen serving the needs of a local historical society. The construction management majors were told by their instructor that they would be engaged in a project that substantially-related to their major and could enhance their resumes, so they preferred solutions that involved building modifications that could be reported on their resumes as a substantive experience. The engineering freshmen were told by a different instructor that they were learning the process of design and were to attend to

the needs of the client; they preferred solutions that did not require activities outside of their ability to complete them. The community partner was told that they would be partnering with the students to meet their most immediate need. The miscommunication by the partners was not intentional, but illustrates that the individuals had different mental models of the purpose of the activity and therefore their attention was on different things. This also conditioned what they chose to communicate.

The student teams were then managed by a construction management graduate student. The result reported by the community partner was that the construction management students disregarded the input of the client in favor of the solutions that they self-derived. They made building modifications that were completed within the time frame for their university quarter, but did not meet code and needed to be redone by the partners. The engineering majors proposed modest rearrangement and re-use of existing space, which was based on several hours of observation and conversation with the clients. However, the senior construction management students did not consider the input of the freshmen to be professionally informed, nor did it meet their expectation that they would be involved in a project that substantially enhanced their resumes.

*The CM students didn't want to just rearrange the space...they thought it was too simple [MATE student]*

*The older students [i.e., construction management] pretty much decided that they weren't going to listen to me [the community partner], because [sarcastically] "what could I possibly know?" ... We're looking at \$900 in repairs to go back and fix the things they did ...a lot of it isn't to code...we would have been happy with the MATE student's changes... [client]*

The construction management students' approached the project from a transactional frame of mind: their attention was on how the activity would meet their course requirements and expand their career-related experience. The engineering students approached the project from a relational frame of mind; their attention was on the needs of the client. The end result was that the client, who had participated in three consecutive years of "service learning" projects, declined to participate in future collaborations.

One of the consequences of putting a priority on the relationships is that the completion of prescribed projects may then be secondary. Task oriented people may find these types of CE projects as "accomplishing little" because the accomplishments are not in the visible physical domain. When the focus is "relational," the successful outcome is a strengthening of the relationship. While this strengthening of what might be called "social fabric" does not always involve completing a transactional task, the developmental gains tend to be rich and strongly aligned with the engineering professional competencies. The quality that causes people to continue to be involved is usually something of intrinsic, social value, even if the envisioned transactional task, does not get completed.

The authors have been building a collaborative co-creating CE initiative ("SUSTAIN") since 2008. The initial stages of this effort involved two years of two-hour monthly meetings where we asked some variation of the question, "Why are we here?" In 2010, we surveyed the participants about why they continued to return even though we were only discussing our aspirations together, making plans on how we might achieve them, but were not actually making what some

might call “tangible,” physical progress. Some of the participants found this frustrating and chose to stop participating. However, for those that continued their participation, a different quality of attention and experience began to develop, which enabled different types of collaboration. This distinctive quality is illustrated by excerpts from the response to the question, *What are you getting out of your participation?*

*This is a very brilliant group of people with a deeper purpose than just teaching content; I truly believe that they are interested in changing lives through immersive learning and faculty mentorship. I deeply respect all of the members of the group (both community and faculty members) and I feel respected (and heard) by them as well. Actually, I have never experienced this in any faculty group that I have participated in at [institution] (and I have been involved in a lot of faculty committees) and it is extremely rewarding to see them (us) in action. [staff]*

*A continued connection with people of whom I think highly and being forced to push my own thinking on sustainability and the nature of collaboration. [faculty]*

*I am learning a lot! I am learning a lot about group process and communication. I am learning so much about myself. I am learning how to reflect in such a way as to be able to learn more, understand more, and grow more. I also value the wonderful relationships I am developing by participating in SUSTAIN. [community partner]*

*I begin to see how the change process will occur. A process that could inevitably end up transforming our school forever. I want to see that succeed. I am also learning about "change management" as a business management major. Likewise I get to meet some pretty smart people who also want to reapply their work life to all forms of life whether it be communal, agricultural, or economical. And since young adults are at the heart of that ideal life, everyone benefits, beginning from how we live now to how our children coexist in the future. [student]*

Now, after we have had two freshmen cohorts engaged in a series of collaborative co-creating CE projects along with community partners, we have found that the participants report personal changes aligned with professional goals, sometimes dramatic changes in identity and world view:

*For me in this process, I already feel extremely successful. I have learned so much already that is so applicable for real life. I have learned to work as a team unit, work as an individual, and interact with people and communities. I do have that internal desire to finish and complete our whole project, but I do not think that if we don't finish it that we were not successful.*

*[SUSTAIN 2012 student, psychology major who pursued a physics minor after taking physics and chemistry with SUSTAIN faculty collaborators]*

And an engineering major, from SUSTAIN 2013, writing a letter to his “pre-SUSTAIN” self:

*Dear freshman self:*

*SUSTAIN will completely change your perspective on everything. Yes “everything” is sort of vague and intangible but sustain lives in the realm of the vague and the intangible. It is the college experience that you envisioned when you came to [institution]; asking the big questions, making an honest effort to answer them, realizing that you never will, and discovering things you never knew about yourself in the process. It will be difficult, both in terms of the time spent and in terms of personal difficulties. Sometimes the inability to answer the big questions will make you feel small and stupid in the span of the world and the universe. Sometimes you will discover something about yourself that you don't like and learning to live with it, or trying to change that is extremely challenging. And yet, SUSTAIN is wonderful for those same reasons, because sometimes taking a step back and appreciating [sic] the beautiful intricacies of the big questions will make you feel like a part of something incredible, as opposed to estranged by it. To make*



*things simple, join SUSTAIN if you want your bubble to be popped and your world turned upside down. Otherwise, if you want to remain a happy sheep in the heard, stay away. Sincerely, [SUSTAIN 2013 freshman engineering major]*

The community partners, who engaged in an after action review in 2012 with the faculty member in charge of the project management, universally reported gratitude for the chance of interacting with the students. They were impressed with their polite attitude, eagerness to form relationship and enthusiasm for the partner’s organizational mission. They also reported a variety of levels of “completion” of the projects. Each reported having two goals: establishing longer-term relationships with the university and to execute a project, which was a secondary goal for them.

Table 1. Contrast between the differing CE models. “V” indicates volunteer, “O” indicates organization, “F” indicates faculty.

| <b>CE type &amp; mental model</b>  | <b>Possible use orientation</b>  | <b>Potential Consequences</b>  |
|--|--|--|
| Volunteerism<br><i>Broadening one’s development is possible when serving those who are less privileged.</i>                              | Using free time in way that serves others’ well-being (V);<br>Filling an immediate need without cost to the organization (O);<br>Fostering civic engagement (F)                        | Low investment of time to find the volunteer opportunity (F or V); Potentially very little learning takes place (V); Quality of the commitment and work may vary wildly, leaving the organization left dissatisfied or disaffected for future CE (O).<br><br>Summary: Low investment-low return  |
| Service Learning<br><i>Learning science and engineering is more effective when done in the context of addressing real world problems</i> | Fulfilling course requirements (V);<br>Filling a short-term need in a low-cost way (O);<br>Providing meaningful application of course content (F)                                      | Moderate investment of time to find the match with learning aims (F); Prescribed task may get completed in a way that does not serve the client (O) because the students (V) are focused on course grades and the rhythm of the university demands. Developmental gains more likely in the technical skills.<br><br>Summary: Partners view one another as a means to an end and are likely to place a higher priority on getting to the desired “end” than on the well-being of the partners |
| Development<br><i>Success requires commitment and attention to personal and organizational development needs</i>                         | Personal growth through socially-meaningful activities (V);<br>Filling longer-term organizational needs through an equally-invested partnership (O);                                   | Higher investment of time to determine the correct action (O,V); Unpredictable outcomes for the organization (O) with an emphasis on the developmental gains of the volunteer (V).<br><br>Summary: Partners organized around developmental needs. Gains for both depend on the quality of the mentorship.  |
| Collaborative Co-creating<br><i>The quality of the relationship defines the quality of what you can do together</i>                      | Personal learning of professional skills and application of concepts (V);<br>Cultivating an equally-invested partnership around longer-term, shared developmental aspirations (O & F); | Highest investment for all partners (O,V, F). Prescribed tasks may be unfinished, but developmental gains for all are usually high.<br><br>Summary: Partners organized around shared commitment to aspirational that are larger than either’s limited influence. High-investment, high return  |

## Conclusions and significance

We have proposed a framework in which to differentiate different types of community-engaged learning. This framework is grounded in the theories of organizational behavior that assert that the resulting behavior of a complex human system, such as a community-based collaboration that crosses institutional, generational and disciplinary boundaries, is conditioned by the beliefs and values invisibly held by the participants. One dimension of the framework is therefore the scope of shared societal aspirations for the participants (small to large). The other dimension is the extent of overlap with the learning objectives of the students. This two-dimensional framework leads to four general types of community-engaged learning (*volunteerism, development, service learning, and collaborative co-creating*). Each type has an associated paradigm on which the partnership is based along with a profile of investment for the activity. Each also has particular consequences, some of which may be considered positive and some negative.

The significance of the proposed framework is that it enables people to consider what type of CE learning would be fit for the purpose that they intend. It also enables a partnership that is chosen with a more clear understanding of the costs and benefits. The transparency around the mental models, assumptions, potential risks and benefits serve to reduce disappointment from unseen expectations, leading to a higher probability of successful community-engaged projects.

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## References

- [1] Fusco, Dana (2001). Creating relevant science through urban planning and gardening. *Journal of Research in Science Teaching*, 38(8), 860–877. doi:10.1002/tea.1036
- [2] Cohen, Neporcha (2009) A Bridge to Developing Efficacious Science Teachers of All Students: Community-Based Service-Learning Supplemented with Explicit Discussions and Activities about Diversity. *J. Science Teacher Education*, 20(4), 365–383. doi:10.1007/s10972-009-9137-8
- [3] Coyle, Edward, Jamieson, Leah H., & Oakes, William C. (2006). Integrating Engineering Education and Community Service: Themes for the Future of Engineering Education. *Journal of Engineering Education*, 95(1), 7–11.
- [4] Strauss, Linda C., & Terenzini, Patrick T. (2007). The Effects of Students' In- and Out-of-Class Experiences on their Analytical and Group Skills: A Study of Engineering Education. *Research in Higher Education*, 48(8), 967–992. doi:10.1007/s11162-007-9057-4
- [5] King, Cary J. (2012). Restructuring Engineering Education: Why, How and When? *Journal of Engineering Education*, 101(1), 1–5.

[6] Argyris, Chris. & Donald Schon, (1978) *Organizational Learning: A Theory of Action Perspective*, Addison-Wesley, New York, NY.

[7] Senge, Peter M., Art Kleiner, Charlotte Roberts, Bryan Smith and Richard Ross. (1994) *The Fifth Discipline Fieldbook : Strategies and Tools for Building a Learning Organization*, Currency Doubleday Publishing, New York, NY.

[8] Hall, Edward T. (1977). *Beyond Culture*. Hall, Random House Digital, Inc.

[9] Doppelt, Bob (2010) *Leading change towards sustainability: A change-management guide for business, government and civil society*. Greenleaf Publishing Limited, Sheffield, UK.

[10] Conway, Melvin E. (1968). How do Committees Invent? *Datamation*, 14(4), 28-31.

[11] Argyris, Chris & Donald A. Schon. (1989). Participatory action research and action science compared. *American Behavioral Scientist*, 32(5), 612–623.

[12] Reason, Peter, & Torbert, William. (2001). The action turn: Toward a transformational social science. *Concepts and Transformation*, 6(1), 1–37.

[13] Torbert, William R. (1981). *Why educational research has been so uneducational: The case for a new model of social science based on collaborative inquiry*. (P. Reason & J. Rowan, Eds.) (pp. 1–14). John Wiley and Sons, Ltd.

[14] Schön, Donald A. (1995). Knowing-in-Action: The New Scholarship Requires a New Epistemology. *Change*, 27(6), 26–34.