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Extending Sociocultural Theory to Group Creativity

Keith Sawyer

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Abstract Sociocultural theory focuses on group processes through time, and argues that group phenomena cannot be reduced to explanation in terms of the mental states or actions of the participating individuals. This makes sociocultural theory particularly useful in the analysis of group creativity and group learning, because both group creativity and group learning emerge over time from the successive contributions of individual members, and they are difficult to reductively explain in terms of the mental states or actions of participating individuals. This paper presents a case study of group creativity, analyzing how a collective creative product emerges over 17 successive encounters of an improvisational theater group. This case study demonstrates the value of sociocultural theory in the study of group processes over time. And yet, it suggests that to fully explain group creativity and group learning, existing sociocultural theory must be extended beyond a narrow focus on process and practice, to focus on three levels of analysis: individual creative acts, interactional dynamics over time, and the emergence of collective group creations.

Keywords Creativity · Innovation · Collaboration · Improvisation · Emergence

Group Creativity and Sociocultural Theorising

A full explanation of a group phenomenon, such as group creativity or group learning, requires an analysis of the individual creativity of each group member, as well as the group processes that bring together each member's distinct creative contributions. For example, a study of group creativity could choose to focus on the psychology of the individual group members, the interactions that take place during the creative process, or the collective and emergent product that results. A complete

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explanation of group creativity is likely to require a consideration of all of these elements together.

Sociocultural psychology is the most recent in a long history of attempts to study groups and individuals together, by incorporating both anthropological and psychological perspectives (Cole 1996). Socioculturalism, as defined here, includes cultural psychologists, Vygotskian educational theorists, and those studying situated action and distributed cognition (Bruner 1990; Cole 1996; Forman et al. 1993; Lave and Wenger 1991; Rogoff 1990; Stigler et al. 1990; Suchman 1987; Valsiner 1998b; Valsiner and Rosa 2007; Wertsch 1998). This paper examines a core theoretical assumption of socioculturalism: that processes (sometimes called practices or situated social practices) are the fundamental unit of social reality. This focus on process raises a serious problem: it makes it difficult to understand the mutual relations between individuals and groups, because it elides the distinction between these two levels of social reality by wrapping them both into the unit of analysis of “social practice” (Archer 1995). As a way of resolving this problem, this paper proposes an extension of sociocultural theory, referred to as “collaborative emergence,” and demonstrates the potential value of this theoretical extension by applying it to an empirical example of group creativity.

Many sociocultural theorists are developmental and cognitive psychologists, and these psychologists in some sense are always interested in developmental processes through time. However, traditional developmental psychologists often retain the paradigmatic focus of psychology on the individual as the unit of analysis, an approach known as methodological individualism, involving operationalizing mental constructs to derive variables associated with individual human subjects. Sociocultural theory differentiates itself from this general developmental orientation by making a stronger ontological claim: process is the fundamental nature of reality. This differentiation results in one of the unifying features of sociocultural theory: The unit of analysis is situated social practice, rather than the individual as in traditional psychology (Hatano and Wertsch 2001, p. 79). Situated social practices are the fundamental unit of social reality, with individuals and groups secondary and derivative.

Many sociocultural theorists have explicitly identified situated social practices (sometimes referred to as processes) as the central ontological unit of social reality. For example, Hutchins (1995) made one of the strongest claims for the importance of focusing on process: “Culture is not any collection of things, whether tangible or abstract. Rather, it is a process....and the ‘things’ that appear on list-like definitions of culture are residua of the process” (p. 354). Cognition is conceived as a property of the group, not the individual participant, and this distributed cognition perspective was a central feature of Hutchins’s 1995 study of ship navigation teams. Lave and Wenger (1991) also identified practices as the core ontological unit in their “social practice theory of learning” (p. 35). Learning is the process of reproduction of the social structure, embodied in the participatory practices of the community (pp. 54–58). Lave and Wenger acknowledged debts to Giddens, Bauman, and Bourdieu, all practice theorists in the Marxist tradition (pp. 50–54; see Sawyer 2002).

Other socioculturalists make less strong theoretical claims that process is the ontological core of social reality, even as they continue to advocate an empirical focus on situated practice. For example, Wertsch advocated a focus on mediated
action; all action involves an individual in a social situation using cultural tools. (1993). Like Hatano and Wertsch (2001), Cole argued that the unifying thread of socioculturalism is its focus on “cultural practices” (1995, p.105). Yet as Cole noted, there is no consistent theoretical conception of what “cultural practices” are—they are variously interpreted as activity, context, event, and situation (1996).

Thus, there is an unresolved tension in sociocultural theory, with one group of theorists arguing for the ontological primacy of process, and another group arguing that an empirical focus on practice does not require a process ontology. This latter group holds that one could accept that individuals and groups both exist, at autonomous levels of analysis, and nonetheless argue that it is methodologically necessary to study the multi-level interaction of individuals and groups in situated practices. Wertsch (1993) and Cole (1995) take the latter approach, whereas Rogoff (1990); Hutchins (1995) and Lave and Wenger (1991) take the stronger stance of a process ontology.

The stronger stance of process ontology is consistent with a second theoretical claim associated with socioculturalism: the inseparability claim. Following claims for a strong process ontology, many socioculturalists argue that the individual cannot be meaningfully separated from the social and cultural context (Sawyer 2002). For example, Rogoff (1990) argues that processes through time involve a transformation of the social practices of the entire group, and these transformations cannot be reduced to an analysis of what any one participant in the group does or knows, because they are collective and distributed phenomena. Thus socioculturalism focuses on situated social practices, and argues that one cannot study individuals or social contexts separately.

Socioculturalists who argue for inseparability reject the methodological individualism of contemporary experimental psychology. In contrast, the objects of sociocultural study are events, activity, and practice, and they are considered to be irreducible to properties of individuals. These socioculturalists also reject an ecological or “social influence” approach that conceives of individuals acting in, and influenced by, an external context or environment. Such attempts to incorporate social context into psychology assume that individuals and contexts can be analytically isolated and then the interaction between them studied. These theoretical commitments lead to a distinctive methodology: a rejection of the individual as the unit of analysis in favour of an action or event unit of analysis. In practice, this leads to close empirical study of symbolic interaction in naturally-occurring microsocial situations using ethnographic and qualitative methods, a methodology called interaction analysis (Sawyer 2006a, in press).

There are a broad variety of ways to theorize individuals in social context. For instance, sociocultural approaches range from a “weak social interaction” view (Valsiner 1991, 1998a; Wertsch 1993, 1994; Cole 1995, 1996), which accepts that individuals and groups can be analytically distinguished, to a “strong” view, which holds that individuals and groups can never be analytically distinguished, and must always be studied together (Lave and Wenger 1991; Matusov 1998; Rogoff 1990, 1997; Shweder 1990). Valsiner further distinguished two types of weak social interaction, which he called “exclusive” and “inclusive” separation (1991, p. 314; 1998a). In exclusive separation, the social context is reduced to variables that are measured only in the ways that they impact individual behaviour. In inclusive separation, individuals and sociocultural setting are separate but interdependent.
The scientific study of group creativity raises similar issues, because a full explanation of group creativity requires an analysis of the individual creativity of each group member, as well as the group processes that bring together each member’s contributions. Thus, sociocultural theory is potentially well suited to the study of group creativity; yet, the unresolved tension surrounding the ontological status of process, individuals, and groups needs to be addressed, so that we can answer questions such as: What is the nature of the temporal processes within creative groups? What are the nature of individual-level and group-level processes? How do processes at these two levels interrelate during group creativity? This paper addresses these questions through the examination of an empirical case study of group creativity, and proposes a resolution of these questions that, it is hoped, will allow a more effective application of sociocultural theory to group creativity. The proposed resolution requires stepping back from the strong process ontology and inseparability argued by some sociocultural theorists, toward a multi-levelled view of social reality.

Extending Sociocultural Theory to Group Creativity

In group creativity, innovations are held to emerge from the collective actions of many individuals working together. Yet, until quite recently, most creativity research has been conducted by psychologists, who have focused on the mental processes and the personalities of creative individuals (see Runco 2007). A sociocultural orientation suggests that psychological accounts of creativity are limited and that a complete explanation of creativity requires scientists to bring together studies at both the individual and the group levels of analysis (Cole and Engeström 2007; Sawyer 2006b).

Sociocultural theory is motivated by a similar goal: to explain both individual and group level processes, simultaneously and in dialectic. Sociocultural studies have always focused on how individual creative contributions combine together in group interactional processes. Socioculturalism allows one to theorize the complex relationships between individual creative contributions on the one hand, and collective group processes on the other. Group creativity is potentially a multi-levelled process that involves creative mental processes (at the level of the individual) and creative collaborative processes (at the level of the group).

However, there are some limitations of the sociocultural approach that must be addressed before it can fully explain collaborative creativity. First, due to its empirical focus on collective social practices, for the most part socioculturalism has neglected the internal psychological processes of participating individuals. Many canonical presentations of the sociocultural approach (e.g., Lave and Wenger 1991; Rogoff 1990) say little about internal mental processes, cognitive development, or conceptual change. This neglect is perhaps defensible given the emphasis among socioculturalists on development and learning, particularly in children. In the learning environments studied by these socioculturalists, the learners typically master known and established cultural practices, and the outcome of the group activity is essentially predictable (although the path toward that outcome may vary from one child to another).
But group creativity involves novel creative contributions from the individual participants, and the outcome is unpredictable and emergent. Thus, perhaps unlike ordinary developmental processes, the explanation of creative social phenomena unavoidably requires an explanation of the psychological processes that result in individual creative contributions. To fully explain group creativity, individualist and sociocultural approaches should be combined in an interdisciplinary approach, one that considers both individual mental processes as well as group interactional processes. Several theorists and empirical researchers have begun moving in this direction (Cole and Engeström 2007; Greene 2006; Nercissian 2005; Sawyer 2011), although they rarely clarify the ways that their work is in tension with process ontology and inseparability claims.

Second, for the most part, sociocultural approaches focus on collective social practices, and they generally do not analyze individual contributions and how they relate successively through time. Such an analysis would focus closely on the moment-to-moment actions of each member of the group, and how they build on prior actions and also how these influence future actions. Such an analysis is necessary to integrate explanations at the individual level (i.e. of the successive ideas contributed by participating individuals) with explanations at the group level (i.e. of how ideas build over time to result in the collective creation of an emergent group product that cannot be reduced to any one moment of individual creativity); see (Greene 2006; Nercissian 2005).

When groups of individuals engage in free-flowing and unstructured conversation, the flow of the conversation emerges from the successive individual contributions of the participants. Sawyer (2003a) has called this process collaborative emergence, because the group’s properties and outcomes emerge from individual actions and interactions. The theory of collaborative emergence builds on theories of emergence developed in the study of complex systems in many other scientific disciplines. Emergent phenomena are often observed in systems that contain many components that interact in complex configurations (Sawyer 2005). In emergent phenomena, a higher-level system pattern or property is observed, and the pattern or property must be explained in terms of the components of the system and their interactions. Emergent phenomena are unpredictable before they occur, even given a fairly complete knowledge of the system components and how they interact. Emergent systems are difficult to explain using scientific methods based on reductionism, an explanatory approach that first decomposes a system into component parts, then analyzes and explains the parts, and then works upwards is used to explain the entire system. This is because a full account of the many components’ behaviours and their many successive interactions would be time-consuming, unwieldy, and in the end may fail to result in enhanced understanding of the system.

In the early 20th century, philosophers defined “emergence” as the creation of something new that was unpredictable, even given a full and complete knowledge of the world prior to its emergence (e.g., McLaughlin 1992; Broad 1925; Morgan 1923; also see Sawyer 2005). The concept was originally developed to address issues in the theory of biological evolution. Theories of emergence have influenced psychology since its beginning in late 19th century western society (Sawyer 2002). The 19th century was characterized by a preoccupation with evolution, and Darwin’s
theory posited that new species emerged over time. Theories of emergence and evolution were the focus of an influential group of British philosophers and evolutionary biologists just after World War I, a group that has been called the "British emergentists" (McLaughlin 1992). Influential figures from this period include Broad (1925), Morgan (1923), and Whitehead (1926). The emergentism of both Broad and Morgan involved six related claims (Kim 1992; Teller 1992). These are: i) emergence is a process that occurs through time; ii) when aggregates of basic entities attain a certain level of structural complexity, properties of the aggregate emerge; iii) what emerges are new levels of reality, corresponding to evolutionary or historical stages; iv) because these are properties of complex organizations of matter, they emerge only when the appropriate lower-level material conditions are present; v) what emerges is unpredictable, and could not have been known analytically before it emerged; and vi) emergent properties are irreducible to properties of their lower-level parts, even though they are determined by those parts. These six claims are quite similar to notions of emergence as used in contemporary complexity theory (e.g., Sawyer 2005), and contemporary sociocultural theory emerged from intellectual traditions (such as American pragmatism) that were deeply influenced by the British emergentists.

Both contemporary creativity theory and contemporary sociocultural theory are largely compatible with emergentism. Socioculturalists share with emergentists a rejection of reductionism. That is, socioculturalists hold that the emergent outcomes of group interaction cannot be explained through reduction to the individual mental states and decisions of the participants. Group phenomena are unpredictable before they occur, and they can only be explained by analyzing the temporal unfolding processes of emergence, using methodologies designed to analyze communicative interaction.

As well, one of the most influential theories of creativity, the systems model (Csikszentmihalyi 1988; Gardner 1993), proposes that creativity emerges from a collaborative process that includes three components. First, the creative individual completes a creative product and then attempts to disseminate it to the broader community, or field. For example, a scientist may submit a manuscript to a journal to be considered for publication. The editors of the journal may decide to reject the manuscript, or they may send it to two or three scholars for peer review. This review process could also result in the rejection of the article. If the article—the individual’s creative product—is rejected by this group of “gatekeeper” individuals, then it will never enter the domain: the shared body of accepted scientific knowledge. The systems model proposes that the analysis of creativity requires not only a psychological focus on the creative individual, but also an analysis of the social system. All creativity is an emergent process that involves a social group of individuals engaged in complex, unpredictable interactions (Sawyer 1999).

In sum, sociocultural theory corresponds quite closely to theories of group creativity as emergent. Creativity is theorized as a process through time, rather than a static trait of individuals or of certain creative products. The creative product emerges from the combination of lower-level elements, in combination in a complex system: ideas contributed by many different individuals brought together through collaboration and conversation. However, if taken to an extreme, the two core identifying theoretical assumptions of socioculturalism—the ontological primacy of processes, and the assumption of inseparability of individual and group levels—would seem to make it
impossible to analyze collaborative emergence, because such an analysis would require analyzing individual psychological phenomena, interactional processes, and emergent group properties. This appraisal suggests that sociocultural theory needs to be extended: first, by analyzing the individual mental processes that lead to each participant’s creative contributions; second, by analyzing the interactional dynamics of how these successive contributions result in the emergence, over time, of a collaboratively created outcome; third, how individual actions and emergent group creations interact over time.

To contribute to our understanding of how sociocultural theory might be extended in such a way, this paper next applies sociocultural theory to an example of group creativity. The focus of the analysis is on how successive individual contributions result in the gradual emergence, over time, of a collective creative product. The analysis requires a constant consideration of both individual-level and group-level phenomena, as well as the moment-to-moment interactional dynamics of the group, in a way that is difficult to reconcile with the theoretical positions of process ontology and inseparability.

An Example of Collaborative Emergence in Group Creativity

Collaborative emergence can occur in single encounters and across multiple encounters. In a business context, a cross-functional team is often brought together for an hour or two to brainstorm potential solutions to a specific problem; the conversation that ensues represents collaborative creativity, and if successful, a creative solution emerges by the end of the encounter (e.g., Sethi et al. 2001). But, equally common are situations where the same group comes together multiple times, with the intention of generating a creative product across repeated encounters (Hackman 2002). This latter situation is the norm in the performing arts, where musical or theatre ensembles rehearse many times over weeks or months to generate a collectively created performance.

The following case study of collaborative emergence is taken from an extended study of a student improvisational theatre group, TheatreWorks (Sawyer and DeZutter 2009). TheatreWorks is a nonprofit theatre troupe for teens aged 11 to 17, who meet weekly for about 90 min. The analysis focuses on 12 rehearsals and five performances of a show, Squids Will Be Squids, which the group prepared from December of 2001 through May of 2002. Performances of Squids occurred from April to August of 2002. This was a stage version of the book by the same title (Scieszka and Smith 1998). The show contained a series of 5-min scenes, each of them based on a one-page story from the book. The stories are slightly bizarre parodies of Aesop’s fables; they involve animals and inanimate objects, and they conclude with a moral that is, by author intention, humorous and not very edifying. The scenes were not scripted, memorized, and rehearsed, as in traditional theatre. Instead, the director guided the group through an improvisational, collaborative writing technique that is often used to develop sketch comedy and other ensemble-based performances (Sawyer 2003b); each of the scenes was improvisationally and collaboratively developed by the actors over many rehearsals.
Although each scene was loosely based on a story from the book, the scenes often diverged significantly from the book version, due to the unpredictable processes of collaborative emergence. Each scene was semi-improvised; although the overall plot was predetermined by the book, the actors did not attempt to follow a set script when they performed, and were free to improvise dialogue and actions within the larger plot structure. Since the troupe operated on a rotating cast system—in which the actors shared all the roles and rotated parts for successive performances—subsequent attempts at improvising a scene would often be done by a different set of actors. The actors continued to improvise through the course of the five live performances; the group never considered any scene to be permanently fixed, and the performances continued to vary up to the last performance.

The analysis of these improvisationally developed scenes resulted in the identification of two types of dramatic structure that collaboratively emerged over the course of multiple rehearsals and performances. First, foundational elements of narrative—character, relationship, and plot—emerged from the collective improvisations of the ensemble. Second, short segments of dialogue and action, known as “bits”, emerged collectively and were retained through subsequent performances. The analysis demonstrates that these emergent structures seem to have an autonomous social reality, apart from their manifestation in any one practice, any one encounter—thus raising a challenge to the inseparability and process ontology claims associated with sociocultural theory.

The Collaborative Emergence of Narrative Elements

While the group attempted to generally follow the story that appeared in the children’s book, each scene that the group dramatized was embellished considerably from the simple one-page stories in the book. No single person scripted a scene, or was assigned to dramatize a story; the final scenes collaboratively emerged from the collective actions of the ensemble in successive group rehearsals.

The following example illustrates the degree to which the group elaborated on the stories in the book. The story titled “Rock Paper Scissors” appears in the book like this:

Rock, Paper, and Scissors were assigned to be partners for the big end-of-the year Science project.
Rock thought up the idea for the project.
Paper drew all of the charts and graphs and illustrations.
Scissors did the research and the presentation.
It wasn’t a very good project, and they didn’t work very hard on it, so they got a C.
“You should have done more research,” said Rock, hitting Scissors.
“You should have drawn more illustrations,” said Scissors, cutting Paper.
“You should have thought of a better idea,” said Paper, covering Rock.
Moral: RockPaperScissors say, “Shoot, it wasn’t my fault.”
(Scieszka and Smith 1998).

An elaborated version of the story emerged over twelve rehearsal sessions during which the group practiced improvising their way through the scene; it
went something like this, although there was always improvised variation and embellishment:

The group enters holding signs stating the scene title, which they read to the audience: “Rock, Paper, Scissors.” A cast member comes forward, as the teacher, while three other actors sit nearby, as students. These three actors play characters named “Rock,” “Paper,” and “Scissors,” and are wearing baseball caps onto which have been glued the items appropriate to their names: a large rock, a piece of notebook paper, and pair of scissors. The Teacher addresses the audience as his class, and announces that the class must work on their science projects today. He assigns Rock, Paper, and Scissors to work together. Paper and Scissors are very happy to learn they are together, but disappointed to learn that they must work with Rock. The Teacher tells them to select their topics, and exits. Rock suggests they do their project on rocks, while Paper and Scissors propose butterflies. The three argue over this until the teacher reenters and asks for their topic. Rock says “rocks” at the same time that the other two say “butterflies.” The Teacher clearly favors the topic of rocks, which leads to a discussion on the relative merits of rocks versus butterflies. The Teacher asks the audience which they would choose, and suggests that the group is likely to receive a higher grade for doing rocks. He then tells the students to get to work, and exits. The students now divide up the work: Paper reluctantly agrees to draw the charts and graphs and illustrations, Scissors concedes that she will do the research. Rock tries to get off without any additional work since he “thought up the topic,” but in response to the grimaces of the other two, agrees to contribute by putting the project in a nice folder. The group then sits idly for several moments, Scissors noting that she has books on butterflies but not rocks. The Teacher announces that he is coming to grade the projects, and the group quickly assembles a “project” by tossing anything they can find lying about the stage into the folder, including one of the books on butterflies and Rock’s rock hat. The Teacher negatively reacts to the ramshackle project, while the group tries to justify it as being “interactive” and noting that the butterfly book contains a picture of a butterfly on a rock. The Teacher gives the students their grade, a C. The students each in turn blame one another, and the skit is brought to an end as the emcee of the show walks on stage and states the moral.

This emergent story structure remained roughly the same as that written by Scieszka and Smith (1998), but there is quite a bit in the performance version that is the group’s own creation, including the character of the Teacher, the opposition between Rock and the other two students, and the teacher’s preference of project theme. All of these created elements emerged from the successive improvisations of the group; because the group worked collaboratively, using improvisation, the narrative that resulted is best understood as a collective social product that cannot be simply attributed to the contributions of individual members.

The development of the Teacher character is an example of a two-layered collaborative emergence process that characterizes much of the group’s rehearsal work. Narrative ideas, such as the idea that the Teacher is obsessed with rocks, emerged initially within a single rehearsal. Such ideas were then further developed across successive rehearsals, as new actors portrayed the character. Each time a different
actor took on a role, she drew from the previous rehearsal performances that she had observed, selecting certain ideas performed by other actors, recreating those ideas, and often elaborating on them. Of course, each new enactment of the character was situated within a newly unfolding improvisation of the entire scene, and so was influenced as well by moment-to-moment interactions with other actors. In this way, narrative elements emerged as a process of both within-scene interactions during a single rehearsal and the collaboration among actors across successive rehearsals.

With each successive rehearsal, the actors improvising the scene would choose to repeat their favourite elements from previous renditions. Over time, this repetition resulted in a fairly consistent set of plot points, characterizations, and character relationships for the scene. It was not the troupe’s intention to create a fixed, line-by-line script for the scene, but rather to develop the actors’ ability to improvise their way through the scene coherently.

The Rock Paper Scissors scene is typical of how all of the 11 scenes of *Squids Will Be Squids* were created. Each scene was relatively stable even though that stability can neither be attributed to a preexisting script written by a sole author, nor to the book’s version. Instead, this stable narrative structure was a collective creation of the group. The creation of this stable narrative structure was distributed across all members of the group, and explaining it requires an analytic account of the complex processes of symbolic interaction that resulted in its emergence.

**The Collaborative Emergence of “Bits”**

To analyze how the performance emerged, all five performances of “Rock Paper Scissors” were transcribed, and interaction analyses were conducted on the transcripts. These analyses revealed only a few sections of each scene that were repeated verbatim. However, even in those portions of a scene that were most improvisational, there were “bits,” a professional term of art used by actors to refer to stable sequences of dialogue and action that recurred repeatedly across performances. In performances of *Squids*, bits were often replayed in a slightly different form, so that even once a bit became established, it continued to evolve, and often underwent subtle variations in the wording of the dialogue. Bits emerged and remained stable because they served one of two dramatic functions: either they served as anchors for the otherwise improvised dialogue, by marking important plot developments; or they were funny one-liners that got a laugh. Each stable bit emerged from collaborative improvisations across many months of rehearsal. Bits were created by collaborative emergence, just like the narrative elements described in the previous section: a bit that emerged improvisationally in one rehearsal of a scene might be repeated and embellished in a subsequent rehearsal of that scene. Even repeating a dialogue exchange from a previous rehearsal required collaboration; if one actor initiated a bit of dialogue, but the other actors did not recognize it and continue it, the bit would not be successfully re-enacted. As with any extended improvisational process, there were innumerable dialogue exchanges that were never repeated: the “multiple dead ends” characteristic of all creative processes (Sims 2011). The bits that were retained were selected out of the many hours of free-flowing improvised dialogue. And this selection was made by the collective and distributed activities of the entire troupe.
For example, a bit about the project being "interactive" occurred in all five performances of the Rock Paper Scissors scene—toward the end of the performance, just after the Teacher asks the students to turn in their final group project. This bit is an interactional routine that contains three basic elements: The students hand the Teacher their poorly constructed project (which they completed at the last minute and with very little effort); the Teacher then has trouble holding it together, dropping some portions of it, thus signifying the ramshackle nature of the project; the students try to put a positive spin on this by calling the project "interactive"; the Teacher is skeptical, realizing the project is simply of poor quality, and does not accept this explanation. Here are three instances of the interactive bit:

**Performance 2**

<table>
<thead>
<tr>
<th></th>
<th>Teacher (Josh):</th>
<th>(nearly dropping the project) Oh, okay, it's kind of falling. Oh, um, I'm just gonna leave that there</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Rock (J’Rhea):</td>
<td>//No, no, no</td>
</tr>
<tr>
<td>3</td>
<td>Teacher:</td>
<td>//No?</td>
</tr>
<tr>
<td>4</td>
<td>Scissors (Miranda):</td>
<td>//No, see it’s interactive.</td>
</tr>
<tr>
<td>6</td>
<td>Scissors:</td>
<td>That's the rock part of it.</td>
</tr>
<tr>
<td>7</td>
<td>Teacher:</td>
<td>It's interactive, yeah. Very creative. You have some, a rock,</td>
</tr>
<tr>
<td>8</td>
<td>Scissors:</td>
<td>//It's hands on, you know</td>
</tr>
<tr>
<td>9</td>
<td>Teacher:</td>
<td>and you have the word &quot;rock&quot; (holds up piece of paper with the word &quot;rock&quot; written on it).</td>
</tr>
<tr>
<td>11</td>
<td>Rock:</td>
<td>Yeah.</td>
</tr>
<tr>
<td>12</td>
<td>Paper:</td>
<td>And you can draw, you can draw the rock on the paper and cut it out.</td>
</tr>
<tr>
<td>13</td>
<td>Teacher:</td>
<td>//And it's, it won't even help. Trust me, it's ok.</td>
</tr>
</tbody>
</table>

At line 1, the Teacher has difficulty holding the various papers of the project together, and almost drops it. At line 4, Scissors (falsely) claims that this is intentional, that it represents the “interactive” or “hands on” (line 8) element of the project. At line 13, the Teacher makes it clear that he knows this was not intentional, and that the project is simply poor student work, saying that their ruse “won’t even help” improve their grade.

**Performance 4**

<table>
<thead>
<tr>
<th></th>
<th>Teacher (Josh):</th>
<th>(having trouble grabbing the project) All right, I'll just kind of, ok.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Rock (Sandra):</td>
<td>There you go (lifts folder to teacher).</td>
</tr>
<tr>
<td>3</td>
<td>Teacher:</td>
<td>There you go, (drops several items from folder) wow, um, hmmm</td>
</tr>
<tr>
<td>4</td>
<td>Rock:</td>
<td>Isn't it beautiful?</td>
</tr>
<tr>
<td>5</td>
<td>Teacher:</td>
<td>You have a, oh, there's, there's lots of parts to it, which is always a good thing.</td>
</tr>
<tr>
<td>6</td>
<td>Scissors (Miranda):</td>
<td>Yeah, it's interactive, it=</td>
</tr>
<tr>
<td>7</td>
<td>Teacher:</td>
<td>=Interactive, I'll like how you have the scissors hat, that's creative</td>
</tr>
<tr>
<td>8</td>
<td>Scissors:</td>
<td>//It's, uh-uh.</td>
</tr>
<tr>
<td>9</td>
<td>Rock:</td>
<td>Draw the rock on the paper.</td>
</tr>
</tbody>
</table>

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The basic structure of the bit is similar, although the exact lines spoken are again improvised: it begins (lines 1 and 3) with the Teacher having difficulty holding the poorly constructed project, followed by the students (lines 4 and 6) claiming that the project was intentionally designed this way and that it is “interactive.”

Performance 5

1 Teacher (Josh): This is your project, this, oh and that down there is your project. This is your project?
2 Paper (Miranda): Um, that is the main part of our project.
3 Teacher: // (to audience) This is their project.
4 Paper: See, it's interactive, you can actually hold and feel the texture of the rock and yes.
5 Scissors (Chelsea): // This is the main part.
6 Teacher: Uh-huh. It's ok, you can, uh, thanks, yeah, so in case I didn't know what rocks looked like, I have one.
7 Paper: // Exactly, exactly. This is an example of a rock, yes.
8 Teacher: Okay, great.

Again, the dialogue is improvised within the emergent structure of the bit. This time, the Teacher does not attempt to pick up the project, so he does not fumble with it or drop portions of it, as in Performances 2 and 4. Yet as it rests on the floor, it is visibly of poor quality, to both the Teacher and to the audience. At line 4, a student (this time Paper rather than Scissors) defends the project by claiming it is “interactive.” The Teacher responds with skepticism and sarcasm (line 6), as in Performance 2.

In all three performances above, the students suggest to the Teacher that their project is interactive, but the dialogue unfolds slightly differently each time. Key portions of the bit are performed by different characters in each performance. In Performance 2, it is Paper who suggests the idea of drawing the rock on the paper, and in Performance 4, it is Rock who does so. In Performance 5, this idea is not brought up at all. Instead, the Teacher and Paper discuss the inclusion of an actual rock as an example of rocks.

In sum, after months of rehearsals, the group had developed both a stable narrative structure and a set of bits that they used consistently to communicate essential plot points. Even though the scenes were not scripted, the actors’ performances were guided by two broad types of emergent structure: overall narrative elements (plot, character, relationships), and specific bits of action and dialogue. The presence of a fairly stable set of bits that occurred regardless of which actors were in which role, and the stability of most of the narrative elements, despite the rotating cast, highlights the importance of understanding the narrative as a collective creation of the group. Neither the overall story nor the bits were created and enacted by any particular actor. The responsibility for performing the story was distributed across all members of the cast.

Even after months of rehearsals, the scenes in Squids changed every time they were performed. This was not because of memory failure or inattention on the part of the cast; rather, it was due to the unpredictable process of collaborative emergence. Such improvisation and embellishment is characteristic of all group creativity, as documented repeatedly in studies of verbal performances conducted by linguistic anthropologists. For example, the studies collected in Bauman and Sherzer (1974)
show that even highly ritualized performances retain space for improvisation, and undergo subtle variation over time (also see Sawyer 1997).

**Extending Sociocultural Approaches**

The sociocultural approach has much to offer in examining collaborations like this; its focus on process allows one to analyze the interaction of individual contributions over time. But whereas sociocultural approaches generally focus on situated social practices that occur within a single encounter, the processes that occur in the above example must be analyzed on at least two time scales: first, the moment-to-moment conversational processes within a single improvised instantiation; and second, the processes that occur from week to week, across successive rehearsals and performances. For the most part, interaction analyses conducted by socioculturalists have only considered the first time scale—the processes that occur in face to face groups in a specific encounter. This focus ends up rather narrowly constraining the analytic perspective to a single encounter, and as a result, the emergence of collective social products, with some degree of stability over time, is often neglected by sociocultural approaches.

Socioculturalism is valuable in that it has encouraged psychologists to focus on the emergence of group phenomena during situated social practices in social encounters. But socioculturalists tend to neglect how social properties emerge over longer periods of time, through successive encounters. The case study above demonstrates the difficult challenges facing a strong inseparability claim. A complete explanation of the group’s creativity requires the analyst to distinguish between individual creative contributions, and the collective emergence of a shared social product—the emergent dramatic frame. The above case study has identified two types of emergent group properties—overall narrative structure and shorter, localized bits—that require analysis at a group level, distinct from individuals and distinct from the interactional processes that arose in their emergence. Once elements of the dramatic frame emerge, they begin to constrain the possible appropriate actions of the individual performers. Thus, collaborative emergence, a bottom-up process, is paralleled by downward social causation, a top-down process. The emergent collective product, the shared dramatic frame, is collectively created by the participants, and yet has causal influence over those participants.

This bidirectional relationship would seem to raise challenges for the inseparability claim associated with sociocultural theory: its analysis requires us to distinguish between individual creative contributions, their interaction over time, and the emergent group-level product, the dramatic frame. The explanation of creativity thus requires us to consider three levels of analysis simultaneously: i) individual mental processes that result in the creative contribution of a specific action; ii) interaction between these individual creative contributions; and iii) the emergent, group level of analysis, the shared social creation that is represented, in this case, by the dramatic frame.

The above example shows that the relation between the individual and the emergent frame is complex (see Sawyer 2003b). Once the frame emerges, it has a high degree of stability, yet it is not fully constraining; individuals always have some range of freedom to act. Even after twelve rehearsals and five performances, the collective
action of the ensemble can give rise to novel, unexpected variations. And yet, the potential range of creative action is highly constrained; diverging too far from the dramatic frame would throw the performance off course and destroy the scene. Because sociocultural theory elides the analytic separation of individual and group, it has difficulty explaining group creative phenomena such as these improvisational performances.

**Collaborative Emergence and Sociocultural Theory**

As has been shown, sociocultural theory has much to offer the study of group creativity. This paper has emphasized two valuable features of sociocultural theory: its focus on processes through time, and its insistence on simultaneous examination of individual level and group level phenomena. Although these are potentially quite useful in the analysis of group creativity, this paper further argues that these two features must be extended to more fully explain group creativity. The proposed way forward is to focus on the processes of collaborative emergence. This alternative theoretical perspective rejects two claims associated with sociocultural theory: a process ontology and strong inseparability. The theoretical framework of collaborative emergence allows one to study how group properties emerge from interaction among individual creative acts. A revised sociocultural approach, focused on collaborative emergence, would allow socioculturalism to better connect with individual psychology, on the one hand, and macrosociology, on the other.

In empirical studies of collaborative emergence, including in improvisational theater groups, business teams, and student learning groups, Sawyer (Sawyer 2003b; Sawyer et al. 2005; Sawyer and Berson 2004) identified several characteristics of groups that are more likely to result in collaborative emergence. The first is moment-to-moment contingency. At each moment, the possible appropriate actions are constrained to varying extent by the prior flow of the conversation. But there is always a wide range of possible appropriate actions, and each one could result in very different future paths to the conversation. The second is retrospective interpretation. Each participant's contribution only acquires meaning after it is responded to by the others. In some cases, the interactional meaning of a particular statement ends up being very different from what the speaker might have intended at the time. The third is equal participation. There is no group leader who establishes the topic and flow of the collaboration; everyone contributes equally, so that collective phenomena such as topic, topic shifts, and decisions emerge from the conversation.

Some residual degree of collaborative emergence can be found in relatively constrained and structured groups that do not have these three characteristics. Even in an autocratically guided business meeting, with a detailed agenda, unexpected outcomes occasionally result. Emergent social structures constrain and enable individual actions, but always leave some room for emergence—as we saw in the three variations of a single bit in Performances 2, 4, and 5. However, to the extent that a group does not manifest the three characteristics of collaborative emergence, its creative processes are likely to be more susceptible to individual psychological explanation, and less likely to require sociocultural theory and interaction analysis methodology. The creativity of an orchestra performance resides, in large part, in the
creativity of the composer and of the conductor. The creativity of a centrally managed business team resides in large part in the autocratic leader. Such individuals, and their creative processes, are more amenable to study using individualistic methods. However, to the extent that a group manifests the above three characteristics of collaborative emergence, it will be more likely to require interaction analysis to explain those processes.

Several creativity researchers, influenced by the onset of sociocultural and distributed approaches to cognition in the 1980s, have begun to analyze the role of collaboration and context in creativity (John-Steiner 2000; Paulus and Njisak 2003; Sawyer 2006b, 2011). These scholars focus on how novelty emerges from unstructured group collaborations. This collaborative turn in creativity research has provided us with a deeper understanding of how new things are created—not only by solitary individuals, but also by collaborative teams and social networks. Socioculturalism offers many theoretical concepts that can contribute to our understanding of group creativity; this paper has demonstrated how sociocultural theory can be extended to better explain group creativity. A focus on collaborative emergence has the potential to provide explanations of three levels of group creativity simultaneously: individual creative acts, interactional processes, and emergent group phenomena.

References


