Illuminating "Transaction Spaces" in Higher Education: University–Community Partnerships and Brokering as "Boundary Work"

Janice McMillan, Suki Goodman, and Barbara Schmid

Abstract

This article reports on a project focused on understanding the work of the Knowledge Co-op (KC) at the University of Cape Town in terms of community engagement and partnership building. The project tested tools for analyzing complex university–community interactions, or "boundary work." Rather than analyzing the actual partnerships and research itself, activity theory was used as a framework for understanding the role of the KC broker, a key role in university–community partnership work. The activity theory lens assisted in identifying the complex work entailed in the broker role. In particular, the authors argue that in order to understand what happens at the university–community nexus, the unit of analysis needs to shift from individualized practices toward the transaction/boundary zone where these interactions take place.

Introduction

The notion of a *transaction space* shifts the metaphor from the translation across boundaries to dialogue at boundaries.… Boundary work needs to be facilitated and managed and as a result specific knowledge and skills are required… engagement as a core value will be evident in the extent to which universities do actually develop the skills, create the organizational forms and manage tensions that will inevitably arise when different social worlds interact. [T]o embrace this form of engagement entails that universities themselves be prepared to participate in those potential transaction spaces in which complex problems and issues will be initially and tentatively broached. *(Gibbons, 2005, pp. 11–12)*

Community engagement activities in higher education are sometimes referred to as a form of "boundary work" *(Gibbons, 2005; McMillan, 2008; Winberg, 2006)* or as "boundary spanning" *(Romero, 2014; Weerts & Sandmann, 2010)*. Community

engagement takes place at the nexus of two interacting communities—the university and the communities that partner with the university for purposes such as service-learning, community-based research, or policy research.

Service-learning in particular has been described as a form of "border pedagogy" *(Hayes & Cuban, 1997; Keith, 1998; Skilton-Sylvester & Erwin, 2000; Taylor, 2002)*, drawing largely on work in critical pedagogy and critical postmodernism *(Anzaldúa, 1987; Giroux, 1992)* and activity theory *(McMillan, 2008)*. The researchers in all of these studies argued for the need to develop new lenses to understand aspects of the service-learning experience. Following Giroux *(1992)*, Hayes and Cuban *(1997)* suggested that the metaphors of "borders," "border-crossing," and "borderland" are useful and important as a "compelling starting point for describing and rethinking the nature of service learning" *(p. 74)*. As Giroux *(1992)* argued,

> Border crossing serves as a metaphor for how people might gain a more critical perspective on the forms of domination inherent in their own histories, knowledge and practices, and learn to value alternative forms of knowledge.… Borderlands should be seen as sites both for critical analysis and as a potential source of experimentation, creativity and possibility. *(p. 28)*

From this perspective, the framework developed in this article contributes to existing theory by introducing the tools of activity theory and recasts the notion of border crossing into the language of boundary work *(McMillan, 2008; McMillan, 2011)* to explore university–community partnerships.

The idea of "boundary work" in this context is important, as it does not imply necessarily crossing the border or boundary; rather, it signals that there is challenging work to do when one brings different worlds, histories, knowledge, and practices together *(McMillan, 2008)*. Such a framework provides a rich and illuminative set of tools to identify, analyze, and interpret the multiple and complex interactions that take place between universities and their community partners. It is commonly acknowledged that these interactions are often contested, contradictory, and changing, hence the need for frameworks and tools to ensure all parties experience mutual benefits from the relationship.

This article focuses on the partnership work of the university Knowledge Co-op (KC) at the University of Cape Town (UCT). The purpose of the study was not to provide a full analysis of the

actual partnerships—these form the basis of other outputs from the project *(McMillan, Goodman, & Winkler, 2013; Wickham, 2013)*. Rather, our intention is to contribute to the development of theoretical resources useful in analyzing boundary work by introducing activity theory as an analytical framework. The central argument of this study is that we need to understand what happens in the boundary zone or transaction space at the nexus of university–community interaction in order to manage the complexity of these kinds of partnerships better. In order to make these complex practices visible, we propose shifting our unit of analysis from individualized practices toward the transaction/boundary zone where these interactions take place.

We start by outlining activity theory and the tools that such a framework affords to understand complex systems. Although activity theory has been used to look at complex work practices in systems where joint activities take place, we have rarely seen it used in the university–community partnership space. Romero's *(2014)* study was a useful contribution to this debate, and we hope to build on this work by taking the framework in new directions. In so doing, we offer renewed insights into these partnerships and further evidence of the possibilities inherent in activity theory as a way of making sense of complex boundary-spanning relationships and interactions. We then outline the background context that led to the development of the KC. This includes a discussion of the tradition of European science shops, as these models influenced the development of the UCT KC. This is followed by an overview of the brokering process used by the KC itself. During the pilot phase of the KC, a particular model of partnership "brokering" emerged that we sought to understand. This model made visible many complex practices characterized by tensions, contradictions, and contestations that took place within the boundary zone itself. Drawing on activity theory to look at the KC as a site of boundary work, we found it a useful framework to make sense of and tackle some of these tensions. The article concludes by raising questions generated by our framework that could potentially be useful for other researchers in the field of community engagement.

Developing a Conceptual Framework: Community–University Partnerships Through the Lens of Activity Theory

Activity theory as developed through the work of Engeström *(1996)* provides key tools for better understanding how communities and universities interact to create meaningful research

and partnerships for the future. Although it has been applied in a number of studies focused on workplace learning, it does not appear in much of the community engagement literature.

Activity Theory: Defining the Unit of Analysis

Activity theory (AT) encompasses a broad range of approaches to understanding learning and activity, evident in the work of Kozulin *(1998)* and Engeström and Miettinen *(1999)* in particular. Engeström and Miettinen (*1999*) referred to this body of theory as "the current wave of contextual and culturally situated theories of mind and practice" *(p. 11)*. For Engeström and Miettinen *(1999)*, activity theory provided a very useful starting point in defining a unit of analysis (the activity system) for exploring and understanding what are often very complex interactions and relationships. It does this via the concept of an "object-oriented, collective, and culturally mediated human activity, or *activity system*" (*p. 9*; emphasis added), a "flexible unit of analysis" that enables us to look in different directions and with different levels of magnification to answer the questions that puzzle us. However, there has been a lot of debate in AT regarding the appropriate unit of analysis (see *Davydov & Radzikhovskii, 1985)*, and this has shaped the way in which the AT field has developed. Engeström and Miettinen, as well as other activity theorists, see "joint activity or practice" as the unit of analysis for activity theory, not individual action. Russell *(2002)* described it as "less of a tight theory" than a "philosophical framework for studying different forms of human praxis as developmental processes, both individual and social levels interlinked at the same time" *(p. 66)*. However, although activity theory is an evolving framework and even interpreted differently by various proponents, Russell argued that there are at least seven basic principles shared by its adherents, all of which can be traced back to the thinking and work of Vygotsky *(1978)*:

- Human behavior is social in origin, and human activity is collective.

- Human consciousness or "mind" grows out of people's joint activity with shared tools.

- Activity theory emphasizes "tool-mediated action" in context—humans not only act on their environment with their tools, they also think and learn with tools.

- Activity theory is interested in development and change, which is understood broadly to include his-

torical change, individual development, and moment-to-moment change.

- Activity theory grounds analysis in everyday life events, the ways people interact with each other using tools over time.

- Activity theory assumes that "individuals are active agents in their own development but do not act in settings entirely of their own choosing" *(Cole, 1996, p. 104).*

- Activity theory "rejects cause and effect, stimulus response, explanatory science in favour of a science that emphasises the emergent nature of mind in activity and that acknowledges a central role for interpretation in its explanatory framework." Accordingly, it "draws upon methodologies from the humanities as well as from the social and biological sciences" *(Cole, 1996, p. 104).*

In summary, activity theory is focused on understanding learning as a social act, not just a cognitive act without a connection to practice in the world; that is, learning is first a social act and then an individual one when we make sense of it for ourselves. Following Billett *(2002),*

> AT holds that human actions are the product of social practices that are historically and culturally constituted. Some AT perspectives focus on historical and cultural contributions to human activity, including the socio-genesis of knowledge (e.g. *Leont'ev, 1981; Cole, 1998),* whereas others focus on how situational factors shape human actions (e.g. *Engeström, 1993). The latter, in particular, assists in delineating what comprises a social practice and identifying the factors that constitute that practice* [emphasis added]. *(p. 85)*

Our interest in AT has followed the latter perspective, focusing on how situational factors shape human actions. All activity systems make up a set of interacting components that shape and are shaped by factors both internal and external to the system. The structure of such a system is represented in Figure 1.
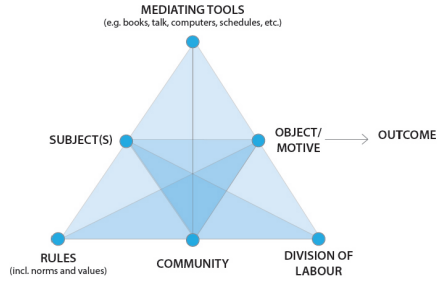
Figure 1. Structure of an activity system. Adapted from Engeström *(1987)*.

The *subjects* are individuals or subgroups engaged in an activity. The *object* is the reason for the activity system in the first place, for instance to gain information about a particular topic. The third component is *tools* or the artifacts that mediate subjects' action upon objects: They mediate or facilitate subjects' doing things. Examples of tools include a questionnaire, a computer, or a text. The *community* is the broader or larger group interacting in the activity and of which the subjects are a part. In higher education, this might include lecturers and students; in community engagement work, this would also include the community with whom the university is engaging. The *division of labor* refers to the different roles played by actors in the system, such as lecturer or student. The *rules* operating in any activity are broadly understood as not only formal and explicit rules governing behavior but also those that are "unwritten and tacit," often referred to as norms, routines, habits, values, and conventions *(Engeström, 1996; Russell, 2002)*.

Because activity theory is suitable for understanding systems and complex joint activities, it is useful not only to look at activities *within* systems, but also at activities of *interacting* activity systems. This is the work of third-generation activity theory, which focuses on "networks of *interacting* [emphasis added] activity systems"*(Daniels, 2001, p. 91)*. Here, contradictions highlighted by contested activity system objects emerge: Each of two intersecting activity systems has an identifiable object which, as they work together on a common project, becomes a transformed object. The outcome of this is Object 3, the result of intersecting activity systems. Third-generation activity theory is represented in Figure 2.

The activity system does not exist outside the community-based research activities; the activities act to constitute the system. However, this does not necessarily imply that this temporary

activity system generates one transformed object through its activities. Very often, distinct—albeit linked—objects remain. This is important in the context of university–community partnerships given the very large differences between them, such as contexts or available resources. This is represented in Figure 3, which outlines the activity system at the intersection of two communities of practice.
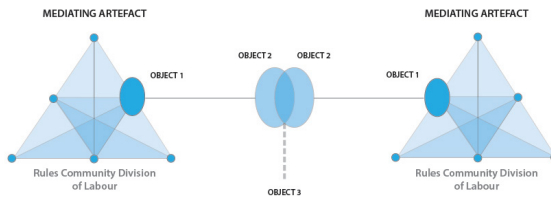

Figure 2. Interacting activity systems. Adapted from Engeström *(1987)*.

Based on earlier research *(McMillan, 2008)*, we argue for two communities of practice interacting via one activity system and engaged in a common project. On their own, universities and communities are both complex communities of practice, each with its own rules, division of labor, tools, and objects *(Lave & Wenger, 1991)*. Through the university–community partnership, they become a temporary activity system working on a project together. In other words, it is only at the intersection—or boundary—with each other that these communities of practice become one system and only through their activities together do the elements of the system get constituted.

The activity system does not exist outside the community-based research activities; the activities act to *constitute* the system. However, this does not necessarily imply that this temporary activity system generates one transformed object through its activities. Very often, distinct—albeit linked—objects remain. This is important in the context of university–community partnerships given the very large differences between them, such as contexts or available resources. This is represented in Figure 3, which outlines the activity system at the intersection of two communities of practice.

Finally, AT proved useful as a framework for university–community partnerships in our context as it illuminated two key features of community engagement that have not been discussed in other studies: an expanded community and a dual (but interrelated)

object *(McMillan, 2008)*. Both of these exert pressure on existing components of the system.
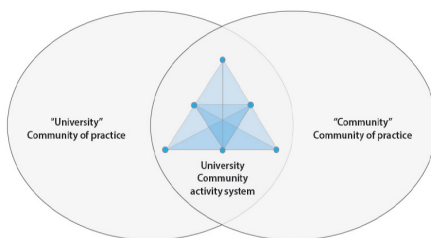

Figure 3. Activity system at the intersection of two communities of practice. Adapted from McMillan *(2008)*.

The expanded community. Community-based research involves an expanded, more diverse community than the traditional university-based one consisting of students and educators. The community in community-based research also includes an external partner. Community partners and the respective activity systems of which they are a part represent different ways of engaging with the world, different histories with specific tools of mediation, and different kinds of knowledge and ways of knowing. All of this can challenge students, and thereby the activity systems, in significant ways. As noted by Russell *(2002)*, the community element of an activity system has a significant impact on all the other elements in the system.

A dual (but interrelated) object. University–community partnerships involve two communities of practice with very different histories, rules, and interests. It can therefore be argued that two interlinked objects are inherent in such partnerships: learning *and* service. Students are not doing research for its own sake and for their degrees alone—they are doing it in the context of engaging or serving a community. The research question is generated by the community partner, not by the university (see the description of the model below). This then translates into a dual (but interrelated) object of service *and* learning, rather than one transformed object. Although the two are clearly different, service and learning are inseparable, as it is through the service that the students learn, and it is through the learning that service gets rendered.

These two features generate an inherent tension within an activity system, which can impact the other dimensions of that system; in turn, these tensions can be reflected in community

engagement activities themselves *(McMillan, 2008)*. This is outlined in the contradictions in the system in Figure 4.
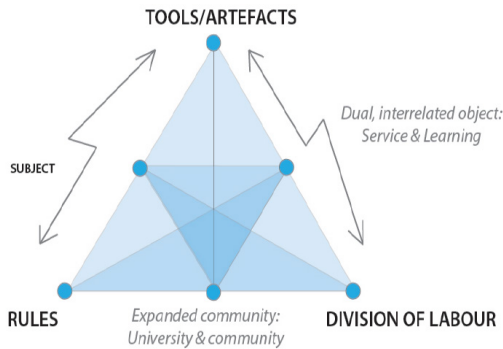

Figure 4. Service learning as an activity system with a dual but interrelated object and an expanded community. Adapted from McMillan *(2008)*.

With the theoretical framework outlined above, the next section describes the context of the case study. We begin by discussing university–community partnerships and science shops in particular, with a focus on the South-African higher education context. We then look at the UCT Knowledge Co-op, which is the focus of this article. Returning to activity theory, we argue that the work of the Knowledge Co-op and other similar structures is a form of boundary work across two communities of practice in higher education, the complex work of which is facilitated by a broker or boundary worker.

Context and Background: University–Community Partnerships and Science Shops

Universities that engage with communities—through community engagement, engaged scholarship, and service-learning—form part of a social responsiveness network within academia. Ramaley *(2014)* addressed the increasing importance of this work for learning to deal with "wicked problems" in our current complex global world. In recent years in South Africa, social responsiveness has come to light as an essential part of academic engagement between universities and broader communities *(Favish, McMillan, & Ngcelwane, 2012; Hall, 2010; Lazarus, Erasmus, Hendricks, Nduna, & Slamat, 2008)*.

Following the end of apartheid in South Africa in 1994, its emerging democracy was faced with a number of challenges

requiring academic input and involvement. Unfortunately, many of these challenges still exist today. In this context, community engagement within higher education in South Africa was promoted by the introduction of an education white paper (*Department of Education, 1997*). The white paper indicated from the outset that higher education in South Africa needed to undergo transformation in order to contribute to reconstruction and development of society. One of the concerns raised in the paper was that university education does not engage with societal needs, problems, and challenges within Africa—this is referred to as the "ivory tower" *(p. 3)* syndrome.

The purpose of higher education, as outlined in the document, is to "address the development needs of society," and universities must "demonstrate social responsibility… and their commitment to the common good by making available expertise and infrastructure for community development programs" (*Department of Education, 1997, p. 3).*

The white paper echoed Ernest Boyer's description of the need for universities to "broaden the definition of scholarship beyond research to include the scholarship of teaching, application, and integration" (as cited in *Barker, 2004, p. 124).* Boyer's vision for applied academics within society was particularly relevant for higher education in a transitional society in South Africa. The national Community–Higher Education–Service Partnerships program (CHESP) was a good example of how this happened in the service-learning field. The CHESP project, a national project funded by the Ford Foundation, aimed at assisting higher education institutions in South Africa to enact aspects of the white paper on higher education transformation. One of the key outcomes of this policy paper was an emphasis on the engagement role of the university as a means for building democracy and addressing societal needs. University–community partnerships and service-learning programs, developed through the CHESP pilot projects, were seen as the practices that could facilitate these changes.

In other parts of the world, similar partnerships have developed, and new models are arising all the time. Many European universities have been exploring the relationship between science and society, giving rise to, among others, the science shop model *(Leydesdorff & Ward, 2005).* This useful brokering model for university–community interaction covers both teaching and research. The European science shop model is one of the oldest examples of modern community engagement, and the Knowledge Co-op in this article was modeled after it. Its practice has also spread from

Europe to the United States (where it is referred to as community-based research) and Australia, among other countries.

The idea of the science shop was to create a bridge between academic science (using the term *science* in its most comprehensive sense, including social science, the humanities, and natural science) and groups that were unable to fund their own research *(Fischer, Leydesdorff, & Schophaus, 2004)*. Nongovernmental organizations (NGOs), local government, and enterprises as beneficiaries of science shop knowledge benefit from the relationship between "knowledge-producing institutions and citizen groups needing answers to questions" *(Leydesdorff & Ward, 2005, p. 354)*. Science shops are typically "staffed" by independent shop staff, university staff, students, and researchers (voluntary and/or paid researchers). The research is primarily participatory, with continual dialogue and discussion held between researchers and the individual or groups seeking assistance *(Gnaiger & Martin, 2001, p. 6)*. Results obtained from research can then be used by the organizations or disseminated among other groups, facilitated by the science shop. In the United Kingdom, there is also increasing evidence of such organizational structures *(*see *Hardwick, 2012)*. Examples include the Science Shops at Queen's University (Belfast) and at the University of Ulster, Interchange at the University of Liverpool, and the CUPP Helpdesk at the University of Brighton.

Certain institutions no longer use the term *science shop* because of renewed and varied approaches to university–community interaction. Examples of this include "project agencies" in Denmark, "co-operation offices" in Germany, and "community exchange" initiatives in the United Kingdom *(Fischer, Leydesdorff, & Schophaus, 2004, p. 200)*. This change in terminology reflects a change in interaction policies between citizen groups, NGOs, and universities.

The development of the Knowledge Co-op and the continuous development of social responsiveness, both at UCT, are an indication of how one South-African university has faced the need to bridge the divide between scholarship, teaching, and community engagement *(University of Cape Town, 2006)*. The Knowledge Co-op was established according to the science shop model, providing community groups with ways to access skills and resources from the university *(Institutional Planning Department, 2009)*. This initiative must be understood in light of the emergent interest in university–community engagement in South Africa. We discuss the Knowledge Co-op in more detail in the next section.

The UCT Knowledge Co-op (KC) and Brokering Model

The Knowledge Co-op (KC) provides an example of a South-African science shop, designed to act as a broker for communities in the greater Cape Town area and UCT. The vision of the KC (referred to as the Knowledge Partnership–its original name) is stated as follows:

> Acting as a bridge between society and the University, the UCT Knowledge Partnership mediates between the two constituencies to jointly reformulate the questions into manageable projects. In the case of research projects, these are allocated to students as projects that are conducted under the supervision of a senior academic, or to academics, who in turn, may use it as case material for future research. Projects may also involve service learning or experiential training initiatives. Either way, a report (or another type of product) is produced which is of direct use to the client, while the student work also fulfills criteria towards an academic qualification. For staff, the model provides a framework for research and student training and learning that is grounded in an engagement with society. (*Penfold & Goodman, 2011, p. ii*)

As an intermediary body, the KC acts as a liaison between community partners, academic staff, and students, enabling them to work together on projects that involve conducting research, finding practical solutions, or offering support for community projects. This benefits both the relevant community body and the university. Thus, the KC emulates the brokering model as the university and community interact across boundaries to provide mutual benefit to each other. Since August 2012, the date of its inception, 125 projects have been implemented under the auspices of the KC. Examples of completed projects include studies into the experience of women waiting for radiation treatment after breast cancer surgery; stigma and the behavior of sex workers around pregnancy and motherhood; alternative energy sources, especially photovoltaic, for pumping water in rural municipalities; and computer training in organizations. (More examples can be found at http://www.knowledgeco-op.uct.ac.za/kco/proj/completed.)

From the inception of the UCT KC, a project group was established to explore and evaluate the work and emerging practices. The group consisted of the Knowledge Co-op broker; a number of

faculty with community engagement experience; and colleagues from the university's Institutional Planning Department, within which the Knowledge Co-op is located. The authors of this article were part of the project group from the inception of the project.

The project had both an evaluation and a research component. The evaluation was aimed at surfacing the practices in the KC in order to assist the development of guidelines for "good practices" in university–community partnerships. The research project, on the other hand, was aimed at exploring the complex interactions between the university and its community partners as well as identifying theoretical tools that might be useful in such an exploration. This article does not focus on the research project and findings from the various case studies of practice that have been reported elsewhere *(McMillan et al., 2013; Wickham, 2013)*. Rather, it highlights the usefulness of activity theory for understanding the model of brokering that emerged in practice and was used in the work of the KC. This article, therefore, is a conceptual piece aimed at introducing tools to analyze university–community interactions. For this reason, we do not include a traditional research methods section; rather, we describe the processes involved in developing an emergent model.

Project Outcomes: An Emergent Model

A key outcome of the project was the elaboration of a complex model of partnership brokering that emerged out of practice over the first 4 years of running the KC. When analyzing the role of the broker, it became clear that the work of the KC occurred across 11 different steps, some involving only members of either the university or community constituency and others involving both constituencies.
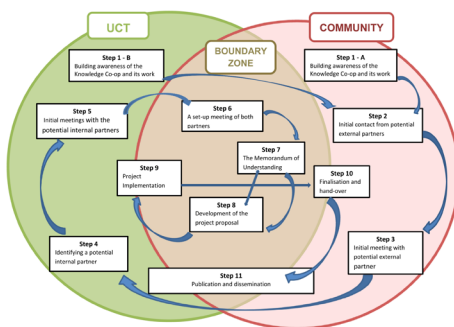

Figure 5. Brokering model of the University of Cape Town Knowledge Co-op *(Wickham, 2013, p. 9).*

Figure 5 represents the brokering model, followed by a description of the stages in the model.

Step 1: Building awareness of the Knowledge Co-op and its work. The first step in the model relates to the Knowledge Co-op's marketing function, aiming to ensure that a wide range of potential community partners and partners within UCT are aware of the Knowledge Co-op and its work. Steps 1A and 1B in the diagram illustrate these two audiences for the marketing effort.

Step 2: Initial contact from potential external partners. Nongovernment organizations make contact with the Knowledge Co-op via the Co-op's website or by e-mail. They complete a project form/brief where they indicate the nature of their request, as well as broad parameters of the project, including timeframes.

Step 3: Initial meeting with potential external partner. This step offers the Knowledge Co-op's project manager and the potential partner a first opportunity to discuss the potential project idea. It gives the broker an opportunity to collect more information about the topic and its meaning for the community partners. The external partners, on the other hand, get to understand what such a project would mean for them—for example, whether they are expected to cover direct research costs of students and what the typical process entails, including the long timelines for academic research.

Steps 4 and 5: Identifying and meeting with potential internal partners. Once a project brief has been developed, the next step is to identify a potential partner within the university. This is primarily the role of the Co-op manager. However, students and academics can visit the website to search for topics for research and/or community service, and graduate students are made aware of this facility at faculty/departmental postgraduate introduction sessions.

Step 6: A set-up meeting with both internal and external partners. The set-up meeting for all partners is arranged by the project manager. The meeting aims to ensure clarity around the project and alignment of partners' expectations. There are a number of standard agenda items for discussion here. The student is expected to provide some suggestions on how the project will be approached and the anticipated timeframe for it. Questions and a discussion follow to clarify a research question and timeline suitable to the needs of both partners. The discussion clarifies the roles and responsibilities of each partner, such as who will assist in the preparation of the student to work in this context. Finally,

the external partner defines a format in which the findings will be handed over to them.

Step 7: Development of the project proposal. Based on the discussions in the meeting outlined above, the student starts writing a project proposal for submission to the supervisor. The external partner is also given the opportunity to comment on the proposal before it is finalized. Negotiating specific aspects of the project and the development of the research proposal does not fall directly within the ambit of the project manager but becomes the responsibility of the academic supervisor, the student, and the community. In effect, this provides for another layer of brokering, requiring regular contact and interaction between university and community partners. The Knowledge Co-op project manager's role during this step in the process is to check on progress, keep the external partner informed, and ensure that commitment to a collaborative process is honored.

Step 8: The memorandum of understanding. Once agreement on the project has been reached by all partners, the project manager drafts a memorandum of understanding (MOU) that reflects the key issues, including responsibilities, as discussed by the partners, as well as details about the partners, the project, and its timeframes. The format for this MOU was developed by the UCT Research Contracts Office and the Knowledge Co-op. Once the MOU satisfies all parties, the MOU is signed by the academic supervisor, the student, the community partner. Lastly, it is signed off by the UCT Research Office (on behalf of the university).

Step 9: Project implementation. Implementation is the primary responsibility of the students and academic supervisors, with varying levels of input from the community partner. The main role of the project manager is to assist with communication and logistical requirements and to monitor progress during project implementation. This is usually done informally through checking in by e-mail or telephone with the different partners. All these communications are tracked.

Step 10: Finalization and hand-over meeting. On finalization of the project, the student's thesis is submitted for examination, and the agreed outputs for the external partner are completed. These are handed over at the final meeting of the partners or, where necessary, between the project manager and the external partner. This final meeting also makes a provision for discussion of possible follow-up projects.

Step 11: Publication/dissemination. The final step in the model involves uploading two-page "project portraits" as well as other products (dissertations, posters, reports for external partners) onto the Knowledge Co-op's website. Students' photographs, as well as their own written experiences, are also published here.

Two aspects of this model are particularly important to note here. First, the initial contact is with an external partner, not with the internal university partner. This is important because it indicates the direction of the work of the KC. It also illustrates how the university partner, when identified, works on the question posed by the community rather than the other way around. This directionality is important because a key criticism of much university–community research is that the community is used to serve the needs of the university. The approach taken in the UCT KC is the opposite of this, wherein university knowledge and resources are harnessed to serve the knowledge needs of the community (see *Cruz and Giles, 2000; Fitzgerald, Bruns, Sonka, Furco, and Swanson, 2016; Savan, 2004; Stanton, 2008; Stoeker, 1999).*

Second, although all the steps in the model are integral to fully understanding the work of the KC, most of the complexity in the role emerges in Steps 6–11 *(Wickham, 2013)*. These six stages occur at the intersection of the university and community in the boundary or "transaction space" *(Gibbons, 2005)*. These stages in particular provided insight into the complexities of boundary work and drawing on activity theory, we were able to consider events occurring as *part of a system* and not as independent, unrelated steps in a process. We explore the contribution of activity theory to this further below.

Language of the Boundary: Zones, Tools, and Brokers

Examination through an activity theory lens led us to understand that the practice underpinning the model of brokering in the UCT KC was "boundary work," work that happens at the nexus of two practices and in our case, through an activity system at the nexus of two communities of practice. Although working across all the stages clearly constitutes the whole process of boundary work, we were particularly focused on the stages in the transaction space *(Gibbons, 2005)*. This was clearly represented in the model outlined earlier.

We use the term *boundary zone* to refer to this space *(McMillan, 2008)*. Such spaces are often places of challenge, contestation, and

playing out of power relations. For example, if there is a lack of clarity about the reason for the interaction between university and community, the nature and types of engagement also change *(Gibbons, 2005)*. This has the potential to result in miscommunication and misdirection in projects, which in turn can also lead to contradictions and tensions in the partnership processes and outcomes. However, boundary zones also offer potential for new learning opportunities and knowledge generation. Thus, in boundary zones, each community of practice reflects its own discourse, structure, norms, and roles so that elements from both systems are always present *(Tuomi-Gröhn & Engeström, 2003)*. This juxtaposition can lead to new learning and engagement.

In activity theory, tools of mediation are used in the relations and activities of boundary work. Such tools have histories and are bound up in practices. In a boundary work frame, we need to understand tools as potential boundary objects *(Bowker & Star, 1999)*; that is, instruments that might serve to coordinate the perspectives of various communities linked through joint activities. Examples of *boundary objects* include research questionnaires or, as in this case, a memorandum of understanding (MOU) signed by the university and the community through the UCT KC. On its own, a boundary object is not necessarily powerful but when utilized in a specific context, such as a means of gathering information (the questionnaire) or outlining the boundaries of a project, the boundary object may become powerful and even contested. Bowker and Star argued that because such tools represent the nexus of perspectives and practices, they carry the potential of becoming boundary objects. This can only happen, however, if *through them various perspectives can be coordinated*. In other words, on their own and outside a specific context, a tool—as a boundary object—is not inherently meaningful or powerful but when put to use in a specific context, it can take on different meanings.

In our context, the MOU became such an object and required much negotiation and even compromise in some of the partnerships. However, the MOU represents a potential boundary object in that it engages the partners in clarifying objects before the project begins. As with any activity system, the object may be challenged by motives, leading to an unplanned outcome. But through the MOU, the intention to come to a joint understanding is present.

As much as possible, the nature and boundaries of such interactions need to be clearly defined and delineated *(Penfold & Goodman, 2011)*. The role of the broker, essentially, should focus on enabling universities and communities to engage in a meaningful, relatively

equitable and mutually beneficial social contract to develop workable solutions to real-life problems. An organization like the UCT KC, through its project manager, acts as a broker for the community partner, bringing the resources of the university closer to the community. Therefore, the brokering model shapes the interaction between universities and communities.

Brokers can help participants make new connections across communities of practice, enable co-ordination and, if experienced, open new possibilities for meaning and learning *(Wenger, 1998)*. However, brokering is a nuanced and delicate role that involves "processes of translation, co-ordination and alignment between perspectives" *(Wenger, 1998, p. 109)*. Influencing the development of a practice, mobilizing attention, and addressing conflicting interests—in other words, assisting with learning by introducing elements of one activity system into another—requires legitimation on both sides of the boundary, within the university *and* the community. In order for boundary zones to lead to new learning and mutually beneficial outcomes, boundary workers are essential to facilitate learning and understanding across two very different activity systems. A key example of this challenging role was evident in defining the "product" of the partnership and determining its usefulness to both the university and the community partner. A challenge that is evident in the role of the broker is translating the academic product needed by the university for the student's degree (e.g., a thesis) into the kind of product most useful to the community partner (e.g., a policy brief, a presentation in nonacademic language, or an educational brochure).

Because of the centrality of the role of the broker in university–community partnerships, more research is needed to understand the nature and influence of this role in different contexts. The work of Weerts and Sandmann *(2010)*, which looked at the differential boundary-spanning roles in community engagement, is very useful and is a start in this direction.

To summarize, community–university partnerships are an activity system operating at the nexus of two communities of practice (the university and the community). As indicated in Figure 3, an activity is formed by two interacting communities of practice. Because of the inherently contradictory nature of such systems, this can pose challenges to existing structures and requires specific support. Tensions arise due to the reality of working in an *expanded community*—with investment and ownership of the activities and different histories and rules of engaging in partnerships—where there is a *dual but interlinked* object shaping the project. The spe-

cial role of a broker or boundary worker becomes crucial in these emergent and expanded communities.

Conclusion: Emergent Models

This study proposes a framework for better understanding the complex practice of university–community partnerships. We outlined a case study of the UCT KC that emerged against the backdrop of debates on the role of universities in community engagement and the emergence of science shops in European universities. We used activity theory as a tool or lens through which to look at university–community partnerships as an activity system. We outlined the constituent elements of an activity system (Figure 1) and considered third-generation activity theory, in which two systems interact (Figure 2). Based on our experience, we discussed boundary work as occurring in an activity system at the intersection of two communities of practice (Figure 3) with inherent contradictions given the complex nature of these partnerships (Figure 4). Finally, we outlined a model of brokering that encompasses the work of boundary workers at the intersection of two complex worlds, the university and communities beyond the university (Figure 5).

In order to understand this role, we shifted our unit of analysis from individualized practices toward the transaction/boundary zone and the practices that take place here between universities and the communities with whom they are engaged. We made the argument that such partnerships constitute a form of boundary work in higher education, work that is challenging and demanding. We identified two inherent features that are important as they deepen our understanding of these practices: an expanded community (broker, students, lecturers, *and* community members) and a dual (but interrelated) object (research/learning *and* service). These two features have important implications for the other elements of the activity system and can go some way to explain many of the challenges and complexities posed by this work.

Recommendations for Further Research

There are important research questions to ask when navigating the complexity inherent in university–community partnerships. Asking such questions as the following will go a long way toward developing ethical and transparent practices with our community partners:

- How do we understand the boundary zone as a site for transformation in higher education?

- How do boundary zones shape the nature of partnerships?

- In what ways can the inherent contradictions in community engagement as in boundary work be the impetus behind such transformation?

The field of university–community engagement is rapidly gaining recognition in many parts of the higher education sector. Universities are making efforts to include this form of scholarship in their mission and vision statements and in operational policies such as faculty tenure and promotion. This is promising. However, questions about the merit of these partnerships and the resulting scholarship continue. In this context, this study suggests activity theory as a promising guide for the generation of models that inform community–university partnerships and scholarship.

References

Anzaldúa, G. (1987). *Borderlands/la frontera: The new mestiza.* San Francisco, CA: Aunt Lute Books.

Barker, D. (2004). The scholarship of engagement: A taxonomy of five emerging practices. *Journal of Higher Education Outreach and Engagement, 9*(2), 123-137.

Billett, S. (2002). Workplaces, communities and pedagogies: An activity theory view. In M. Lea & K. Nicholl (Eds.), *Distributed learning: Social and cultural approaches to practice* (pp. 83-97). New York, NY: Routledge.

Bowker, G., & Star, S. (1999). *Sorting things out: Classification and its consequences.* Cambridge, MA: MIT Press.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate.* Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Cole, M. (1996). *Cultural psychology.* Cambridge, MA: Harvard University Press.

Cole, M. (1998). Can cultural psychology help us think about diversity? *Mind, Culture and Activity, 5*(4), 291-304.

Cruz, N., & Giles, D. (2000). Where's the community in service-learning research? *Michigan Journal of Community Service Learning, 7*(1), 28-34.

Daniels, H. (2001). *Vygotsky and pedagogy.* New York, NY: Routledge.

Davydov, V. V., & Radzikhovskii, L. A. (1985). Vygotsky's theory and the activity oriented approach in psychology. In J. V. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives* (pp. 35-64). Cambridge, MA: Cambridge University Press.

Department of Education. (1997). *White paper: A programme for the transformation of higher education.* Pretoria, South Africa: Department of Education.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research.* Helsinki, Finland: Orienta-Konsultit Oy.

Engeström, Y. (1993). Development studies of work as a test bench of activity theory: The case of primary care medical practice. In S. Chaiklin & J. Lave (Eds.), *Understanding practice: Perspectives on activity and context* (pp. 64-103). Cambridge, MA: Cambridge University Press.

Engeström, Y. (1996). *Perspectives on activity theory.* Cambridge, MA: Cambridge University Press.

Engeström, Y., & Miettinen, R. (1999). Introduction. In Y. Engeström, R. Miettinen, & R. L. Punamäki (Eds.), *Perspectives on activity theory* (pp. 1-17). Cambridge, MA: Cambridge University Press.

Favish, J., McMillan, J., & Ngcelwane, S. (2012). Developing a strategic approach to social responsiveness at the University of Cape Town, South Africa. *Journal of Higher Education Outreach and Engagement, 16*(4), 37-59.

Fischer, C., Leydesdorff, L., & Schophaus, M. (2004). Science shops in Europe: The public as stakeholder. *Science and Public Policy, 31*(3), 199-211.

Fitzgerald, H., Bruns, K., Sonka, S. T., Furco, A., & Swanson, L. (2016). The centrality of engagement in higher education: Reflections and future directions. *Journal of Higher Education Outreach and Engagement, 20*(1), 245-254.

Gibbons, M. (2005, March). *Engagement with the community: The emergence of a new social contract between society and science.* Paper presented at the Griffith University Community Engagement Workshop, Queensland, Australia.

Giroux, H. (1992). *Border crossings: Cultural workers and the politics of education.* New York, NY: Routledge.

Gnaiger, A., & Martin, E. (2001). *Science shops: Operational options* (SCIPAS Report No. 1). Utrecht, Netherlands: Science Shop for Biology, Utrecht University.

Hall, M. (2010). *Boundary institutions: Universities and social change.* Discussion paper, University of Cape Town, Cape Town, South Africa.

Hardwick, L. (2012). The place of community-based learning in higher education: A case study of interchange. *Journal of Further and Higher Education, 37*(3), 349-366.

Hayes, E., & Cuban, S. (1997). Border pedagogy: A critical framework for service-learning. *Michigan Journal of Community Service Learning, 4,* 72-80.

Institutional Planning Department. (2009). *Science Shop Pilot Project.* University of Cape Town, Cape Town, South Africa.

Keith, N. (1998). Community service for community building: The school-based service corps as border crossers. *Michigan Journal for Community Service Learning, 5,* 86-96.

Kozulin, A. (1998). *Psychological tools: A sociocultural approach to education.* Cambridge, MA: Harvard University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, MA: Cambridge University Press.

Lazarus, J., Erasmus, M., Hendricks, D., Nduna, J., & Slamat, J. (2008). Embedding community engagement in South African higher education. *Education, Citizenship and Social Justice, 3*(1), 57-83.

Leonťev, A. N. (1981). *Problems of the development of the mind.* Moscow, Russia: Progress Publishers.

Leydesdorff, L., & Ward, J. (2005). Science shops: A kaleidoscope of science–society collaborations in Europe. *Public Understanding of Science, 14*(4), 353-372.

McMillan, J. (2008). *What happens when the university meets the community? An analysis of service learning as "boundary work" in higher education* (Unpublished Ph.D. thesis). University of Cape Town, Cape Town, South Africa.

McMillan, J. (2011). What happens when the university meets the community? Service learning, boundary work and boundary workers. *Teaching in Higher Education, 16*(5), 553-564.

McMillan, J., Goodman, S., & Winkler, T. (2013, May). *Establishing the criteria for "good practice": Evaluating a model of a university–community knowledge partnership.* Poster presentation at the GUNi 6th International Barcelona Conference on Higher Education, Barcelona, Spain.

Penfold, E., & Goodman, S. (2011). *An evaluation of a knowledge partnership: A review of the literature.* Cape Town, South Africa: Knowledge Co-op, University of Cape Town.

Ramaley, J. (2014). The changing role of higher education: Learning to deal with wicked problems. *Journal of Higher Education Outreach and Engagement, 18*(3), 7-22.

Romero, D. (2014). Riding the bus: Symbol and vehicle for boundary spanning. *Journal of Higher Education Outreach and Engagement, 18*(3), 41-54.

Russell, D. (2002). Looking beyond the interface: Activity theory and distributed learning. In M. Lea & K. Nicoll (Eds.), *Distributed learning: Social and cultural approaches to practice* (pp. 64-82). New York, NY: Routledge.

Savan, B. (2004). Community–university partnerships: Linking research and action for sustainable community development. *Community Development Journal, 39*(4), 372-384.

Skilton-Sylvester, E., & Erwin, E. (2000). Creating reciprocal learning relationships across socially-constructed borders. *Michigan Journal of Community Service Learning, 7,* 65-75.

Stanton, T. (2008). New times demand new scholarship: Opportunities and challenges for civic engagement at research universities. *Education, Citizenship and Social Justice, 3,* 19-42.

Stoeker, R. (1999). Are academics irrelevant? *American Behavioral Scientist, 42*(5), 840-854.

Taylor, J. (2002). Metaphors we serve by: Investigating the conceptual metaphors framing national and community service and service-learning. *Michigan Journal of Community Service Learning, 9*(1), 45-57.

Tuomi-Gröhn, T., & Engeström, Y. (Eds.). (2003). *Between school and work: New perspectives on transfer and boundary-crossing.* New York, NY: Pergamon.

University of Cape Town. (2006). *Social responsiveness report for 2005: Portraits of practice: Social responsiveness in teaching and research.* Cape Town, South Africa: Author.

Vygotsky, L. S. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

Weerts, D., & Sandmann, L. (2010). Community engagement and boundary-spanning roles at research universities. *The Journal of Higher Education, 81*(6), 632-657.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity.* Cambridge, MA: Cambridge University Press.

Wickham, S. (2013). *An evaluation of the model used by the UCT knowledge partnership project.* Cape Town, South Africa: Knowledge Co-op, University of Cape Town.

Winberg, C. (2006). Undisciplining knowledge production: Development driven higher education in South Africa. *Higher Education, 51*(2), 159-172.

About the Authors

Janice McMillan is a senior lecturer at the University of Cape Town. Her interests include community-engaged learning, university–community partnerships, and education and social justice. She earned her Ph.D. at the University of Cape Town.

Suki Goodman is an associate professor at the University of Cape Town and has interests that include organizational and individual learning as well as evaluation studies. She earned her Ph.D. at the University of Cape Town.

Barbara Schmid is project manager for the UCT Knowledge Co-op. Her interests include community–university partnerships. She received a Master of Social Science degree from the University of Cape Town.