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Composing in Dance:
Thinking with Minds and Bodies

Janice Elizabeth Fournier

A dissertation submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington

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Program Authorized to Offer Degree: College of Education

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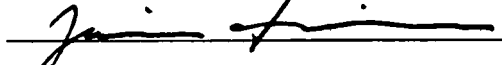
Signature 

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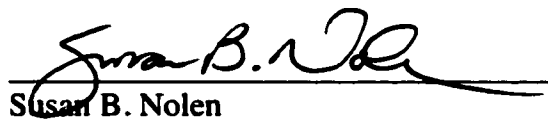

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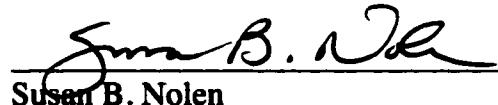

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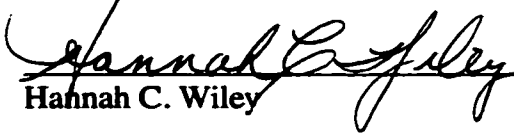

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Abstract

Composing in Dance: Thinking with Minds and Bodies

Janice Elizabeth Fournier

Chair of the Supervisory Committee:
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This study examined how choreographers compose in dance. It extends research on distributed cognition, perceptual problem solving, and written composition to investigate how choreographers and dancers together construct art from movement.

Participants in the study were ten professional dancers and choreographers in contemporary dance. Each participant was videotaped at work in rehearsal and/or class; data include video records, ethnographic field notes, collected artifacts, and transcripts of interviews in which participants reflected on selected clips from the studio tapes. Data were analyzed for major tasks involved in composing dance, and how the roles of choreographer and dancer, the structure and nature of rehearsal activities, and the discipline-specific ways of knowing and representing knowledge contributed to the accomplishment of these tasks.

Findings from this study suggest that choreographers engage in the same general activities that writers engage in when composing—they plan, generate material, and revise multiple drafts—though in dance these are largely *social* and *embodied* processes. The core chapters in this dissertation describe how choreographers and dancers jointly engaged in generating movement material, "setting" movement, developing material, organizing the dance as a whole, and finally, polishing the dance

for performance. In each phase in the process, rehearsal activities were structured to help participants reflect on and coordinate both kinesthetic and visual perceptions of movement. By sharing, interpreting, and negotiating these perceptions, choreographer and dancers established mutual understandings of the evolving dance. While choreographers typically set goals, directed rehearsals, and made final compositional decisions, dancers, too, directly and indirectly influenced the composing process. In the end, I show how dancers extend the meanings of a dance by performing their own interpretations of movement, developed through rehearsal.

In the final chapter, I describe how this study adds to our understanding of distributed cognition, embodied knowledge, and the co-construction of creative work. I argue that the relationship between choreographer and dancers represents a unique model of collective learning, one that is currently underrepresented in schools and other institutions. I conclude by describing implications of this study for education and cognitive research.

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S.C., honorary reader and best "critical friend," whose conversations began it all;

The participants in this study, from whom I continue to learn;

My dearest team of friends who helped me to literally survive the world turning upside down in the middle of this;

J.S., so much patience, generosity, love, and time—no sweeter thank you;

And my family members, who've been wondering just what I've been doing over these years.

DEDICATION

This dissertation is dedicated to my grandmother, Helen Antanaitis, and her best friend and neighbor, Betty Jones.

Chapter 1:
INTRODUCTION

In the center of a dance studio, four dancers execute their parts in a quartet while Crispin, the choreographer, looks on. Each bracketed space represents choreographed movement:

1	George:	(to Johanna) I feel like here, I should wait for your leg before I go [ ]...(to Crispin) Is that ok?
2	Crispin:	It's kind of like [ ].
3	George:	Ok, do it [ ]
4	Crispin:	Yes, do that.
		...(Crispin watches as group performs their parts)...
5	Crispin:	(to Johanna) You know what, let's have you turn again. So where do you do [ ]?
6	Johanna:	From the forced arch? [ ]
7	Crispin:	[joins in, adding 180 degrees to the turn]... *Whooooop* [ ] ...And Sarah's going to come in this way [ ]. (Steps back to Sarah) So what are you doing here?
8	Sarah:	I've been going over [ ], and I'm quite, I'm like two feet up from Johanna and waiting there.
9	Johanna:	[ ] So I end up facing the boys?
10	Crispin:	Right.... So [ ]...So if I came right here [ ]... (to Sarah) So I just put my foot in front of hers and went *shooo* [ ].
11	Sarah:	[ ]...Is it ok if I do a, a step before that? So if I'm here, I could go *whoop*– [ ]
12	Crispin:	Yeah.

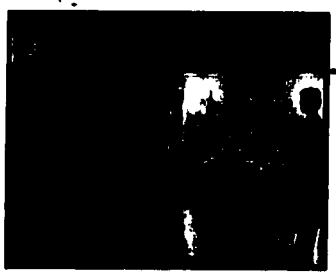
The people in this example are jointly solving a choreographic problem. In line 1, for instance, George identifies an awkward interaction: He says to Johanna, "I feel like here, I should wait for your leg before I go—" and then demonstrates how, if he performs his part as learned, his arm imitates an invitational gesture and anticipates the move of Johanna's leg. Crispin responds by demonstrating how she intended Johanna's movement as a broad step to the side. George and Johanna then check their understanding by

repeating their parts, with George adding the verbal "Ok, do it—" which is then confirmed by Crispin, "Yes, do that."

On one level, the cognitive acts in this example are familiar: these people identify problems, propose solutions, test them out, and choose between alternatives. But the [ ]s highlight something unique: dancers and choreographers think things out not only in words, but also with their bodies; Crispin and her dancers fuse words and actions with each turn in conversation. In Figure 1.1, the scenario is presented again, this time supplemented by images and descriptions of the dancers' actual movement.

What may be quickly apparent in this second scenario is that the [ ]s in the original transcript represent not brief gestures but extended sequences of movement. The choreographer and dancers in this example often complete a sentence with movement—words and actions together form a single utterance. While this may be common in everyday exchanges as well (we often talk and gesture at the same time), the dancers here are communicating about deliberate, choreographed movement; with their talk and actions, they show each other which part of an embodied representation they're discussing. In order to alter the representation, Crispin becomes part of it, as in Turn 10 when she takes Sarah's place and tries several options before settling on the step and duck. But what criteria did Crispin use to select this option and not another? Sarah tries the new move and then modifies it; why, for Sarah, does a small step before the turn make the phrase better? And what does Crispin find when she watches it that makes Sarah's proposal ok?

We know little about the cognitive processes that Crispin and her dancers exercise in the example above. Crispin's task is to coordinate the actions of multiple people in space and time so that, in the end, the simultaneous performance of the four dancers fulfils an aesthetic intent. But that lofty goal is hardly apparent above, where the problems being



1 George: (to Johanna) I feel like here, I should wait for your leg before I go [George extends open hand to the side in first move]...(to Crispin) Is that ok?

2 Crispin: It's kind of like [demonstrates Johanna's broad step to the side]

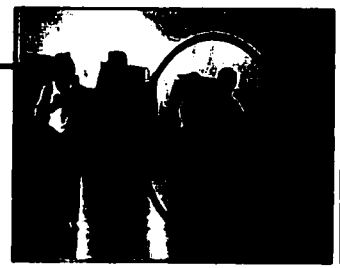
3 George: Ok, do it [George and Johanna repeat original movement]

4 Crispin: Yes, do that.

...(Crispin watches as group performs their parts)...

5 Crispin: (to Johanna) You know what, let's have you turn again. So where do you do [extends her arms, rounded, in front of her body]?

6 Johanna: From the forced arch? [assumes forced arch with rounded arms and performs the original turn]



7 Crispin: [joins Johanna in executing turn]... *Whoooooop* [adds 180 degrees to the turn] ....And Sarah's going to come in this way [gestures with right hand into space made by rounded arms].

(Steps back to Sarah) So what are you doing here?

8 Sarah: I've been going over [demonstrates last part of her phrase], and I'm quite, I'm like two feet up from Johanna and waiting there.

6 Johanna: From the forced arch? [assumes forced arch with rounded arms and performs the original turn]

7 Crispin: [joins Johanna in executing turn]... *Whoooooop* [adds 180 degrees to the turn] ....And Sarah's going to come in this way [gestures with right hand into space made by rounded arms].

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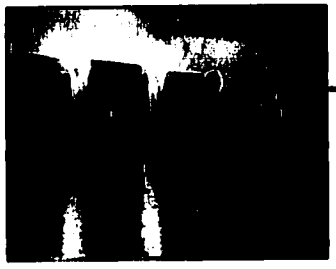
8 Sarah: I've been going over [demonstrates last part of her phrase], and I'm quite, I'm like two feet up from Johanna and waiting there.



9 Johanna: [practicing her additional turn] So I end up facing the boys?

10 Crispin: Right.... So [Crispin takes Sarah's place and tries several different ways to move from the place Sarah's phrase ends to between Jo's arms]...So if I came right here [Crispin executes a step and turn toward Jo, ducking and popping up between Jo's arms]... (to Sarah) So I just put my foot in front of hers and went *shooo* [executes the duck again while turning].

11 Sarah: [executes the new move once, then a second time adding a small step before the turn]...Is it ok if I do a, a step before that? So if I'm here, I could go *whoop*–

12 Crispin: [watches Sarah execute her proposed solution] Yeah.

there.

9 Johanna: [practicing her additional turn] So I end up facing the boys?

10 Crispin: Right.... So [Crispin takes Sarah's place and tries several different ways to move from the place Sarah's phrase ends to between Jo's arms]... So if I came right here [Crispin executes a step and turn toward Jo, ducking and popping up between Jo's arms]... (to Sarah) So I just put my foot in front of hers and went *shooo* [executes the duck again while turning].

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12 Crispin: [watches Sarah execute her proposed solution] Yeah.

Figure 1.1 Crispin and dancers developing a quartet

worked out seem practical: who's getting in whose way, which direction should a dancer face at the end of her turn, and what can be added here to bring Sarah two steps down to Jo. How does this plain moving around eventually become a dance—a unified and meaningful aesthetic whole?

Dance presents a challenge for cognitive science. Traditionally, cognition has been associated with *mental* activity, not physical, and it has focused primarily on *individual* cognitions, not the cognitive activity of a group of individuals. And while cognitive psychologists have long been interested in how individuals solve problems, they have typically studied people solving well-defined problems with a specific solution, not open-ended, creative problems, such as composing a piece of art. We know little about how, in activities such as dance, multiple individuals might coordinate their minds and bodies to process, organize, and remember information, or to explore ideas, justify aesthetic choices, and construct a meaningful whole. Understanding how expert choreographers and dancers compose a dance requires understanding the unique ways in which they coordinate verbal and nonverbal forms of representation and eventually arrive at a performance.

What are the problems that choreographers and dancers encounter, or pose for themselves, when composing a dance? What knowledge and strategies do they use to solve these problems? How does a choreographer figure out a dance, and how do dancers, as a group, learn to embody that vision? And finally, what do these activities mean for the way we conceive of cognition? I set out to answer these questions in my study, in hopes that they may contribute not only to a more complete understanding of how persons think in dance but also to an expanded conception of cognition—one that explains how a group of individuals, using their minds and bodies, create art.

Cognition and Dance

"Cognitive science" viewed broadly may include studies in or knowledge of cognition in anthropology, linguistics, artificial intelligence, philosophy, and psychology (Gardner, 1985a). The field of cognitive science has changed over the last half-century in two important ways that have implications for the study of dance. First, what scientists count as intelligent activity has expanded beyond linguistic and mathematical ways of knowing to include a range of "intelligences," including kinesthetic, visual, and musical (Gardner, 1983; Arnheim, 1972). Studies of these different intelligences have provided details on how exactly individuals process and organize a range of sensory perceptions.

Second, cognitive psychologists have increasingly come to view cognitive skills as inherently connected to their use in specific disciplines (Feldman, 1980; Gardner & Boix-Mansilla, 1994; Schwab, 1978; Wineburg, 1991) and propose that these skills be studied in "real world settings" (Brown, Collins, & Duguid, 1989; Rogoff, 1990). As a result, research on cognition has extended beyond the traditional laboratory setting to investigate thinking in everyday contexts (Rogoff & Lave, 1984). ("Context" here may refer to domains of knowledge as well as the particular setting or circumstances in which thinking occurs.)

These two developments have influenced conceptions of cognition. Traditionally, cognition has been conceived as existing solely inside a person's head; studies based on this view are primarily concerned with how individuals process information and develop conceptual structures or mental strategies. Studies of different intelligences expanded this conception by recognizing that people might indeed "think" with their bodies and actively use sensory perceptions to construct knowledge. In addition, studies of thinking and learning in everyday contexts produced alternative conceptions of cognition. These studies were based on the concept that cognition is *distributed* among individuals, that

knowledge is socially constructed, and that information is processed between individuals and the tools and artifacts of a culture (Salomon, 1993). In large part, these perspectives on cognition are currently viewed as complementary, together painting a more complete portrait of human cognition. Yet their differences also raise questions: What is the relationship of individual cognitions (those inside the mind) to the cognitive activity of a group? What exactly is distributed and how in collaborative activities? And if individuals may indeed utilize a range of perceptions in making sense of the world, how do they share these perceptions to construct knowledge together? Choreography may prove a case of cognitive activity well suited to answering these questions.

Dance and Cognition

Studies of how people think and learn in the arts have increased over the last twenty years, yet dance has received little attention from researchers. Much of what we know about cognition and the arts comes from research on early symbol acquisition (Gardner, 1990; Gardner & Wolf, 1992) and on visual and music cognition (Arnheim, 1974; Bamberger, 1991; Davidson & Scripp, 1986). These latter studies describe not only the kinds of problems and types of cognitive processes unique to music and visual art; they also develop models of how these processes develop. These studies clarify the relationship between symbolic literacy and cognitive development, and identify specific activities that lead to conceptual change.

Similar studies do not exist in dance. The bulk of literature on dance and dance education is descriptive and anecdotal and, as Lazaroff (1998) has noted, tends to be written by and for those who have or have had first-hand experience of dance. Very little empirical research exists on dance grounded in cognitive and developmental theory. Although dancers' accounts of their practice may be difficult for cognitive scientists to interpret,

they are essential for establishing an understanding of cognition in dance that ultimately holds meaning for researchers, educators, and dance practitioners alike.

Literature that can inform an empirical study of dance includes interviews with dancers or dancers' own accounts of their work, educational texts on choreography, program outlines for dance education or recommendations for explorations of movement, and articles advocating for dance education. These pieces provide a rich description of the practice of dance from dancers' perspective—essential for identifying central problems in dance, establishing the particular goals of dance as an art form, and understanding the terms and concepts dancers use to talk about movement. This information helps to define what is unique about dance as a cognitive activity and what might be a worthwhile focus for an investigation of dance and cognition.

Guides on choreography, for example, suggest that central problems in dance may include how to manifest content in form, how to expand one's movement vocabulary, or how to create a meaningful structure for a dance (Ellfeldt, 1967; Forti, 1974; H'Doubler, 1962; Humphrey, 1959). Problems and problem-solving strategies are often the focus of studies of cognition, but they have rarely been explored in relation to creative movement. In other writings, dancers and choreographers talk about using knowledge of rhythmic patterns (Hawkins, 1991; Hayes, 1993), of the body's gravitational center (Hawkins, 1964, 1991; Paxton, 1972), and of composition of forms in space in making dances (Ellfeldt, 1967; Tuffnell & Crickmay, 1990). We know little from a psychological perspective, however, about how this knowledge functions as a strategy for solving problems in dance or dance composition. "Kinesthesia" and "proprioception" are other ways of knowing well understood by dancers but foreign to the ways we commonly talk about learning.

As a performing art, dance requires a complex coordination of mental and physical activities. Adequately capturing and describing these activities and their organization presents a challenge to cognitive research. As I mentioned earlier, traditional models of cognition have been built largely on the laboratory study of individual minds engaged in well-defined tasks—not on the study of *groups* of individuals engaged in creative endeavors as they naturally occur. The few empirical studies that exist on dance and cognition have applied traditional methods of studying cognition to the study of dance. The result is a relatively narrow and fragmented view of what it means to think and know in dance. Studies of novice dancers based on discrimination tasks of short movement phrases (Overby, 1986; Van Meel, Verburgh, & DeMeijer, 1993) add little to our understanding of dance cognition. What can be interpreted from these studies is limited, since the form of response (short answers, multiple choice, imitation of movement) makes little or no reference to the performance skills or critical thinking dancers commonly demonstrate in their work. A study of dance is needed that captures the full range of thinking skills that choreographers and dancers exercise in practice.

Conceptual Framework

My aim in this study was to design an empirical investigation of dance composition that would be informed by dancers' accounts of their work and by current cognitive theory. Because so few empirical studies of dance exist, I looked to other areas of cognitive research for help framing my investigation. These areas reflect the developments in cognitive science I described earlier and include studies of individual cognitive processes as well as distributed knowing. I describe these areas of research, and concepts and methodological principles I found most relevant, under three headings below. The first section focuses on *composition*—studies from cognitive psychology of written composition as well as studies of cognition in music and visual art. Under the second

heading I address research on *movement and thinking*: How has movement been studied in the past? In what ways do these investigations of movement capture (or fail to capture) important features of dance and choreography? Finally, I address research on *cognition in practice*. I highlight here the concepts of distributed cognition and embodied knowledge, and how these might be particularly appropriate for understanding how a dance gets made.

COMPOSITION

Writers, visual artists, musical composers and choreographers all engage in the creation of work, but there is no general or comprehensive theory of composition. Current cognitive research on composition focuses primarily on *written* composition. Far fewer studies exist that focus specifically on how visual artists and musicians compose. Those that do exist, like the empirical studies of dance I described above, tend to fragment the activity by identifying and investigating isolated skills. I found few researchers or theorists who attempt to make systematic connections between the nature of creative work in one field with the nature of creative work in another. Such comparisons, however, may be a useful frame for studying how one composes a dance. What it is that writers (and visual artists and music composers) have been found to do may contribute to understanding what choreographers do as well.

Composing in writing

Cognitive research on writing has framed writing as a process of problem solving—a process with identifiable behaviors and cognitive strategies that can be analyzed and understood. Flower and Hayes (1981) concluded that the problem of composing is constrained by the writer's knowledge around the topic of the paper, his or her general linguistic knowledge, and the rhetorical problem—the purpose, audience, and role of the writer in the text to be produced. Much of the research on written composition is research

into how writers address these constraints (Hiebert & Raphael, 1996) and how the knowledge and strategies of expert writers differ from those of novices.

Overall, research on writing has described composition as a planful and iterative activity, requiring the coordination of several processes, including the ability to organize ideas mentally and translate them into words on paper. Flower and Hayes (1994) caution against conceiving of composing as a linear model with specific stages; their research shows that writers are constantly planning and revising *as* they write, and what is of interest are the thinking processes that unite these activities. They propose a model that includes three basic processes used by writers as the need arises: First, *planning* includes the process of generating ideas, organizing those ideas in meaningful ways, and setting goals (both procedural and substantive) for the evolving text. Second, *translating* is the process of putting ideas into written words and attending to the demands/rules of written language. Finally, *reviewing* includes the processes of evaluating and revising the text produced. As writers compose, Flower and Hayes argue, they monitor their current process and progress; this monitoring function helps a writer decide when to move from one process to another.

The description of composition that emerges from research on writing provides a useful framework for investigating composition in dance. We might assume that choreographers, like writers, engage in planning, translating, and reviewing while making a dance, but that these processes would reflect the unique nature of the art form. Choreographers translate ideas into *movement*, not words; how do they do this? And how do they evaluate and revise their work when the work is shaped on people?

Expert-novice studies of writing have allowed researchers to identify essential problems inherent in composing and to propose instructional interventions to improve students' work. These studies have shown, for instance, that expert writers are better than novices

at planning, keeping track of ideas for later use, and monitoring the success of their writing through rereading and revising (Scardamalia, 1981; Scardamalia & Bereiter, 1982). According to Flower and Hayes (1994), expert writers have learned to use writing for discovery. In contrast to novice writers who may simply "tell what they know", expert writers are guided by flexible and emergent goals—goals that are created or recreated based on what writers learn as they write. In essence, experts are skilled at using their own writing as input for further development, and are able to stand back from their work and evaluate it from the perspective of a reader as well as a writer (Flower & Hayes, 1994; Scardamalia & Bereiter, 1987). It may be that expert composing in writing shares similar features with expert composing in dance (and other art forms), or that similar differences exist between expert and novice choreographers. This study will provide a portrait of expert composing in dance that may be used as a starting point for investigating these hypotheses.

Particularly fruitful among methods used by researchers to study written composition is Scardamalia and Bereiter's "think aloud" protocol; these researchers gathered data on writers' problem solving processes by giving them an essay prompt and asking them to think aloud as they composed on paper. As the example in Table 1.1 shows, transcripts of these verbal protocols provide something of a window on writers' thinking and rethinking. Scardamalia and Bereiter combined these transcripts with their observations and the collected written products of their subjects to draw conclusions about the nature of composition.

It is tempting to apply theories and methods from the study of written composition to the study of choreography. In trying to do so, however, one is immediately confronted with the differences between writing and dance. First and foremost, there are few, if any, tangible products of problem solving to be collected in dance; choreographers manipulate

human energy in time and space, not words on paper.[1] And as illustrated in my opening example, although choreographers may naturally "think aloud" as they compose, they do so in both words and movement. The "turns in conversation" which occur inside a single writer's head in Table 1.1 look similar structurally to those that occur *between* individuals in my opening example. Protocol analysis may indeed be valuable in dance for understanding the processes of composing. Analysis of *these* transcripts, however, would require an ability to "read" and interpret the movement/word exchanges between choreographer and dancers in the context of the dance being made. In this case, the unit of analysis is centered less on an individual's thinking processes than on the cognitive activity of the group as a whole.

Table 1.1 Sample protocol from Scardamalia & Bereiter (1994, p. 939). Subjects were asked to think aloud as they composed an essay on their jobs for readers of *Seventeen* magazine. Italics indicate written text.

Okay, first day of class...just jot down a possibility.
Can you imagine what your first day of a college English class will be like?
I don't like that sentence, it's lousy—sounds like theme talk.
Oh Lord—I get closer to it and I get closer—
Could play up the sex thing a little bit
When you walk into an English class the first day you'll be interested, you'll be thinking about boys, tasks, and professor—
That's banal—that's awful.

An additional complication in applying methods from writing research to the study of choreography is the nature of the task posed. By and large, research on writing has been conducted in laboratory settings where subjects were presented with a well-defined task, usually to write an essay, directions, or narrative around a specific topic. These tasks

[1] While formal notation systems exist in dance (i.e. Labanotation), these are used primarily by dance historians, not by choreographers in the act of composing.

require the crafting of an argument, explication of a sequence, or development of a story. Although open-ended, they are not tasks that the writers chose or posed to themselves in the context of their personal work, and they are not "creative writing" tasks. Choreographers, however (especially those in contemporary creative movement), are artists. We might assume that important differences exist between the logical reasoning required to craft an essay and the more associative thinking required for creating art. Research on poets composing poems would likely be the most appropriate resource for understanding how theories on writing apply to choreography. From such studies, we might understand, for instance, how poets draw on the connotative properties of words and their sounds, and the abstract and symbolic properties of structure and rhythm, to make art with language. Currently, however, I know of no such studies. Instead, research on cognition in other art forms—particularly music and visual art—offer insights into what "associative composing" might look like. I address this research next.

The creative process: Thinking/composing in music and art

While not focused specifically on composition, studies on cognition in the arts—visual and music cognition in particular—describe creative thinking processes that may be relevant to dance. These studies investigate how individuals learn to construct, interpret, and critically evaluate aesthetic arrangements of sounds and visual images. Central to these studies is an investigation of how ideas are represented using visual and musical symbols, and how these are organized into coherent works of art.

Particularly useful is cognitive psychologist's Jean Bamberger's description of musical thinking as a process of "perceptual problem solving"—a process, both creative and responsive, in which the mind actively organizes sensory material (1991, p. 8). As Bamberger explains, this is a generative process, conducted "in real time as the sound/time phenomena are occurring 'out there'" (p. 9). Such perceptual problem solving may also apply in dance, where the phenomena to be organized in real time may include

sound/time/space/visual phenomena "out there," *as well as* internal sensory and kinesthetic perceptions. Bamberger argues that the processes used to organize sound and time in music include both the basic, sentient organizing of our bodies as well as a familiarity with pitch/time relationships common to the music around us. Bamberger suggests that "felt paths" ("sequences of motions that we practice and internalize in the process of carrying out familiar activities—most particularly sequences of actions that we internalize in learning to perform a piece on an instrument, sequences we both *make and follow* with each new performance" [1985, pp. 9-10]) become musicians' most intimate ways of knowing a piece. Familiar pitch/time relationships are similarly used, Bamberger argues, to seek and shape musical coherence in the act of listening to music. Surely "felt paths" are also dancers' most intimate ways of knowing a dance piece and may be very close to what is described as kinesthetic memory. But "familiar pitch/time relationships" as an organizing constraint may be something quite different in dance. What perceptions or perceptual relationships does one use to seek and shape coherence when composing a dance?

From his research on visual thinking, Rudolph Arnheim (1969) introduced the notion of "representational concepts;" children (and adults), Arnheim theorized, may not necessarily draw a particular dog but represent in visual images their understanding of "doggishness," the specific (often multisensory) details most relevant to their experiences of "dog". Choreographers, too, wrestle with problems of visual representation, but they use their own or others' bodies to "draw" or "sculpt" a moving image. The sensory details choreographers seek or draw on to craft movement may differ significantly from the sensory details used to craft a two-dimensional image.

Although Arnheim did not study dance directly, he cited studies of perception and movement (i.e. Michotte) in describing dance as an especially challenging case of visual composition: "In dancing and acting," Arnheim noted, "the artist, his tool, and his work

are fused into one physical thing: the human body. One curious consequence is that the performance is essentially created in one medium while it appears to the audience in another" (1954, p. 406). For Arnheim, creating visual images from the realm of kinesthetic experience results in a unique problem—that of learning how much to give:

> Our dynamic body image has poorly defined limits. It is a 'kinesthetic amoeba'; ...the body is the one and only content of the kinesthetic field. There is nothing beyond and around it, no 'ground' from which it could detach itself as the figure. Thus we can judge the size and strength of our motions in relation to one another, but we have little concept of their impact as a visual image in the surrounding field. The dancer must learn how large or fast a gesture should be in order to achieve the desired effect....[T]he proper dimensions depend also on the function of the movement pattern in the whole performance and on the size of the image received by the spectator. (1954, p. 407)

We might conclude then, that a central problem of composing in dance is the coordination of physical experience and visual effect; choreographers must be able to evaluate the size/scale of gestures in relation to both a spectator's experience and to the structure of the dance as a whole. What counts for artistic performance, Arnheim argues, is the extent to which visual dynamics are distinguished from mere locomotion and conveyed to an audience—"for dynamics alone is responsible for expression and meaning" (p. 408). In essence, choreographers don't compose in movement per se, but in dynamics; their task is to render a cohesive visual image from the dynamics of the human body.

In sum, the research on written composition provides initial ideas for what might be properties of composition in general. That research also suggests a method for studying composition (the "think aloud" protocol) that, if thought of as a "think/move aloud," might be applied to the study of choreography. What the literature on written composition doesn't do is give us some idea of what it means to compose creatively or to co-compose

with others. Studies of music cognition and visual cognition offer a start in understanding artistic composition; these studies suggest that creative problem solving in the visual and performing arts requires an ability to organize multiple modes of perception into a unified whole. The research questions in these studies are framed in part by the particular features of the art: studies of visual thinking focus on the problems of visual representation; in music, the focus is on organizing perceptual information in pitch/time relationships. A study of dance based on its unique features would need to address its basis in the body and kinesthetic experience, its organization in time and space, its rendering of movement images in the dynamics of the human body. Neither the literature on written composition nor the research on visual and music cognition address these elements of dance. In the next section, I review literature on movement and thinking for what it might offer to fill in these gaps.

MOVEMENT AND THINKING

Traditionally, the mind and body have been separate areas of research. Cognitive psychologists have been concerned primarily with mental activity, how the brain stores, retrieves, and organizes information. Their focus has not been on the cognition behind physical actions. Psychologists studying movement have focused almost exclusively on the development of physical skill. Only recently have researchers studying the body become more interested in the mind, and those studying the mind begun considering physical action an integral component of cognition. However, this does not mean that psychologists studying psychomotor skill development and those investigating mind and body connections in cognition are now investigating the same territory. Below I discuss studies on motor learning and on bodily intelligence and how ideas from these areas of study might figure in the study of choreography.

Motor Learning

The primary emphasis in the literature on motor learning has been on skilled action, the development of automaticity, or how specific movements are aimed, timed and coordinated. Only recently have researchers in this field begun to reconsider the relationship between cognition, perception, and action. Rather than believing that experience is an end in itself, or that rational thought or a verbal description is the purpose of perception and cognition, there has been a move to considering perception and cognition as linked to action, or indeed as existing to serve action (Smyth & Haggard, 1999, pp. 243-4). The new "ecological approach" views action and perception/cognition as fundamentally intertwined; "reaching towards an object is no longer simply the trivial bit dealt with by the motor system but is an integral part of the understanding of cognition for action" (Smyth & Haggard, 1999, p. 244). The result of this shift in thinking is that studies of motor learning now include information about the planning and control of movement in relation to knowledge, spatial references, intention, attention (particularly eye focus), and perception.

Unfortunately, studies of motor learning focus primarily on the acquisition of sports skills and their application to physical education (Schmidt, 1982) or on the acquisition of occupational skills (i.e. Fitts, 1954; Weldford, 1968). Dance instructors wishing to apply motor learning theory in their technique classes regularly cull and adapt findings from studies on sports skills (Cohen, 2002). While dance continues to be a neglected subject of study in this field, recent debates about the role of implicit vs. explicit learning in motor skill development suggest important differences between dance and sports in terms of cognitive demands. Several studies of perceptual-motor skill development suggest that implicit learning—knowledge that is difficult, if not impossible, to verbalize—is better (results in better performance, greater retention, etc.) than knowledge that can be verbally described. Beek (2000), however, argues that for the most part learning perceptual-motor skills *is* implicit and it is the specific *features* of the skill that determine whether or not explicit direction will benefit the learner. He cites Bernstein's studies on dexterity (1996),

in which Bernstein identifies four levels of control in the construction of movement. According to Bernstein, only the highest level, the level of action, is capable of using explicit, verbal or verbalizable rules for the construction of movements and for consciously correcting the execution of a perceptual-motor skill. As Beek notes, "There is a whole class of perceptual motor skills, sometimes called 'cultural skills'...such as complicated sequences in dance, gymnastics, or music-making, that appeal specifically to the level of action and explicit learning. For the learning of such cultural skills, it remains to be seen if implicit learning is still superior to explicit learning..." (2000, p.553)

Returning to my opening example, the dancers in this case appear to learn choreography through both verbal and nonverbal communication. In this example, the movement is left to itself to communicate implicitly—Crispin does not verbally describe specific movements as she performs them; she says to George, "Yes, do that." The verbal exchanges between choreographer and dancers, however, do communicate environmental "regulatory" information. In the motor learning literature, regulatory features in the environment determine (or regulate) what and how body and limb movements must be coordinated, spatially and temporally, to achieve a performance goal (Gentile, 1987; Magill, 1997). In my opening example, Crispin and her dancers use words to locate one another, at least spatially: the dancers are "two feet up," "facing the boys," or "put[ing] my foot in front of hers." Words may be one way that choreographers and dancers help one another attend to (rapidly changing) regulatory features as a dance evolves. It may be that movement and verbal information serve different functions in the teaching/learning of dance.

Bodily Intelligence

As I mentioned earlier in this chapter, developments in the field of cognitive research over the last half-century have expanded ideas of what counts as intelligent activity. Recent theories about the mind lend credence to the idea that one may indeed "think"

with the body and use a range of perceptual abilities to organize information and construct understandings. Howard Gardner's theory of multiple intelligences (1985a), for example, recognizes linguistic intelligence, logical-mathematical, spatial, visual, musical, bodily-kinesthetic, naturalist, and personal intelligences (knowledge of self and others). In describing bodily-kinesthetic intelligence, Gardner differentiates between the ability to skillfully use the body for expressive or goal-directed purposes and being able to deftly manipulate objects through fine and gross motor coordination. This distinction between bodily aptitude and skillful manipulation of objects helps clarify how dance is both related to and different from associated activities, such as yoga or sports. By arguing that dance is an intellectual performance, Gardner helps to dispel the popular notion that dance (and the arts generally) is solely about emotions and expression, separate from cognition.

Gardner describes intelligences as distinct domains, rooted in different parts of the brain. Yet "real world" activities often draw on more than one intelligence at a time. Dance, for instance, may exemplify bodily-kinesthetic ways of knowing, but dance also involves visual, musical, spatial, and personal intelligence. How do descriptions of these intellectual processes correspond with dancers' descriptions of their practice? How and for what purpose are these different ways of knowing utilized in dance? Studies do not exist that explain how these different ways of knowing are coordinated in complex performances. As Gardner has remarked, "[W]hen a person appears as a performer, he isn't just exhibiting one intelligence at one time and another intelligence at another time, he is really orchestrating, blending them together, making them work effectively, kind of as a troupe all encased within one skin. We don't have any way of thinking about how that glue takes, about what kind of organizing principle allows someone to work effectively with his different intellectual skills and make them cohere" (1985b, p. 312). To attain a comprehensive view of cognition in dance, including how one choreographs, an approach is needed that addresses the coordination of multiple ways of knowing.

To summarize this section, although research on motor learning and bodily intelligence represent different perspectives, both address the organization of perceptions in intelligent performance. Research on motor learning suggests that verbal and nonverbal communication may play different roles in learning perceptual-motor skills, and that dance as a "cultural skill" (Beek, 2000) may require a different sort of instruction than most sports. While recognizing bodily or kinesthetic intelligence, theories of multiple ways of knowing do little to extend what we already know: dance is a complex performance requiring the coordination of multiple modes of perception. Unfortunately, these bodies of literature offer few insights into the creative processes involved in crafting art from movement.

It may be important to note that the areas of research I have addressed so far—research on written composition, visual and musical cognition, motor learning, and theories of multiple intelligences—locate cognitive activity in the individual. These studies are concerned with individual cognitive processes and conceptual organizing strategies. Given the recent developments in cognitive science, one might consider this focus to illuminate only part of the picture on thinking. How do multiple members of a dance ensemble jointly engage in composing? How do their individual cognitions contribute to the learning of the group as a whole? In this last section, I review literature that examines thinking and learning as a product of multiple participants interacting with one another and with objects in the environment. Such studies are helpful in understanding what thinking looks like in practice, and among members of a specific cultural community.

COGNITION IN PRACTICE

Researchers from anthropology and sociology have expanded notions of cognition by looking at people "knowing" in a range of everyday settings and activities: engaged in

daily tasks (Lave, 1988), at work (Goodwin, 1993; Harper, 1987; Hutchins, 1995; Ochs et al., 1996; Scribner, 1997), practicing a craft (Keller & Keller, 1996). Central to these studies is the notion of cognition as a *system* of activity: inquiry is aimed at understanding how social and environmental structures, use of particular tools, the spatial and temporal arrangements of people, objects, and events contribute to the organization of mental processes, the achievement of tasks, and the development of conceptual understanding. The principle method used to study cognition in practice is interaction analysis. Borrowing from ethnography, sociolinguistics, conversation analysis, and ethnomethodology among others, interaction analysis represents an interdisciplinary method for the empirical study of human beings and their interactions with each other and with objects in the environment. This approach expands on more familiar means of studying cognition by looking not only at structures in individual minds that organize thinking, but also external structures. As Jordan and Henderson (1995) explain:

> One basic underlying assumption in Interaction Analysis is that knowledge and action are fundamentally social in origin, organization, and use, and are situated in particular social and material ecologies. Thus, *expert knowledge and practice are seen not so much as located in the heads of individuals but as situated in the interactions among members of a particular community* engaged with the material world. Seeing cognition as socially and ecologically distributed has methodological consequences: Interaction Analysis finds its basic data for theorizing about knowledge and practice not in traces of cranial activity (i.e. protocol or survey interview data), but in the details of social interactions in time and space and, particularly, in the naturally occurring, everyday interactions among members of communities of practice. (p.41, emphasis added)

Although to date dance has not been studied using this approach, it appears well suited to such an investigation. As my opening example illustrates, choreographers and dancers rarely accomplish the tasks of composing (developing, learning, selecting, organizing,

editing, performing, critiquing movement) through individual mental and physical activity alone. The conceptual tools and methodological principles offered by studies of cognition in practice allow one to take into account dancers' interactions with other people and objects in an everyday setting in ways that laboratory studies of dancers performing pre-designated individual tasks do not.

Distributed cognition

Central in the literature on cognition in practice is the notion of "distributed cognition" (Hutchins, 1996; Lave, 1988; Suchman & Trigg, 1996), a way of thinking about cognitive accomplishments as joint accomplishments, not attributable to any individual and often mediated by tools or representations. The focus in this research is on systems of activity—how talk and actions are organized to accomplish a task. In accounts of cognition in practice, particular attention is paid to how representations of knowledge are constructed, discussed, coordinated, or transformed, and how particular tools are used to enable these processes. By studying how crew members on a Navy boat operate machines, read signals, send one another crucial information at appropriate times, for example, Hutchins (1995) provides a portrait of how the task of navigation is distributed across multiple persons and technologies. Similar studies—e.g. Lave's (1988) account of dairy workers filling milk crates for delivery; Latour's (1995) study of how samples of earth become scientific knowledge—provide additional accounts of thinking and knowing embedded in collaborative activity. Accounts of these systems of activity provide not only a picture of thinking in naturally occurring contexts, but also may describe the organization and transformation of an entire culture of practice. In Dana Cuff's (1991) *Architecture: The Story of Practice*, for example, she documents the multiple tasks and distribution of roles involved in design. But she also describes how these tasks and roles change—over the career of an architect, the growth of a firm, introduction of new technologies, or ideas about what constitutes good design, etc.

Studies of distributed activities are important because they illustrate analysis of a system; choreographers and dancers may be said to comprise a system when they are co-participants in the construction of a dance. Choreography may be more difficult to document than other systems of activity, however, because of its basis in movement and the ephemeral nature of its representations. Current accounts of distributed activity include reference to written notes, computer interfaces, drawings on a white board (Ochs et al., 1996), architectural plans (Cuff, 1991; Stevens, 1999), scientific instruments (Goodwin, 1993; Latour, 1995), charts and graphs (Hutchins, 1995; Latour, 1995), measuring cups and scales (Lave, 1988), dairy crates (Lave, 1988), and tools in a mechanic's shop (Harper, 1987). How people learn or demonstrate their thinking can be shown with reference to these material objects/artifacts and their use. But dance is an embodied performance; how is it that choreographers represent and refer to ideas in movement? And how do changes in the representation each time it is physically reconstructed reflect the process of composing? A study of dance would have to distinguish (and show how participants themselves distinguish) an embodied representation from the talk and action around it.

Disciplined perception & embodied knowledge

Examining the processes of coordination within an activity system allows for a detailed description of a cultural practice (i.e. navigation). These accounts describe what it means to "know" or "think" within a discipline, and how it is that newcomers develop the knowledge and skills of masters. Learning is not merely the development of mental structures, but also the development of *embodied* knowledge and practice—ways of knowing that require attention to what the body perceives. Cognitive psychologists Stevens and Hall call such learning the development of *disciplined perception* (Stevens & Hall,1998; Stevens,1999). They argue that just as specific disciplines have characteristic modes of thought and verbal discourse, they also have characteristic ways of seeing. In a case study of mathematical thinking and knowing (1998), they investigated how people

learn to see through graphs, diagrams, and models. In one case, Stevens and Hall describe how a tutor instructs her adolescent student in the Cartesian coordinate system. The two make sense of each other's understandings by interpreting concurrent talk and actions around graphs, equations, and visual displays on a computer screen. At one point in the interaction, the tutor uses her hands to block aspects of the graph that she believes are getting in the way of her student's understanding. By coordinating talk, gestures, and interaction around a visual display (the Cartesian graph), the tutor demonstrates to her pupil the relevant aspects of the representation. In this way, experts shape the way that novices see with or through the tools of the discipline.

While Stevens and Hall focus their attention on visual practices central in a discipline, other studies show that additional forms of perception, including kinesthetic, may be central to "knowing" within a field. While these studies are not about dance, they describe perceptual practices that may be relevant to dance, and how these practices might be taught and learned. In a study of science learning, anthropologist Charles Goodwin (1993), for instance, describes an apprenticing geochemist learning from her mentor how to prepare a fiber for use as a scientific instrument. The apprentice must learn to judge when the fiber has reached a particular color and texture, requiring that she reach agreement with her mentor on specific sensory perceptions. Goodwin writes, "By talking to him about what she has experienced, she is able to transform...private sensations and hypotheses into public events that can be evaluated and confirmed (or denied) by a more competent practitioner...[A]n informed evaluation of her observation is possible only from another body which has physically worked with the fibers" (p. 24). A similar process may occur when dancers learn movement from one another; the one who knows the movement—who has physically worked with the movement in his or her body—is the one who can make an informed evaluation of whether the learner's performance is correct. In addition, Goodwin describes the mentor inventing ad hoc, specific descriptions of the fiber ("gorilla fur") to help his students internalize sensory

judgments, in just the way dancers may invent ad hoc descriptions of actions, sensations, or movement sequences in order to help others properly execute movement.

Another study conducted by anthropologists Charles and Janet Keller (1996*a*, 1996*b*) provides an account of an artist blacksmith "thinking and acting with iron." In contrast to the studies I've described above, Keller and Keller focus on creative work. In essence, Keller and Keller might call their study "composing with iron"—like the researchers studying written composition, Keller and Keller describe a dynamic process of planning and production in which the creator's plans and hypotheses tested in practice are continually revised. In the case of the blacksmith, however, a composition or piece of work evolves not through the arrangement of words on paper, but through repeated operations on hot iron with various tools, and on information directly perceived through the senses. Keller and Keller propose that a blacksmith's work is primarily about the coordination of non-verbal, multi-sensory images—visual, aural, and sensorimotor. As they explain,

> [Sensorimotor and aural] modes of information processing may yield images complementing visual schemata or, more often, may be integrated with visual information in the multimodal schemata constructed in planning and production. For example, the act of recognizing a critical juncture in an operation or the act of anticipating a sequence of movements may employ a suite of images channeled through different modalities. Qualities of weight, sound, resistance, and balance are the kinesthetic or aural counterparts of form or color as procedures are chosen and work unfolds. (p. 135)

Visual, aural, and kinesthetic images are likely to be a large part of the embodied knowledge a choreographer, too, calls upon in the act of composing. As Keller and Keller found in their research, however, such images are not easily externalized in words.

It is the emergent nature of production, Keller and Keller argue, that allows for the continual expansion of knowledge and practice. A blacksmith "learns" through experience and through the development of a strong network of images. Like the writers Flower and Hayes describe, Keller and Keller's blacksmith "composes" by moving back and forth between the "text" or art object produced and an umbrella goal:

> [A] skilled artist-blacksmith forges a product in iron by visualizing a goal, seeing the procedures for its creation in an imaged form, and acting on that plan with a mind open to alterations of the image and innovations in form. This process requires handling multiple images in rapid succession: the fire, the plasticity of the iron, the feel of the hammer, the expectations for shape. The process also requires maintaining the goal-state images while perceiving intermediate changes in the empirical state of events associated with production. Handling these multiple images is difficult for a beginning smith but becomes easier as experience is gained and, perhaps, images become ingrained. (1991, pp. 157-8)

In the case of the smith "thinking and acting with iron," *multisensory images* are the means through which thinking occurs. The revision and expansion of these images during the making of a piece of art, and over many instances of creation, are what constitutes learning for an individual. On a larger scale, smiths may also influence the evolution of a cultural practice as they share what they learn with the community.

Keller and Keller's portrait of the creative process is not unlike the cognitive psychologists' portrait of visual and music cognition. Keller and Keller, too, describe a process of "perceptual problem solving," but they situate their observations in practice and describe how tools and a specific environment (the blacksmith workshop) shape such thinking. Using Keller and Keller's study to inform an investigation of dance, I too would wish to consider how tools and the environment shape the creative process of choreographers. Keller and Keller's study, however, focuses on a single blacksmith working with very durable, tangible materials and tools—which makes drawing parallels

between ironwork and choreography (multiple people, ephemeral art form) a challenge: What is the "material" a choreographer works—Movement? Dancers? Or are dancers the *tools* of a choreographer? Whether material or tools, what are the implications of composing when those materials or tools have minds and bodies of their own? The images developed, embodied, revised, coordinated within a single individual in Keller & Keller's study may need to be developed, embodied, revised, and coordinated among multiple individuals in the making of a dance.

Research questions

In this chapter, I have attempted to describe some of the challenges in conducting a study of cognition in dance. Traditional conceptions of cognition and methods of studying problem solving are not easily applied to a creative process carried out by multiple individuals. And research on movement and thinking lends little to an understanding of how people construct (and continually reconstruct) embodied representations. Despite (or because of) these challenges, dance and choreography may have much to add to current conceptions of cognition. As a subject of study, choreography possesses several features that, in combination, make it unique as a cognitive activity: 1) it is a creative art crafted from an understanding of the kinesthetic and visual effects of movement; 2) it uses the human body as its medium as well as a source of material; 3) excepting solo choreographers/performers, choreography is necessarily social in nature; and 4) it requires coordinating multiple ways of knowing (intellectual and perceptual) in practice. In my study, I addressed these four facets by examining choreography as a system of activity. Specifically, I sought to answer the following questions:

1) What are the activities within this system (participants, tools, environment) that support the construction and interpretation of a dance/ creative movement?

2) How do a) the roles of choreographer and dancer, b) the structure and nature of rehearsal activities, and c) the discipline-specific ways of knowing and representing knowledge influence the process of composing in dance?
3) How do the reciprocal relations between individuals' cognitions and distributed cognitions contribute to the joint accomplishment of composing in dance?

I took as a starting point the need to study naturally occurring events in a dance studio. By examining choreographers' and dancers' cognition in practice, it was my aim to subsume issues earlier raised under the headings of "composition" and "movement and thinking." I describe in the next chapter my research design and methods.

Chapter 2:
RESEARCH METHODS & DESIGN

I chose an ethnographic approach to studying cognition in dance. Previous researchers in anthropology and sociology have used this approach to study cognition in practice (i.e. Goodwin, 1993; Hutchins, 1995; Keller & Keller, 1996; Lave, 1988). Because of the distributed nature of composing in dance, I used interaction analysis specifically to study this phenomenon. As I mentioned in the last chapter, interaction analysis provides both methods and theoretical principles for understanding how a system of activity works (Jordan & Henderson, 1995). At its core, it assumes that cognition is socially and ecologically distributed, and that understanding knowledge in practice requires understanding how people make sense of each others' actions within a particular setting or situated activity. The data most important to capture, then, are the details of everyday social interactions between members of a community of practice. Primarily, video and ethnographic field notes are used to collect this type of data. I relied heavily on video for data collection, supplemented by field notes. Video was the most effective way for me to capture the phenomenon of dance: Video could effectively record the simultaneous activities of several persons and dense behavioral details impossible to capture in notes (especially when no ready vocabulary exists to describe them). Video was also the best way for me to present examples from the data so that both participants and I could talk about them.

The fact that video can be replayed is also important to interaction analysis: Another basic assumption of this approach is that "verifiable observations provide the best foundation for analytic knowledge of the world" (Jordan & Henderson, 1995, p. 41). Among practitioners of interaction analysis, theories about knowledge or activity must be

grounded in empirical evidence—that is, generalizations must be derived from records of particular, naturally occurring activities. I used this *grounded theory* approach (Miles & Huberman, 1994; Patton, 1990; Straus & Corbin, 1998) to systematically gather and analyze my data throughout the research process. The theoretical concepts and ideas introduced in the previous chapter were used as a framework against which to compare my own findings.

Study Design

Participants

Participants in this study were professional dancers and choreographers working in forms of dance commonly thought of as "art" forms (i.e. modern creative movement). Ten participants were selected to represent a range of dance forms from more codified movement (i.e. modern or jazz) to improvisational. Participants were recruited through word of mouth. Because of earlier pilot work I conducted, several dancers had already heard about the study and had either volunteered to participate or had recommended others as potential subjects. I conducted brief phone interviews with potential participants about their work before making a final selection; I wanted a sample that included dancers and choreographers or dance instructors, in rehearsal or in class, working solo and with others, and representing a range of dance forms. I sought different perspectives on rehearsal or class (e.g. dancer/choreographer and instructor/student), and among participants engaged in rehearsal, I selected those at different stages of a project. My intention through these choices was to collect enough contrasting and comparative information to gain a fair understanding of the phenomenon of making and learning dance, and to increase the explanatory power of the study as a whole.

I explained the study to recruited dancers and choreographers over the phone or in person. I described it as a study of how dancers create or learn dance/movement, adding that I was especially interested in the kinds of problems dancers encounter or pose for themselves in their work and how they solve these problems, alone and with others. I told them that, if they agreed to participate, I would be observing and videotaping them in rehearsal or in class, whatever best represented their current work as dancers. (During pilot work, I found that rehearsals or classes provided many more opportunities than performances to observe problem solving.) I added that I would follow up with an interview in which I would ask them to talk about their work and, at a later date, invite all participants to come together to discuss emerging themes in the data and give feedback. All dancers or choreographers who were asked agreed to participate in the study. Table 2.1 displays the final array of participant characteristics.

I also explained the study to other members of dance ensembles or students who would be incidental participants taped during rehearsals or classes. All gave their consent to participate in the study except for one student. Videotape in which that student appeared was eliminated from the data.

Instrumentation

I used a single Sony Hi-8 camcorder mounted on a tripod to videotape participants in the studio where they worked. I placed the tripod in the room, usually in a corner, to maximize the amount of action I could capture on the screen and to minimize my presence in the studio. I zoomed in on activities when I thought the interactions would be important for the study, noting in field notes actions outside of the screen where applicable. I used a wireless (Lavalier) microphone to record audio in the studio. Because participants often came into contact with the floor and with other dancers, it was not possible for them to actually wear the microphone and transmitter when working. I

attached these instead to the video camera bag and moved the bag around the studio as necessary to best capture sound and dialogue.

Table 2.1 Characteristics of participants in study

Participant	Role	Group	Studio tape	Dance form
Elizabeth[1]	Instructor	N/A	Class	Ballet
Sheri	Choreographer*	Solo	Rehearsal	Improvisational
George	Dancer	Ensemble (8)	Rehearsal	Modern
Crispin	Choreographer*	Ensemble (8)	Rehearsal	Modern
Carla	Choreographer/ dancer	Colleagues (5)	Research	Improvisational
Amii **	Instructor Choreographer*	N/A Ensemble (5)	Class Rehearsal	Modern Modern
Lisa**	Student Dancer	N/A Ensemble (5)	Class Rehearsal	Modern Modern
Rob	Choreographer*	Duo	Rehearsal	Modern
*Marcus****	Choreographer*	Ensemble (12)	Rehearsal	Jazz/Hip hop
KT	Choreographer*	Ensemble (5)	Rehearsal	Modern

*Also performed in his/her own work

** Lisa was a student in Amii's class as well as a dancer in her ensemble; thus I have both class and rehearsal data for these participants.

***Did not complete interview

During interviews with participants, I played back to them specific video clips from the studio session (see research design below). I interviewed all participants in a small conference room where I was able to set up equipment and our relationship to that equipment as diagramed below:

[1] During pilot work, one dancer mentioned that participants in this study, as professionals, might *wish* to be identified with their work. For this reason, participants were given the option on the consent form to have their real name or a pseudonym used in the report. Pseudonyms (italicized above) are used for all participants who checked this box or who did not note a preference; the rest are participants' actual first names.

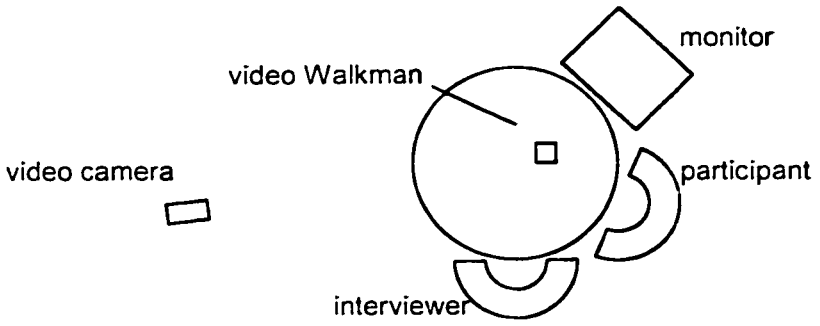


Figure 2.1 Arrangement for interview

I played back to participants the edited clips on a Sony video Walkman attached to a television monitor. Participants could watch the action on the Walkman or larger monitor, and both the participant and I could use the controls on the Walkman to stop, pause, rewind, and play the tape as we talked. These interviews were videotaped in order to capture any gestures or movement participants used in explanation of the clips and to record their interactions with the video—participants were instructed to use the monitor if they wanted to point out specific elements on the tape. The wireless microphone was attached to participants' clothing in these interviews in order to distinguish their voice from sound on the original videotape. For backup and to ease transcription, I also audiotaped these interviews using a small tape recorder placed on the table between the participant and me.

The final group interview was both audiotaped and videotaped. Participants gathered around a large conference table and the tape recorder and wireless microphone were placed in the center of the table. I placed the video camera (with microphone receiver) away from the table in order to view everyone in the group. The videotape allowed me to capture explanatory gestures and non-verbal responses made by participants, and to help me identify the persons talking during overlaps in conversation.

Data Collection

As noted earlier, my research was divided into three phases of data collection: 1) a studio visit during which I videotaped each participant in rehearsal or in class; 2) an individual interview with each participant; and 3) a group discussion to which all participants were invited. Periods of data analysis followed each phase of data collection, increasing in length and scope. (These phases of data collection and analysis are described in greater detail below.) I completed the studio taping and individual interview with one participant before taping and interviewing the next. This strategy allowed me to make sampling decisions based on evolving theory; I selected later participants to maximize opportunities to compare events and procedures in making/learning dance and to determine how categories might vary. This portion (Phases I & II) of data collection for the ten participants was conducted over a period of nine months. I scheduled the group discussion (Phase III of the study) after I had finished interviews with all participants.

Phase I: Studio Tapes

Each participant was videotaped once "at work" in his/her studio or place of practice (these sessions ranged from 1-4 hours). I used field notes to highlight particular events during the taping—events that seemed significant to the dancers, part of a routine, a turning point, or point of confusion that I wanted to return to later. I also recorded in my notes a map of the space, any relevant action that took place outside of the video screen, and additional contextual information that would later help with interpretation (i.e. notes about where the particular day of taping fit in the full course of rehearsal). A content log (description of the action taking place every 1-2 minutes) was created for each videotape and combined with observation notes. This written record of the taped activity served as an index for Phase II.

Each studio tape was analyzed initially for events related to my questions. Approximately ten short excerpts were selected from each tape representing 1) different

types of activities that occurred over the rehearsal/class period, as well as their transitions; 2) repeated instances of things seen/heard; 3) possible problems encountered or discoveries made; and/or 4) incidents reported by participants as salient to him/her during the session. These clips were edited into a tape of approximately 20-25 minutes for greater explication in Phase II.

Phase II: Elicited Response Interviews

Phase II was designed to help me understand, from the participant's perspective, activities I observed in Phase I. The interviews were scheduled at the participant's convenience, about two weeks after the studio session. They were videotaped and lasted approximately one-and-a-half hours.

The elicited response interview (Harper, 1987; Jordan & Henderson, 1995; Stevens & Hall, 1997) was designed not only to stimulate participants' recall of studio events, but also to prompt their reflection on their work grounded in actual practice. During the interview, I played back to participants the edited video clips from the studio session. I asked participants to describe what they were doing in each clip, what knowledge or skills they were utilizing, the extent to which selected events were representative of their usual practice, and what role specific notes, instructional strategies, etc. played in taped activities. Both the participant and I were able to stop the tape at any time to talk about particular events. Tapes of the interviews were transcribed. I had also asked participants to bring to the interview any notes or sketches they had made or referred to during the original studio session. Discussion of these artifacts was included in the interview, and I collected copies of these materials.

Data were analyzed within and across participants during and after this phase of the study. While I began my research with the intention of looking at problem solving in dance writ large, a central question that emerged from the data was about the structure

and nature of rehearsal activities: what was the overall process that moved a dance along from mere idea to final performance? At this point, I focused my attention on the eight participants I had observed in rehearsal (see again Table 2.1, Participant Characteristics). These participants talked about different stages of the composing process in their interviews and located the rehearsal I videotaped within a continuum ("Oh, we'd just started doing X on the day you observed. Now we're..."). Initially, then, I looked through the interview transcripts for reference to different stages of rehearsal. I collected terms that participants used to describe these stages and/or particular rehearsal activities associated with stages (i.e. "building," "setting," "cleaning") and wrote tentative definitions for these terms.

Next I reviewed the edited video clips used in the interviews. Because participants were videotaped at different points in the making of their dances, I had across participants a cross-section of the rehearsal process as a whole. I wrote short descriptions of what happened in each clip on index cards. I then sorted the cards into categories of like activities and matched them, where appropriate, to the *in vivo* terms I'd collected earlier, modifying and refining the definitions as necessary. I generated additional codes to describe particular problems or problem solving strategies associated with these rehearsal activities.

When I thought I had a fairly robust group of codes, I returned to the interview transcripts to systematically code reference to or explication of stages of rehearsal, and problems or problem solving strategies related to composing. I began with one interview transcript, then applied the codes to a second participant, etc., at each step looking to see if the codes were adequate or needed revision. Along with each transcript, I reviewed the entire original studio tape looking for additional activities that might be significant to the composing process but were not included in the selected interview clips. I coded the video content logs for these instances where necessary. I also made timelines of rehearsal

episodes within each studio session, noting the different sections of dance rehearsed, the number of repetitions of each section, and roughly how long each of these lasted. I proceeded through the data in this manner for each of the participants I'd observed in rehearsal. I then looked for patterns in the codes themselves, particularly patterns in types of problems encountered or problem solving strategies employed and their relationship to particular rehearsal activities or stages in the rehearsal process. Using the results of this analysis, I created new questions more specific to my central question:

- Is composing in dance better described as a sequence of stages or a collection of iterative processes called on as necessary throughout rehearsals?
- Do these same stages and processes appear in solo work as well as in ensembles or collaborating partners? In more improvisational performances as well as dances firmly set?
- How do the discipline-specific ways of knowing and representing knowledge influence the process of composing in dance?
- Where in the process do choreographers call on specific tools (i.e. notebook, video camera), and what do these tools help choreographers do?

From this initial analysis, I created a rough model of the rehearsal process and the types of activities/problems that characterized different stages. I brought this model to my participants in Phase III of my data collection (the group interview), along with a number of additional questions that arose during analysis.

Phase III: Participant Critique

In Phase III of the study, I asked participants to come together to provide feedback and answer additional questions. I wanted to see if the way I had made sense of the data also made sense to my participants. Prior to the meeting, participants received a written

description of major themes and questions drawn from my preliminary analyses. They were told that these themes and questions would form the starting point for discussion.

I began the actual session with a short task: I asked participants to draw a timeline representing the entire course of rehearsal for the dance I had videotaped, and to locate the day I videotaped along this timeline. I also asked choreographers to indicate (as best as they could recollect) where in this course they videotaped their work or made notes in writing or sketches. This exercise was intended to provide me with additional information about the rehearsal process as a whole and to prepare the group to discuss this process grounded in an actual production. I then shared with them my rough model of the rehearsal process and asked several clarifying questions, particularly around definitions of various terms used by participants and their importance as concepts in dance.

Seven of the original ten participants attended this discussion, as well as two additional dancers who were ensemble members/partners of an original participant. (Invitations were extended to ensemble members who were part of the original rehearsals and to other interested dancers who were not able participate in the full study; this increased the range of perspectives present.) The discussion lasted three hours and was videotaped and transcribed. Information gathered here was used to revise and expand my understandings of the rehearsal process and to guide further analysis. Participants, for instance, drew fine distinctions between terms I had originally believed to be synonymous, and varied in the ways in which they used or defined other terms. I used such information to investigate additional properties or dimensions of the data and to better understand the context in which the terms applied.

Data analysis at this stage was centered on process: How, exactly, did a dance develop from mere idea to embodied performance? How did the specific nature and structure of rehearsal activities and the actions/interactions of choreographers and dancers contribute to that change? I returned to each studio tape and examined the transitions between

different episodes of rehearsal—sections of dance rehearsed, and repetitions of movement within each section. I noted in particular the actions/interactions of choreographer and dancers that initiated and closed these episodes and identified elements that changed over these repetitions, over the events of a single rehearsal, and over different phases of rehearsal (represented by my participants as a whole). (See Figure 2.2 for a diagram of these units.) Across my participants, I looked for common patterns as well as variations in rehearsal activities, roles of choreographer and dancers, tool use and strategies/processes for the development and embodiment of a dance. I was especially interested in the ways these patterns supported or challenged sociocultural theories of learning and models of composing developed from research on writing.

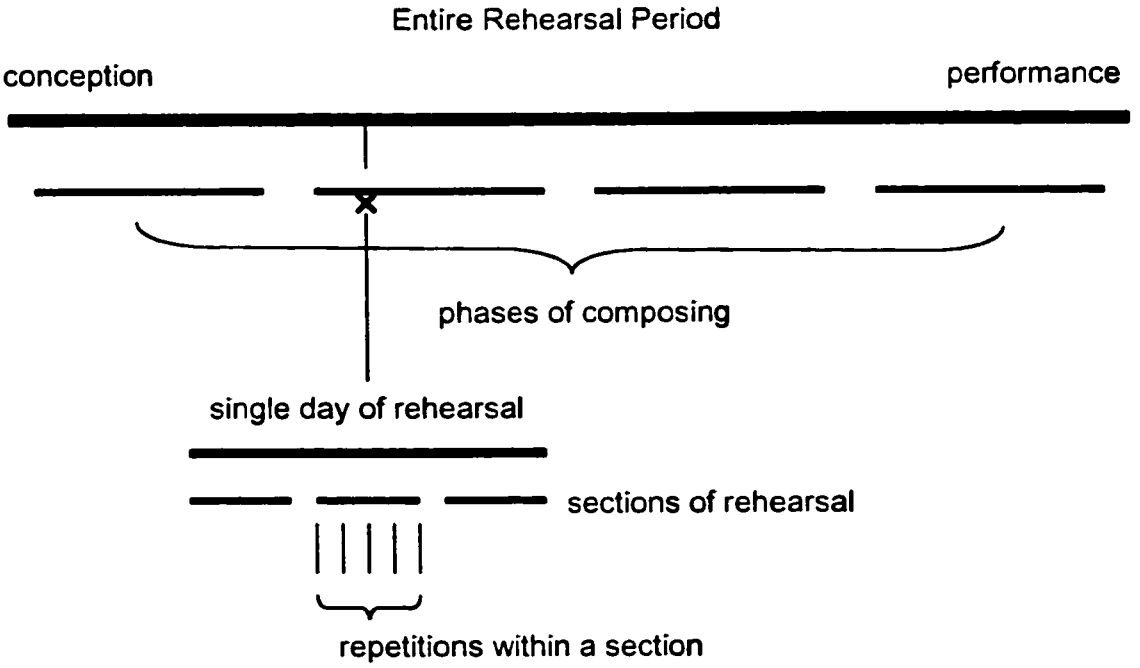


Figure 2.2 Units of rehearsal analyzed for this study

Additional meetings with choreographers and dancers, both original participants and others not involved with the study, continued throughout the months of data analysis as a way to test the validity of my findings and receive critical feedback. Comments I

received in these meetings informed the language I used to talk about dance, helped me to clarify the examples I chose to illustrate claims, and sensitized me to the limitations of my data in the eyes of my subjects. In early meetings, dancers expressed skepticism that a researcher could generalize about a composing process that was "so different for everyone" and with each new dance. I took care to address variations where I saw them as well as describe common, general tasks in the making of a dance. In a last meeting, when I again called together my participants as a group and shared with them drafts of my results chapters, they expressed recognition of the descriptive elements and interest in the way their work was portrayed. I expect that the analytic and interpretive aspects of my work will be more controversial. In the end, it is my hope that this study stimulates in both dancers and cognitive researchers new and expanded ways of thinking about their fields.

Organization of Results Chapters

The following five chapters are organized chronologically according to phases or central tasks in the composing of a dance: generally, the choreographers in my study first generated movement material, then developed the material into sections, organized those sections into a unified whole, and finally polished the completed dance for performance. Between generating material and developing material, I've inserted a chapter on "setting"—a process, as I'll explain, unique to composing in dance. In each chapter, I describe the kinds of activities that are typical in these phases and, using examples from my data, elaborate on the ways choreographers and dancers think with their minds and bodies in these activities.

Finally, in order to prevent confusion between the number of the chapter and stage in composing, I include a small timeline under each chapter title to indicate where in the sequence of making a dance this particular phase or task falls. In the timeline icon, the

phases are distinct and equally sized, although the actual activities in each phase overlapped considerably in practice.

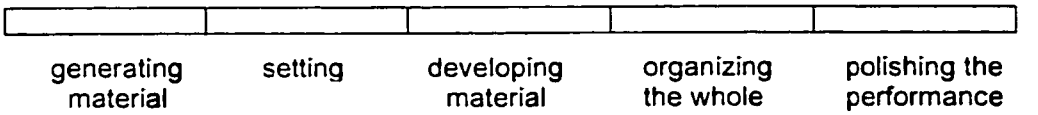


Figure 2.3 General timeline: Phases of composing a dance

Chapter 3:
GENERATING MATERIAL

Accounts of the composing process in other art forms suggest that artists' "inner images" are in fact multi-modal and multi-sensory. Music composers, for example, create work not only from musical tones or sounds they hear, but also from abstract ideas, visual images, mathematical formulas, the rhythms of particular words, or the feeling or gesture of playing a specific instrument (McCutchan, 1999; Swados, 1988). The choreographers and dancers in my study reported a similar diversity in the sources that fed their work.

In this chapter I show how generating material in dance is a process of translating such multi-modal internal representations into movement. It is *also* a process of understanding the potential in movement to evoke multi-modal associations—in the choreographer, the performer, and in the viewer. Generating meaningful movement material requires both of these processes, though not necessarily in this order. Material, participants in my study argued during the group interview, cannot be conceived as simply physical actions, or the subject matter of the dance; rather, it is everything that is generated *by the movement*, for both dancer and viewer. Generating material then, is a process greater than simply translating ideas into action. It is also a process of imbuing movement with interpretation. So defined, material may be generated not only during the process of composing a dance, but also in performance, in the particular dynamics between audience and dancers.

In this chapter, I show how a dance may originate from a particular idea or intention, or from movement itself, and how choreographers integrate the results of these investigations into their goals and plans for further work. In addition, the data from my study suggest that the process of generating material differs depending on the number of

performers involved and where one is in the rehearsal process. Therefore, this chapter is structured to illustrate those differences: I provide first an example of an individual generating material for a solo performance and then describe several examples of how a group—choreographer and dancers—accomplishes this task together. I include a final example to contrast generating material in the initial stages of creating a dance with generating material further along in a composition. Finally, I discuss throughout the chapter the nature of dance "material" itself—among the participants in my study, this was not an easily defined term.

Plans for a dance: Constraints, goals, & intentions

Like the problem of composing in writing, the problem of composing in dance is constrained by several factors. Among these are the choreographer's own knowledge of dance and choreography, his or her general skill in movement, the purpose of the dance, and the resources—space, time, and people—available.

When the choreographers in my study talked about their compositions, they often began by saying something like, "I made this piece for the New Works festival at Baldwin Performance Hall. I knew I wanted the piece to be about fifteen minutes long, and that I'd be working with the five dancers in my ensemble." Essential information for choreographers planning a dance included information about the performance venue (purpose), the performance space, the intended length of the performance, and the people available—how many and who they were. Knowledge of the performance venue might tell choreographers something about the audience who would view the work, and perhaps the degree of artistic innovation the audience might seek or value. Knowledge of the performance space might include information about the design and size of the space, as well as knowledge of equipment available for sets, lighting and sound. Knowing the

design of the performance space, in particular, would allow choreographers to conceive of possible exits and entrances as they were composing and imagine the audience's orientation toward the work. (A dance created for an intimate theater-in-the-round differs greatly from a dance created for a large proscenium stage.)

In addition, choreographers used the length of a piece and number of dancers as a way to indicate the relative size of a project: a 30-minute dance for 10 dancers may be a very ambitious undertaking, a five-minute solo less so. Implied in the intended length of the performance and number of dancers is the number of rehearsal hours required to compose the whole. Finally, knowledge of their dancers allowed choreographers to understand with what person-resources the dance would be built. Choreographers often spoke of "building a dance *on* dancers:" dancers were perceived as the foundation of a dance in multiple ways. The choreographers in my study knew their dancers as people and as performers. They knew their dancers' personalities and what it was like to work with them, as well as their particular abilities, movement preferences and training, their physical attributes and stage presence. These pieces of information—knowledge of the performance venue, the performance space, the intended length of the piece, and available dancers—defined constraints and affordances in choreographers' plans.

Choreographers also described goals when they talked about their initial plans for a dance. These included both content goals (often identifying an intended theme for the piece) and procedural goals: Choreographers planned to make a dance about something—"We're making a dance about accidents"; "I wanted to make a movement theater piece contrasting high and low art"—and/or they wanted to make a dance trying an original approach—"We wanted to make a dance where both the sound and the movement would be a collaboration between the composer and the dancers"; "I wanted to start with only a structure for the dance and let the content evolve from that."

Choreographers worked within the constraints and affordances of space, time, and people to pursue their goals. Their overall intention for the piece functioned to direct investigations in movement; what choreographers learned from these investigations they used to clarify or modify their goals and to plan for the next rehearsal. Choreographers had to see and experience their ideas *embodied* before they could effectively evaluate those ideas and begin to use them to compose a dance. Generating movement may be thought of as the process of getting from what is in mind for a dance—the plan—to what is in mind and body.

Finding the bridge/Thinking movement

In several instructional books on choreography (i.e. Blom & Chaplin, 1982; Humphrey, 1959), students are cautioned to choose an appropriate subject for a dance, one that warrants expression in movement. Choreographer Doris Humphrey, for example, argues that the language of dance "has definite limitations and should not be forced to communicate beyond...that part of experience which can be expressed in physical action;" she adds, "The dance must bring some revelation, some comment, some added shade of meaning to a theme, which cannot be found in its original state" (1959, pp. 34-35). I found these remarks notable because similar comments are absent in books on composing in other art forms. In choreography, it appears that justifying the medium is part of the creative process. As one participant in my study put it, a dance must answer the question, "Why move?" Whether generated from mental representations or from physical exploration, movement in dance must be motivated.

The choreographers in my study often began work on a dance with specific images in mind, though these were seldom images of people moving. In the early stages of planning and rehearsal, choreographers sought, collected, and developed *moveable ideas* for their

dance—ideas to bridge thought and action. As noted above, choreographers had to *embody* their ideas before the strength or "goodness" of those ideas could be evaluated.

In the excerpt below, Sheri, a choreographer and solo performer, provides an account of developing material for a performance. Note how her initial ideas for the dance—in the form of specific visual and aural images—are eventually transformed into explorations in movement:

> [T]he piece is inspired by the events of Kristallnacht....And it's also inspired by the music I used, a piece called 'Kristallnacht' by John Zorn. And in the piece of music, well, on the evening of Nov. 9, 1938... there was a lot of glass broken. Although a lot of other horrible things happened, there's something resonant over time of the image of glass breaking. And there are these incredibly horrible sounds of glass breaking in the piece [of music]. And at some point very early on in the process of making the dance, I had an image of shards flying. And I worked with that in a lot of ways: that I was a shard, that a part of myself was a shard, a distal part of myself was a shard, like a hand or a foot....I played with how I could be sharp in my body.

From an historical event largely symbolized by breaking glass and piece of music echoing the sounds, Sheri arrived at a visual image ("shards flying") and verbal/tactile image ("sharp"). It is these images that Sheri sought to physically manifest, moving from a purely mental realm to the realm of the body.

Sheri developed her ideas by imagining herself as a shard, or parts of her body as a shard. For Sheri and other dancers in the study, the process of generating material included generating strategies for systematically exploring movement:

> I had to teach myself to be sharp. I made up games, and then I'd record them in my notebook. First I moved my limbs, my whole body across space, trying sharp directional changes. Then I played with 'sharp' inside my torso. I had the image

> of shards of glass moving from one point to another–not the literal sensation of glass, but of vectors, and there was a rhythm as these darted around. I did 'sharp' inside my torso standing, lying on the floor, kneeling. I videotaped myself to see what it looked like. While moving, I'd notice a change and this might become a plan for later work. I had to develop the differences, make more distinctions. I'm looking for the one strong idea, simple but developed...

To generate material for her dance, Sheri in effect conducted research, recording in a notebook her experiments and findings. Invented "games" allowed her to study the properties of different embodiments of sharp: Sharp directional changes of a whole body differ from darting vectors imagined in a torso, in both the visual image produced and the physical experience of the movement. Changing the orientation of the movement—standing, lying on the floor, kneeling—created additional perceptual differences. Sheri kept track of these differences, noticing physical perceptions as she moved and using videotape to understand the different visual effects of her modifications. Sheri used what she learned from these observations to plan for later work.

Sheri's account suggests that composing in movement requires alternating between being "inside" an image, perceiving it kinesthetically, and being "outside" the image, observing it as a viewer. This process of alternating between perceiving as a performer and viewing as a spectator appears fundamental in choreography—essential for evaluating movement images and/or clarifying intent. Sheri sought the "one strong idea, simple but developed" that would effectively convey a quality of "sharp" as determined by both kinesthetic and visual observations. Sheri continued to use the results of her observations when she advanced to making decisions about how the movement would function in the composition overall, and how it would best be "read" by a viewer.

Translating in dance

Finding the right *something* to fulfill an intention is common to all forms of composing. As I mentioned in Chapter 1, Flower and Hayes (1991) used the term *translating* to describe a writer's process of finding the right words to express a thought. Similar to researchers of other art forms, Flower and Hayes found that ideas do not spring from the mind neatly represented in words or in the syntax of written language. Rather they may be mentally represented in a range of symbol systems, or in complex networks of sensory associations that must find form and order in a linear written code. As Sheri's account demonstrates, choreographers, too, engage in translation, but they don't translate their images into an alphabetic or codified symbol system. Rather, a choreographer's task is to *invent* the words/symbols—the *movement vocabulary*—that will best capture his or her ideas. For Sheri, the task of translating involves distilling from the visual and aural image of breaking glass ideas that can be embodied. In her case, images of "shards," "sharp," and "vectors" bridge mental and physical representations.

For Sheri, it is this task of abstraction in generating movement that distinguishes dance from dramatic reenactment:

> I find it important to explain that it's not an image for me of somebody actually having that violent thing happen to them, that glass broke and went into somebody. It's very abstracted. I really am thinking about points and vectors. Although then what happens to me is that I feel this certain kind of movement in my torso, which creates enough of an emotionalism that I don't need to be thinking about, you know– ... [I]t was a very interesting process to kind of dissociate enough the events into movement material, and then find a way of shaping the movement material so that it expressed something specific to the events and true to them, and yet it was a dance piece and not just, not some sort of recapitulation of events.

Sheri must dissociate from the literal image and historical events to find a movement vocabulary that will effectively convey her aesthetic intention. By simply imagining points and vectors as she moves, Sheri evokes the kinesthetic response—for herself and by extension, her viewer—that is at the heart of her goals for the dance, expressing "something specific to the events and true to them."

Generating material as an ensemble

The prior example represents a relatively simple case of generating material. As a solo performer as well as choreographer of her work, Sheri is her own dancer. She can translate her thoughts into movement with a fair amount of ease. Other choreographers in my study faced a more complex problem: how to involve multiple individuals in the process of translating into movement internal images that reside in the choreographer alone. Traditional conceptions of a choreographer may mask the complexity of this task. One typically pictures dancers learning dance from a choreographer who has worked out all the movement before rehearsal; the choreographer comes into the studio, teaches the movement, and the dancers learn and perform it. This was a rare occurrence in the rehearsals I observed, and translating as a group was seldom so straightforward a process.

Orienting activities

More often than not, the choreographers in my study included their dancers in the task of generating ideas and movement for a dance. In order to accomplish such "group translation," choreographers engaged in what I call *orienting activities* designed to orient all performers toward a common understanding of the composing task. The choreographers in my study used a variety of such activities throughout the rehearsal process. Although choreographers may use any number of these strategies, I describe below four different types I observed, beginning with the most traditional. These types

illustrate different ways choreographers communicated to their dancers what they had in mind for a dance and how choreographers and dancers together accomplished the task of generating material.

1. Direct instruction

In the traditional image of choreography, choreographers individually may translate ideas for a dance into movement and then teach this movement to their dancers. In this case, the choreographer alone generates movement, specifying the physical representation of his or her ideas. Here, orienting activities consist of instructions that help dancers understand and embody the choreographer's vision.

Typically, such instruction includes a demonstration of the movement along with verbal description. Most movement is far more quickly performed than described, however. In the except below, Amii uses a sort of verbal shorthand to communicate with dancers, emphasizing those elements of the movement that are most relevant or essential to performance:

> So one more time from where we left off—Step, hand, that's what you have to do, as you arch, bring the foot in front, then bring the foot back and step, hand, arch with the foot in front, bring it back, swing (watches dancers in studio mirror as she demonstrates). And also I'm just going 'low rock, low rock' to get myself up. I step back with my right foot, keep my left foot in front, and my hand goes here, my head goes away from the hand, step, back, then toss...exactly. Let's take it from this little thing, the shoulder turn (demonstrates)... And get these arms right underneath you. The further out they are, the less likely you're going to be able to support it with your belly, so take it right there, your wrist right under your shoulders.

One thing that may be immediately apparent from this excerpt is the steady stream of words *and* their inadequacy; the difficulty of imagining just what Amii is doing is

evidence of how much information is communicated in the movement itself. Amii moved, watched, and talked at the same time, evaluating her dancers' performance, noting trouble spots, and offering pointers to help them execute more difficult or complex movement. She drew on her own experience of the movement—"That's what you have to do as you arch;" "I'm just going 'low rock' to get myself up;" and "The further out [your hands] are, the less likely you're going to support it with your belly"—to help her dancers understand how the correct version feels to perform.

Marcus, another choreographer in the study, used counts of 8 to instruct his dancers. The transcript below may best resemble popular images of choreography:

> Once again, 1 & 2 & 3 & 4, 5 & 6 & 7 & 8. That's the chorus part, so it's got to be sharp. (Performs alongside dancers.) Your arm comes out nice and straight, so- 1 & 2 & 3 & 4 (slows this count, emphasizes step on 4) 5 & 6, 7 & 8. ...So on this part, the hands go around that way da, da, da, make them locked together, so dun, da, da, but it's more soft, da, da da. (demos) And then you shoot down, 1, 2, 3 (rolls and counts slowly so others can follow)...-6, stay up 7, 8, down (head down near floor).

Compared to Amii, Marcus used fewer descriptions of movement; his counts emphasize the relationship of particular parts of the movement to the beat of the music. "Da da da" served to communicate what words cannot, a specific rhythm and quality of movement that Marcus envisions for the hands.

Choreographers' direction may also be more general, though still aimed at getting all performers on the same page. During my observation, for instance, Marcus was in the process of creating several dances for an evening of hiphop performance. He told his dancers at one point in the rehearsal, "This is our opening number, so the objective of this is, we're presenting ourselves." This information helped create a frame for the choreographic direction that followed: dancers were instructed to create a semi-circle

facing the (would be) audience and each develop a short solo over 2-3 counts of 8 to showcase his or her skills:

> It will be 2 or 3 counts of 8, you'll be out there and you'll do your stuff, and we're here on the circle being a kind of breaker circle....We just got a mellow bounce going, and we'll coordinate it to get everybody in rhythm.

Although in this example Marcus asked dancers to compose their own solos, he also communicated his vision for the section as a whole; he told the dancers how long they have to perform, the space they will use, and how they will be oriented to the audience. "Breaker circle" refers to a circle of break dancers, known to all of Marcus's ensemble, in which dancers take center circle one at a time and show one another their best moves. Marcus' dancers can picture such a circle, opened to the audience, with ensemble members supporting the solo with a rhythmic bounce. The instruction Marcus provides orients the dancers to a common vision for this section, and the purpose of this dance as an opening number.

2. Improvisation and Experimentation

In a second type of orienting activity, the choreographer communicates to dancers what he or she has in mind for a dance by giving them a particular task. In this case, it is the dancers who are individually responsible for translating ideas into movement. Choreographers may use improvisational exercises structured around a theme or problem, for instance, to generate movement vocabulary or experiment with the structure for a dance. When improvising, a dancer simultaneously originates and performs movement without preplanning or censorship (Chaplin, 1986). Choreographers may also engage their dancers in experiments with movement—structured exercises that are meant to explore a specific image, idea, or sensory experience (such as Sheri's experiments with "sharp"). These examples show that generating material is not always translating ideas into movement; it may also involve looking for compelling or interesting movement in and of itself.

Amii, a choreographer who asked her dancers to complete a writing exercise as an orienting activity, provides another example. Amii asked her dancers to write about an experience of grief and then to generate a movement phrase in response to their writing. Here, dancers were individually responsible for distilling and abstracting images from their account and translating these into movement. Dancers did not share their written work or verbally discuss what they had written, but common themes were evident in the movement. While the dancers produced very different phrases, some with idiosyncratic gestures specific to an individual's story, the movement was unified by qualities associated with grief and sadness. In this case, although the choreographer conceived the theme, dancers generated the material from which Amii drew in composing.

3. Collaborative generation

The third type of orienting activity involves collaborative generation of material. Here, choreographers typically engaged their dancers in discussion about their ideas for the subject of a dance or their ideas for the way they wanted to create the work. These discussions oriented performers to common goals for the dance and, by acting as brainstorming sessions, served to enlarge and further develop these goals. Performers together constructed a mental representation for the dance, enriched by multiple perspectives. With a shared representation of the composing task, the group could then discuss how their ideas might be collectively embodied.

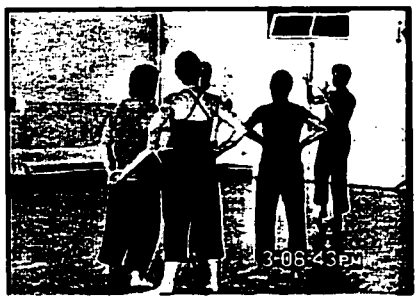
The following example illustrates this type of orienting activity. In the early stages of developing a piece titled "Attracted to Accidents", choreographer KT engaged her dancers in brainstorming around this theme. Ideas generated during the talk (i.e. accidents happen fast, some actions are risky, there's always a voyeur) served as the bridge to physical expression. The group explored fast, chaotic, and risky movement that would

evoke gasps and excitement from viewers. "Voyeurism" became the theme of a separate task out of which the dancers developed outlandish narratives performed in movement.

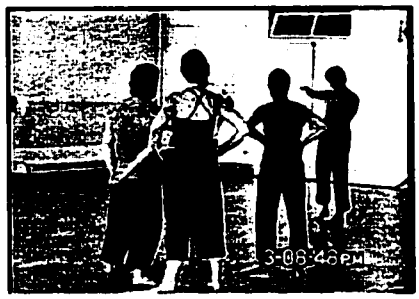
At the rehearsal I observed, KT and her dancers were attempting to execute a series of falls giving the illusion of slow motion. The movement for the new section had been developed the day before in response to a group discussion about the rhythm of the piece. As KT explained in the interview:

> We were talking about the rhythm of the piece and how it all felt like it all had the same qualitative rhythm ...a kind of constant rhythm of fast, physical accidents... We started thinking that it's too much the same, and then we started talking about that moment of animated suspension you have before you have an accident, and how that's always shown in movies in slow motion, and how cartoon characters always have a stop in mid-air before they fall to the ground. And how people always describe those moments as a stillness, or a complete stop, or holding your breath, or kind of slow, you know. And we all loved the idea [of developing movement like that.]

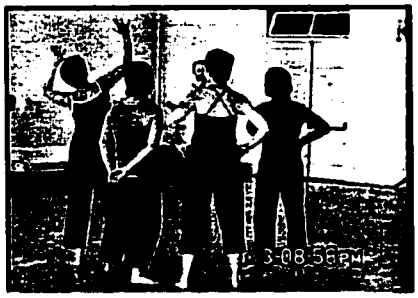
In this example, choreographer and dancers together identified a compositional problem and a solution. Through talk, the group generated common experiences and cultural representations of the suspended moment before an accident. Multi-modal images of this moment—cartoon characters stopping in mid-air before a fall, slow-motion movie clips, a feeling of stillness or suspended time—inspired explorations in movement. The group decided to attempt the illusion of falling from a high place in slow motion. The necessity of a common representation is particularly vivid here, where the movement image can only be embodied through coordinated efforts. Multiple people must be in place to catch and slowly lower the "falling" person to achieve the illusion of suspended motion. In this case, performers must have a common mental image of the *movement* image they want to create in order to coordinate their physical interactions to achieve this image.



KT: [We can do it] if we take the momentum of everything and slow it down a notch, so it's 'choo, choo, choo, choo (indicates blocks of action with hands) –whoo----sh shoo (slow arc of arms)



And the tops of things, everything gets slower incrementally, it's not all one (indicates level with hand), 'cause we just can't do that...



So maybe it starts at the height of Rob—'Whoo---sh' (slow arc of arms, indicates slowing of movement at height of lift, gaining speed again after setting down).

Figure 3.1 KT communicating desired qualities of movement

As the example above illustrates, orienting activities often tap common human experiences and cultural knowledge. Whether it be dancers generating individual physical expressions of grief or a group brainstorming ideas associated with accidents, the activities serve to not only orient the performers around a common aim but also suggest kinesthetic and visual images with evocative potential for audiences. In effect, the ensemble acts as a sample of the population saying "this is what represents X for me". Choreographers continued to call on cultural representations or archetypes to communicate with dancers as they were developing an image. During rehearsal of the

"slow motion" section, for instance, KT used common gestures to convey and support her intention for the section. The video stills in Figure 3.1 show KT during a pause in practice, communicating with a "whoosh" and slow arc of arms the dynamics she wants the group to achieve.

In addition, KT called on the composer, Bob, present at this rehearsal, for a "slow mo" sound. Bob experimented with drawing his thumb across the head of a tambourine, creating a warped sound very close to the "time warp" effect used in film. The group tried the falling and catching sequence again, this time with KT's "whoosh" and Bob's tambourine clarifying and enhancing the movement image. The stills in Figure 3.2 illustrate the coordinated effort required to embody this image.

Figure 3.2 Multiple individuals coordinating sound and movement to create slow motion image

4. Movement as prompt

A fourth type of orienting activity I observed might be described as a combination of the first two types. In this case, the choreographer generates the movement, as in the traditional image of choreography, but this movement itself is used as a *prompt* for further development by dancers. The choreographer communicates through a physical representation the qualities she wants to see in the movement without specifying exactly how those qualities should be embodied. Crispin used this technique—"thrown material"—to generate movement on the day I observed. She later explained the technique as follows:

> I basically do a very short improvisation in the middle or in front of a group, and [the dancers] try to do it, they get whatever they can. It's whatever you can remember, grab something and rehearse it. And then I throw another thing, and they add that to the phrase.... Formally, I don't want things to look the same, but I want them to come from the same intention....I'm not looking for unison, [and] I'm not looking for people to do what I did, but I am looking for people to, for instance, drop levels in a certain way or puncture the air in a certain way....I'll get something very different from one person to another. But when you put them together, there's some kind of shared information.

In essence, Crispin gives her dancers directions to create a phrase, but the information she wants them to include in that phrase is articulated in movement rather than in words. Again, the activity effectively orients all performers around a common goal, "com[ing] from the same intention," but it also elicits individual understandings or experiences of the material.

In this orienting activity as well as in the two prior examples (improvisation and experimentation; collaborative generation), the task of developing material is distributed across choreographer and dancers in different ways. In the activity of throwing material, the origins of the material are especially difficult to define—Is it the choreographer or the dancers who author the movement? I show two stages of this technique in Figures 3.3 and

3.4. In Figure 3.3 depicts Crispin improvising or "throwing" a 7-second movement sequence to her dancers. Alongside are Crispin's comments on the process. As Crispin remarked elsewhere, improvising movement means she doesn't necessarily remember the exact movement she creates. Crispin throws the movement and waits and watches to see what her dancers have "harvested" from her improvisation. She must stand outside the movement to learn what was "the most recognizable thing" to them.

The final image in Figure 3.3 shows Crispin standing away and observing her dancers as they rehearse, but Crispin also moved around during the process in order to follow her dancers. Crispin threw four improvised movement sequences, and the dancers were expected to add each new sequence to the previous phrase they'd developed. Before Crispin threw new movement to her dancers, she in effect re-learned her own material, now modified by her dancers. By learning a generalization of their creations, Crispin explained, she is able to throw new material organically connected to the old:

> [It's] hard to throw material to people without know-, without doing what they've come from doing. I need to be in sympathy with them in order to continue forward in any kind of organic way. I might have been trying to learn a generalization from what they were developing. I do follow them a lot.

Just as solo performer and choreographer Sheri evaluated her evolving material from both "inside" and "outside" the movement image, so too Crispin steps from being inside the movement as she improvises it to stepping outside and evaluating it visually through her dancers' performance. She steps back into the kinesthetic experience—in this case, sympathizing with her *dancers'* experience rather than her own—in order to continue composing. Although her dancers together embody and comprise the movement image, Crispin must step in and out of this image in order to guide its development.

Crispin:
This time I decided instead of being around, inside a circle, I wanted to be in front of them, because when I'm inside a circle it limits my, it makes me become insular, which affects the movement a lot...,

I don't know what was the most recognizable thing, sometimes something that feels very simple when I'm doing it is the weirdest thing in the world to them, and that's the thing that they notice and do.

I throw it and I'm waiting and watching what they're harvesting-that's the word I use a lot--watching what they come up with.

I'm looking to see how they're doing it.... I'm willing to throw out the first round and start over, if I'm giving out mixed signals or if I have to explain something, or if they seem tentative.

Figure 3.3 Crispin throwing a movement phrase

George:
I end up trying to get the overall shape, like "Backs up, turns, goes to the floor." Something as simple as that. And I kind of do a little movement...I still haven't figured out how to get the most information. Because you know it if it turns, and you decide to do the turn to remember the turn, then you miss whatever comes next. So I watch more than other people, but I remember less. I get very very unspecific, broad paths.

I think afterwards the words come. I think that first I'm watching, and going (whispering) "Ok, she's going there, now she's going there," just kind of doing...little standing versions of whatever she's doing. And then I think I go through and try and name it....

Clearly there are things that I remember, I remember the beginning point and the end point, I don't remember what came between. So I have to figure out a way to make that up. I can't figure out how to get on the foot I need to...I remember the passage to the floor, but I can't to arrive at the thing that brings me to it.

I had to have my weight on that particular leg, my left leg. So I was trying to piece together, OK, how do I come out of the turn [so that] my weight is on my left leg?

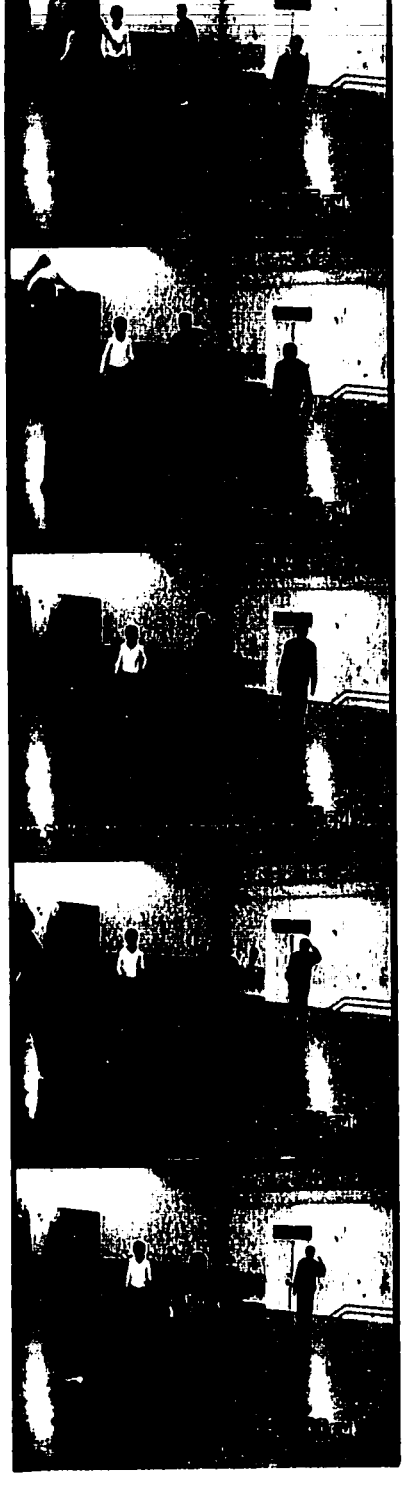


Figure 3.4 George rehearsing part of thrown material

Figure 3.4 shows one of Crispin's dancers, George, attempting to build a phrase from the material Crispin improvised in Figure 3.3. George's account of the experience is included alongside the images. Note how in this activity, the cognitive task George and his fellow dancers are engaged in is a much different task than translating "sharp" into movement, or finding ways to physically abstract an experience of grief. In effect, George and the other ensemble members are set the task of "learning" movement they see only once. Crispin throws the initial movement prompt, and the dancers construct what they can from what they remember, necessarily inventing movement where memory fails.

As can be seen in Figure 3.3, George and the other dancers watch Crispin closely and "mark" the movement in their bodies as best they can. George described his strategy as "trying to get the overall shape" by watching and "doing...little standing versions of whatever she's doing" and then verbally articulating the sequence to himself. Using these strategies, George remembers "very unspecific, broad paths"—paths that don't help him as he struggles in Figure 3.4 to figure out the details of getting to the floor. George remembers the beginning and end of the movement sequence but must "figure out a way to make up" what comes between. The problems George encounters in remembering the movement mean that he must, in effect, invent compositional tasks for himself: "So I was trying to piece together, OK, how do I come out of the turn [so that] my weight is on my left leg?"(final comment). George's hand to his head (Figure 3.4, first image) is evidence of his struggle with this task. George performed the turn leading into the slide to the floor sixteen times during the three minutes the group rehearsed the phrase, often stopping just before the slide. The images in Figure 3.4 portray George on his twelfth and thirteenth attempt at the phrase—only the second time he executed the slide.

The task of learning and composing from improvised movement was a difficult one for all the dancers, evidenced by their comments throughout this section of rehearsal. They joked to Crispin "You're mean!" and "Come on, do it again, just one more time" when

the movement was particularly difficult to capture. At one point, Crispin threw a deceptively complex phrase: a slow arching of arms and turning that traveled from one side of the rehearsal space to the other. When her dancers paused before attempting to recreate it, Crispin remarked, " That was easy!" The dancers groaned in dissent. In response, Crispin clapped and vocalized a rhythm that closely matched the visual rhythm of the prompt she performed. As she later commented,

> It's another way that I have developed movement, by providing a rhythmic structure without any physical material. They have to do something that match-, that gets into that, so it's another way of providing an armature around which they can build....I was giving them kind of like another run at the information.

In essence, Crispin constructs another version of this type of orienting activity. Crispin provides an additional representation, this one an aural one, in order to communicate central aspects of the movement performed.

Dancers as active problem solvers

It should be clear from the above examples of generating material that dancers are not passive paints on a canvas. Rather, choreographers regard dancers as active problem solvers on whom they rely in generating material for a dance. Ideas for a dance cannot be fully evaluated until they are embodied and seen/experienced by the choreographer. Even the traditional choreographer who comes to the studio with specific movement to teach his dancers learns something about the movement in the process, by the way his individual dancers embody that movement. Choreographers in my study interpreted a dancer's performance as a representation of what he or she understood about the movement or found most significant in the movement. Choreographers gave corrections or new direction to dancers based on what they saw in their dancers' performances.

Choreographers oriented dancers to the goals of a dance or particular section, but then gave tasks to their dancers that would elicit personal solutions. These tasks were practical in the sense that they quickly generated a pool of available movement vocabulary. They also generated variations on a theme reflective of individual ensemble members. Whether through improvisational exercises, writing tasks, brainstorming sessions or thrown material, dancers generated material that represented them: their ideas and experiences, their physical attributes and abilities, their particular movement habits or preferences, their ways of solving problems. Choreographers often sought these individual solutions, a point understood by dancers. George, for instance, perceived the task of learning thrown material as more or less impossible. Yet he also understood that it was the impossibility of the task that ensured Crispin would get the movement she wanted:

> The exercise is to fail, I mean, it's our own material, it's about how we deal with our inability to get all the information. The task we've been given is to fail in getting the material so that there is variation ... it creates phrases and timing and movement that's ours yet originates from [Crispin]. There's a sense of individuality within the group. So the struggle is to try and achieve it—because that's the job—know that you're set up to fail, and remain yourself in the failure so that what comes out is what she's looking for.

While the dancers in this case aren't asked to create their own movement interpretations of a verbally articulated idea, the "errors" that result from this activity in essence *are* their own interpretations of information communicated to them in movement.

For another choreographer in my study, involving dancers in generating movement ensured that the composing process would not be sewn up at the start. KT stayed away from dictating the exact movement she wanted her dancers to perform because she believed it could too easily make the work "trite" and blind her to possibilities:

> [T]here's some intrinsic part of the artistic process that needs to be fundamentally unknown to you when you're working in it, unknown in a way that you can

> verbalize.... If you've discovered it already, then you're in this dangerous zone which can create trite work, then you're working toward completion of a goal that you already understand, and you can start missing things. For me it can so easily become contrived...[A] physical example of it is like 'Ok Michelle, I want you to stand on Pablo's shoulders and then I want you to flip forward and land on the floor, and I want it to look like this. Do it.' And then they could try to create this specific picture I drew for them, you know, with little arrows, but they would be working from an external point of view. [That's] INCREDIBLY frustrating for them. In contrast, I might say, 'Well, I really want a sense of danger, I really want Michelle to have some height, I want there to be a serious fall, I want the feeling of (gasp), that arresting, explosive attack to something and then a resolution that is close to the ground'—They have to experience those ideas for themselves and see what would come up for them physically.

KT's comments reflect a philosophy common among my study participants about how to best craft a dynamic image. Rather than specifying exact movement and solving the problem for them, choreographers often asked dancers to find movement solutions that felt right for themselves. KT sees providing an "external" description of movement as "incredibly frustrating" for her dancers. While KT might orient her dancers toward a particular vision for the movement, she distributes the problem of embodiment among all performers.

Generating material in the middle of the rehearsal process

The final example I would like to discuss in this chapter demonstrates how generating movement in the middle of a rehearsal process differs from generating movement at the start of a project. Up until this point, I have concentrated attention on the various strategies choreographers use to move from initial ideas for a dance or a new section of a

dance into movement that successfully embodies those ideas. This initial stage of generating material is largely about generating a movement vocabulary (sequences of movement or movement qualities) with which to compose the dance.

However, choreographers generate material for a piece throughout the composition process, not only at the beginning. As with any text, the previously produced material both inspires and constrains what is later produced; choreographers must contend with an increasing number of compositional elements as the dance evolves. Choreographers might now generate material in relation to established vocabulary, a developing structure for the piece, or movement that is known to come before and/or after the section being created.

In the following example, Rob has a specific goal: to create a movement phrase that travels from one side of the stage to the other. This goal emerged from plans for the dance as a whole. Rob and his colleague Ryan had previously collaborated on a 12-minute movement theater piece, and had been invited to create a longer dance for an upcoming venue in a larger performance space. They decided to expand the original piece to 25 minutes, further developing the material and adapting it to the larger space. In the week before this rehearsal, Rob and Ryan had shown the piece to a fellow dancer who suggested they find more ways to use the space; too much of the movement, she commented, took place in the center of the stage. On the day that I observed, Rob and Ryan had moved sections of their piece to further reaches of their stage area and were working on constructing effective transitions from one part of the stage to another.

In the following excerpt from the rehearsal, Rob and Ryan had decided to individually compose movement phrases that would move them from upstage right where they had been working to upstage left. The process of generating movement at this point in the production of the piece is different from initial explorations of movement. Most of the

decisions about movement vocabulary (and the work of translating particular ideas into movement) had already been made. As Rob described it, the task of creating a phrase in this instance was about selecting and organizing movement consistent with the existing text. This keeps the piece of a whole: "[T]he problem is getting from stage right to stage left, and the vocabulary we're using is a combination of different parts of the piece, so that we don't do something totally foreign and we kind of keep the relationship to the world that we're in." Previously developed vocabulary may be excerpted directly from an earlier section of the dance or simply used as a starting point or "impression" off of which to construct the new phrase. At one point in the rehearsal, Ryan asked Rob "Are you getting specific with your movement?" As Rob later explained,

> [He probably meant] am I extracting movement from other scenes in an exact way? Or am I using vocabulary from other parts of the scenes just as motivation for things, so it has a likeness to it but not verbatim specifically, as building blocks for making a phrase. Sometimes we use an image literally, so it's an extraction from another section, or sometimes I use just the beginning of it and let the arms do something else, the legs do something else, or a level change, or use it for inspiration for something, an impression.

By borrowing or improvising off vocabulary developed earlier, Rob ensures a consistency in the shapes, patterns, and dynamics of the movement throughout the dance.

The images in Figure 3.5 show Rob building his individual phrase. These frames depict but one of many repetitions of the movement through which the phrase was gradually lengthened and developed. Rob's comments on the process accompany the images.

In his comments, Rob describes a sort of kinesthetic logic (Line 8) that guides his choice of specific movements. A particular "kinetic feeling" (Line 1) leads to a sequence of movements that seems "obvious," though Rob cannot say whether this is a naturally logical sequence or one that feels natural because it is familiar. As in earlier examples,

kinesthetic experience—how the movement feels—is used to evaluate the material generated.

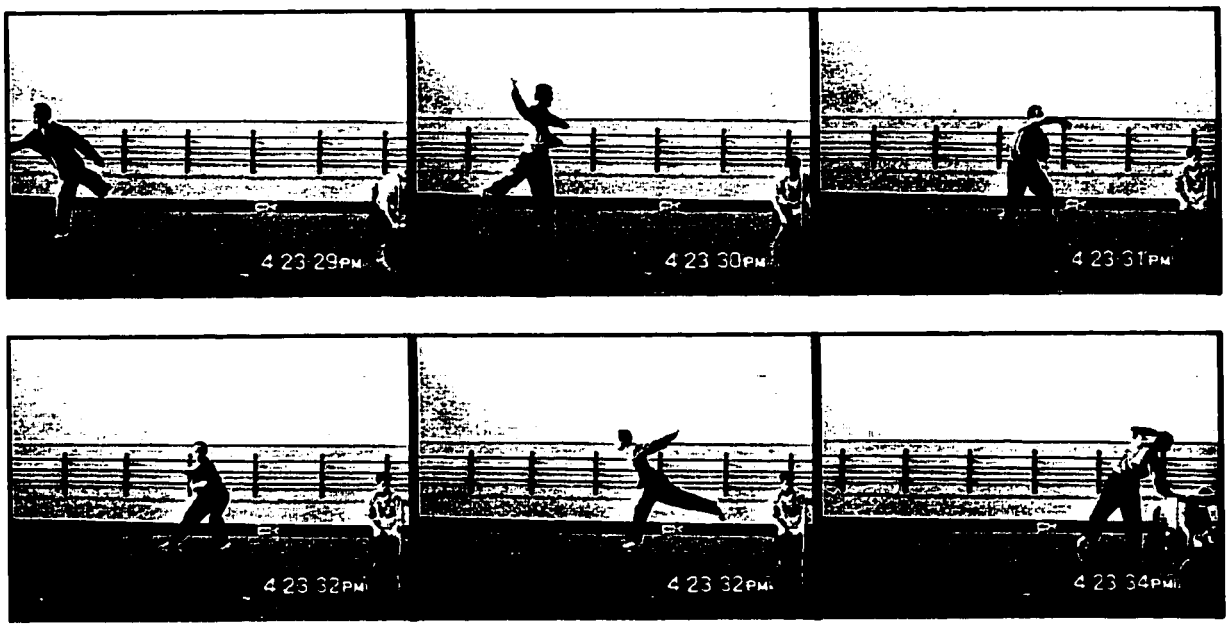


Figure 3.5 Rob constructing a movement phrase

1 Certain movements, like this one, I think there's a kinetic feeling. I could feel the
2 beginning, how I was going to get up from the floor seemed the most obvious to me, after
3 that I sweep up and that's basically a suspension (b), and I knew that after the
4 suspension I was going to drop the arm and swipe swipe (c, d), because it seemed like
5 the next most obvious thing to do, kind of take the space and
6 swallow up air and push it, and from there push both arms back into an arabesque (e)
7 which travels me toward the table (f), the direction I need to go. And it might be a
8 movement that I put together before that makes that feel like the logical kinesthetic
9 choice. Hard to say.
10 I think it was just a way to travel. That kind of kick thing (a, e), kind of like a chassé where
11 I'm traveling on one leg, it's kind of a theme that comes up a lot in other sections.

But Rob's choices are not merely about kinetics. He is also thinking about the larger goal of the phrase—he needs to travel in the direction of the table (Line 7)—as well as how he

might utilize existing material and the performance space as elements of design. As Rob described in Line 11, his choice of a particular kick is "kind of a theme" that appears in other sections of the piece. The table, center stage, is also utilized in other sections. Figure 3.6 shows Rob incorporating the table into his phrase. Here, Rob considers its placement and shape as he composes, accentuating the line of the tabletop with a parallel sweep of his arm. Again, Rob's comments accompany the images.

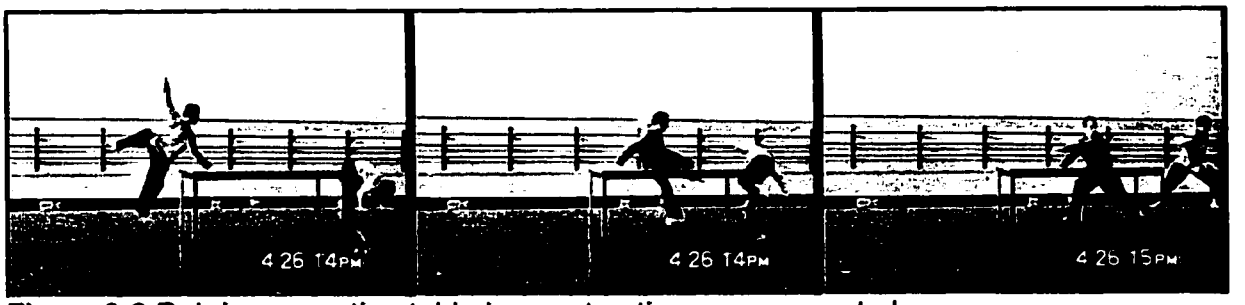


Figure 3.6 Rob incorporating table in constructing a movement phrase

1 And I think I wanted to also use the table because it's in the space, it's one way to
2 accentuate the line of the table, which is why after I scooted, I had my arm go right
3 across the top of the table. Spatially I was commenting on that line of the tabletop.
4 Sometimes you can just use the space, and objects and lines and shapes in the space
5 to your advantage. So the movement isn't only about all around my kinesphere, but it
6 comes out to what's in the space, and lines just open it up.

Rob develops movement by attending not only to his kinesphere (the sphere of space into which his body extends), but also to the lines and shapes of objects in the surrounding environment: "Sometimes you can just use the space, and objects and lines and shapes in the space to your advantage" (Lines 4-5). As Rob composes his phrase, he calls to mind what he knows of the dance as a whole: a kick forms a theme, the table placed center stage sets up certain spatial dynamics. Having viewed the original and evolving piece many times on video, Rob is well aware of the visual effect of the table within the space as well as his actions in relation to these. Rob develops movement that "isn't only all about all around my kinesphere, but comes out to what's in the space" (Lines 5-6). Rob's

understanding of the way the lines open up the movement image can be gained only from experience viewing the image (and similar images) from outside.

A final influence on Rob's problem solving is his partner Ryan's problem solving. This is an aspect of generating material that may happen at any stage of composing when two or more dancers are working in the same space. Although the dancers are constructing phrases individually, they affect one another's generative processes simply by virtue of their proximity. What is different in this example from initial phases of rehearsal is again the knowledge of surrounding text. Rob and Ryan now have specific reference points in space and in the movement to negotiate around, and they purposefully compose phrases in relation to one another. As Rob commented,

> At some point, while we were making it, we started to negotiate who is going to be upstage and who's going to be down, is there a part where he and I come together? Or have some unison? Or relate in the movement. So it's thinking about what movement am I going to do, where am I going to travel? And where is Ryan while I'm doing it, so that I'm aware of him and have some connection?

When Rob reached the table, he stopped to check in with Ryan about what Ryan had developed so far. For Rob to use the kick shown in Figure 3.6 (Images a & b), he had to make sure it would not interfere with Ryan's evolving phrase:

> I thought the kick—because I knew [Ryan] was behind me—that that chassé thing would create just a nice movement passing [Ryan]. Instead of blocking him, or having us both back there not moving much, I wanted more of a sweeping feeling from stage right to stage left, so I felt like just passing him there and keeping it moving was going to work.

Rob is aware of Ryan behind him; the kick mentioned earlier as a theme in the piece now becomes a way to sweep by Ryan without blocking him and keep the movement traveling.

Although Rob was building his own phrase, Ryan's activities influenced Rob's composing. The images in Figure 3.7 show Rob watching Ryan, getting an idea for his own developing phrase (a, b), and then, with Ryan, negotiating a way for the two phrases to come together (Images c-e).

Reviewing this clip during the interview, Rob explained, "I remember just after that I was a hooking up with Ryan, and I saw something that he did; I thought I could figure out how to blend it into what I was doing, so that we could connect into the next section over there." Ryan's movement constrains Rob's composing but also acts as inspiration. As Rob added: "There's that dynamic of waiting for each other to finish their [sic] thoughts and to see how it's going to come together. It's cool, because I think he saw that I was making my way to the other side of the table, so we just ended up meeting over here, just by watching, just by being in the same space making the phrase." It's interesting to note Rob's use of the words "finish their thoughts" to describe composing a sequence of movement.

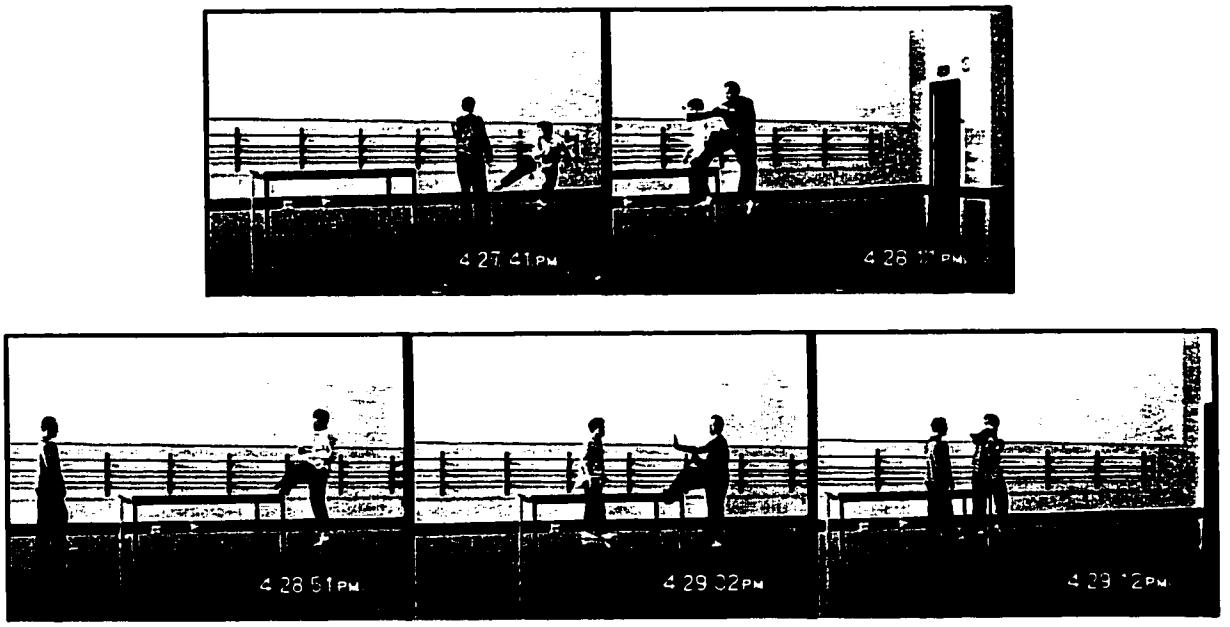


Figure 3.7 Inspiration for and negotiation of a movement phrase

Generating material at different stages of the composing process

Table 3.1 summarizes the differences between generating movement at the start of the composing process and generating movement further into construction of a dance. Recall the example of Sheri at the start of this chapter: in this example, Sheri was generating material for a dance that had not yet been created. She concentrated on inventing or discovering an effective movement vocabulary, one that embodied her expressive intent. In contrast, Rob was generating additional movement for a dance that already existed. He was, for this project, revising and expanding an earlier draft, and as such, he had an established movement vocabulary from which to draw. While Sheri sought a bridge between her mental representations (breaking glass, flying shards) and physical actions, Rob was able to more fluently *think in movement*, without having to go through a process of translation. His movements were "logical" choices that made sense within the experience of the dance, well known at this stage of rehearsal.

Table 3.1 Differences between activities of generating material at two stages of the composing process

Generating material at the start (Sheri)	**Generating material in the middle (Rob & Ryan)**
• goal is general • choreographer may or may not have a clearly defined aesthetic intention • focus is on finding compelling movement or qualities of movement for further development • choreographer experiments to learn *about* the movement (i.e. the kinesthetic and visual effect of different embodiments of an idea, in different locations on stage) • movements may or may not be related one to another	• goal is specific • choreographer draws from an existing movement vocabulary and knowledge gathered during early explorations; choices are related to other movement in the dance (i.e. repetition of a theme) and to a developed/developing intention • composing process is constrained and inspired by previously developed choreography, other dancers or props, use of space • new choreography has a purpose within existing/evolving structure for the dance

Another difference in generating material at these stages of the rehearsal process is the use of space. For Sheri and other choreographers at the start of a project, attention is on the physical experience of the movement and understanding its visual impact in the surrounding space. Sheri explores various embodiments of "sharp"—moving her whole body across the studio, or moving mainly her torso while standing, lying on the floor, kneeling—noting how her perceptions of the movement change in various orientations. Sheri learns about the movement by attending to what it feels like and what it looks like when performed. Her movements at this point are not related to one another, or to previously established sections of a dance or to specific locations on a stage. While dancers working as part of an ensemble may generate initial material in relation to other dancers (as in the example of creating fast, chaotic movement around accidents), little consideration is given at this time to specific orientation in space. Choreographers generating material at this stage of rehearsal focused primarily on finding compelling movement or qualities of movement for further development.

Rob, in contrast, is both constrained and inspired by the existing text as he composes his phrase. The dance has an established orientation in space, and the phrase itself is meant to carry him from upstage right to upstage left, connecting two previously developed sections of the piece. Both the table and Rob's partner, Ryan, lie along this pathway, and Rob must contend with these as he composes. While the table is inert, Ryan is simultaneously working on the same problem. Rather than obstacles, Rob considers the table and Ryan's evolving phrase as creative inspiration, additional source material from which to borrow as he composes.

Generating material: mining conventions

Choreographers in my study composed not with a literal vocabulary, but with the connotations of movement. Those connotations are understood not only through specific actions, but also through the way movement is organized in time and space in a structural whole. (I will elaborate in the chapters that follow.) Sheri's account and other examples in this chapter suggest that the process of generating material is about translating ideas or images into movement—this image is consistent with the research on writing, which describes writers' struggle to translate thoughts and multi-modal images into words on paper.

In dance, however, movement may also be generated for its own sake. Certain shapes or qualities or images, or use of space or a particular prop may be found compelling for reasons that go unarticulated. Explorations of movement may be explorations of the medium itself, of just what a body can do, or what happens when five dancers upstage right turn and look at a single figure downstage left. Choreographers may structure improvisations around a particular task to see what emerges (i.e. how many different ways can you lower yourself to the floor and get up again without using hands/arms?), if the movement itself or certain patterns of movement evoke particular associations or experiences. Or the choreographic process may be viewed strictly in terms of design, in creating a pleasing arrangement of shapes and forms in time and space. This "reverse translating" is uncommon in written composition; writers rarely invent nonsense words (non-codified vocabulary) and see what they suggest. Yet it's clear from Lewis Carroll's "Jabberwocky" ("'Twas brillig and the slithy toves...") that the spelling, sound, and organization of nonsense words can conjure a host of associations.

Sheri suggested that generating effective material in dance requires balancing a certain level of abstraction with associative elements an audience might respond to. Sociologist Howard Becker has observed that language artists achieve this balance by utilizing both cultural and artistic conventions in their work. His observations appear equally applicable to dance:

> Verbal art forms use a mixture of conventions which are part of the culture, independent of the art medium itself, and conventions of the art so well known that they are also part of the culture every well-socialized person knows. Poetry and other verbal arts rely heavily on the associative and evocative materials embedded in language as it is used in ordinary speech as well as in literature. Phonemes take on, in the development of a language, meanings signaled by their sounds, just because so many words in a given meaning family already use those sounds. Thus, in English the initial sound gl- has a connotation of phenomena of light; many words describing such phenomena begin that way: gleam, glow, glitter, glint, glare, and so on....Poets control the feel of a passage in part by controlling the way these 'meaningful' sounds enter into it, adding to or modifying the more overtly expressed meanings. (1982, pp. 44-45)

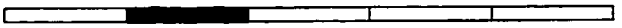
Like language artists, choreographers rely on both cultural conventions and conventions of dance known to any "well-socialized" person to create meaning in their work. The participants in my study drew heavily on the associative and evocative materials embedded in ordinary, everyday movement to signal meaning in their text, as well as on formal dance vocabulary. Choreographers composed using what may be the equivalent of "phonemes" in the language of dance—specific gestures and movements that take on different meanings depending on the way they are performed or arranged in time and space. Sheri's "sharp" movement is disturbing and painful to behold, and although the jerks of her body are quick, it is a very different movement from the fast, chaotic, near-misses of KT's company evoking the qualities of accidents. Marcus's audience may not

know the term "breakers' circle," but they will understand how to read the solos performed within it.

Abstract movement with evocative connotations was often mixed with actions that might be read more literally. The choreographers in my study reported including "pedestrian" gestures in their dances, or using "recognizable" behavior between individuals to suggest a dramatic scenario. Like poets, choreographers controlled "the feel of a passage in part by controlling the way these 'meaningful'" movements entered into their dance, thereby crafting [an expressive intent]. Choreographers used not only the expressive properties of movement, but also the connotations of different spatial and temporal arrangements of figures in space to signal meaning. Choreographers may purposefully mine the "body language" familiar to us all on some pre-conscious level.

It is this element of composing—how choreographers and dancers render an image in time and space—that I address in the next chapter.

Chapter 4:
"SETTING" DANCE: CONSTRUCTING A DURABLE TEXT



In the last chapter, I described ways that dancers generate material for a dance. As choreographers begin selecting, organizing, and developing this material into a cohesive whole, they begin the process of *setting* a dance. Setting refers in part to the process of *settling on* creative decisions that shape the final performance. But setting also refers to the process by which the dance literally *takes shape* in the minds and bodies of the dancers. In composing a dance, these processes—creative decision-making and embodiment—are intimately entwined.

In the field, dancers commonly spoke of "set movement" or of choreographers "setting a dance on" one or more dancers. When a dance is *set*, it exists (to greater and lesser degrees) as a specified sequence of movements that can be repeatedly reconstructed in performance. Choreographers, unlike writers or composers of music, do not have a commonly used notational system with which to record and organize their ideas. Instead, they rely on their dancers to represent their ideas—to embody, remember, and perform their ideas back to them—so that they might be evaluated and revised. It is this aspect of choreography that makes it particularly compelling. Like Keller and Keller's (1996) blacksmith, choreographers learn from working with their medium. But because this medium is energy contained in human bodies, those bodies must *learn to become* the very art object being created. This "reciprocal learning"—the choreographer shaping the dance even as it takes shape in the dancers—is an integral part of composing in dance.

In this chapter, I address in detail an example of a choreographer composing a quartet. Through a series of chronological events from one rehearsal, I show how movement is *set on* dancers and how over time the quartet becomes increasingly firm or *set* in its design. I addition, I show how interactions between choreographer and dancers influence and enable this process. While choreographers generate movement, evaluate the result, and make revisions, dancers, too, participate in these composing processes, directly and indirectly. As I illustrate in this chapter, setting is a joint activity subject to the mental and physical limitations (as well as individual personalities) of the choreographer and his or her dancers.

Setting a Quartet

Composing phrases

My example centers on Crispin, the choreographer, and four of her dancers composing a quartet. This example is taken from a single day's rehearsal and reflects an hour and fifteen minutes of the three-hour period. Crispin's goal was to build a quartet that would bridge two existing sections of the dance. Crispin wanted the movement to work in a square, with the dancers interacting in a "clockwork" fashion. The video stills in Figure 4.1 depict Crispin working alone in the space generating movement ideas while her dancers were on break.

Crispin made several starts on a number of phrases, evidenced by a return to the same location on the floor and same initiating movement. She explored different levels, repeating, sometimes modifying, and increasingly extending a sequence of actions with each repetition. I include images of these exploratory movements here because they show only a slight resemblance to the phrases Crispin's dancers eventually learned. The problem of composing is Crispin's alone in this instance; she must evaluate the

movements she performs *as she performs them,* keeping in mind the particular clockwork effect she wants to achieve. The fact that there is only a resemblance between these movements and the eventual phrases indicates the difficulty of remembering and mentally coordinating four separate parts. Crispin likened her explorations here to a preliminary sketch that is lost and must be reconstructed:

> The movement changed a lot by the time it made it to [the dancers]. I had forgotten it all, it became something else entirely. But it's sort of like if you made a sketch of something and then lost your notebook, and then made a painting. It would be, you'd done the thinking about what you wanted to make happen, but then you had to start over to make it happen.

Figure 4.1. Selected movements from Crispin's explorations alone in the space

Working alone on the floor, Crispin generated a number of movement ideas for her phrases. Like anyone trying to generate ideas and remember them at the same time, however, Crispin encountered limits to what she could hold in memory. After only three minutes of working alone, she called an end to her dancers' break.

Dancers as record/memory

In many ways, Crispin's struggle resembles that of a writer trying to get an idea down on paper. But the "paper" in this instance is a human being. Not wanting to forget her work, Crispin called up her dancers one at a time to learn a phrase *as* she constructed it. The dancers acted as both *recorder* and *record* of her movement ideas. As Crispin moved, she essentially dictated the phrase, with many starts and stops, much like a writer making several starts on a sentence. The dancers watched Crispin and moved beside her, recording the movement in their bodies, rewriting the phrase as it changed and evolved. At the end of the dictation, the dancers read/performed back to Crispin their understanding of what she communicated.

In reviewing the videotape of Crispin composing individual phrases, the reconstruction of her earlier "sketches" was obvious. Though none of the phrases were explicitly recognizable from Crispin's earlier explorations, they all possessed characteristics of the movement in Figure 4.1–arching arms, steps that slid along the floor with a slightly bent knee, turns propelled by the momentum of a swinging arm.

A visual account of Crispin's composing *on* one of her dancers is depicted in Figure 4.2. I will first discuss Crispin's actions, then those of George, the dancer learning the phrase in this example. I include this account because it illustrates the typical starts, stops, and repetitions involved in composing movement. It also illustrates two distinct functions of choreographer and dancer in this distributed activity.

In the first images of Sequence 1, Crispin stands to the right and slightly forward of George and rotates forward first her right elbow and then her left. Sequences 1-4 in Figure 4.2 depict consecutive starts on the phrase: Crispin repeatedly returned to this movement with her elbow and to this same standing position/location in the room each time she began. The arms changed significantly in the first couple of performances as

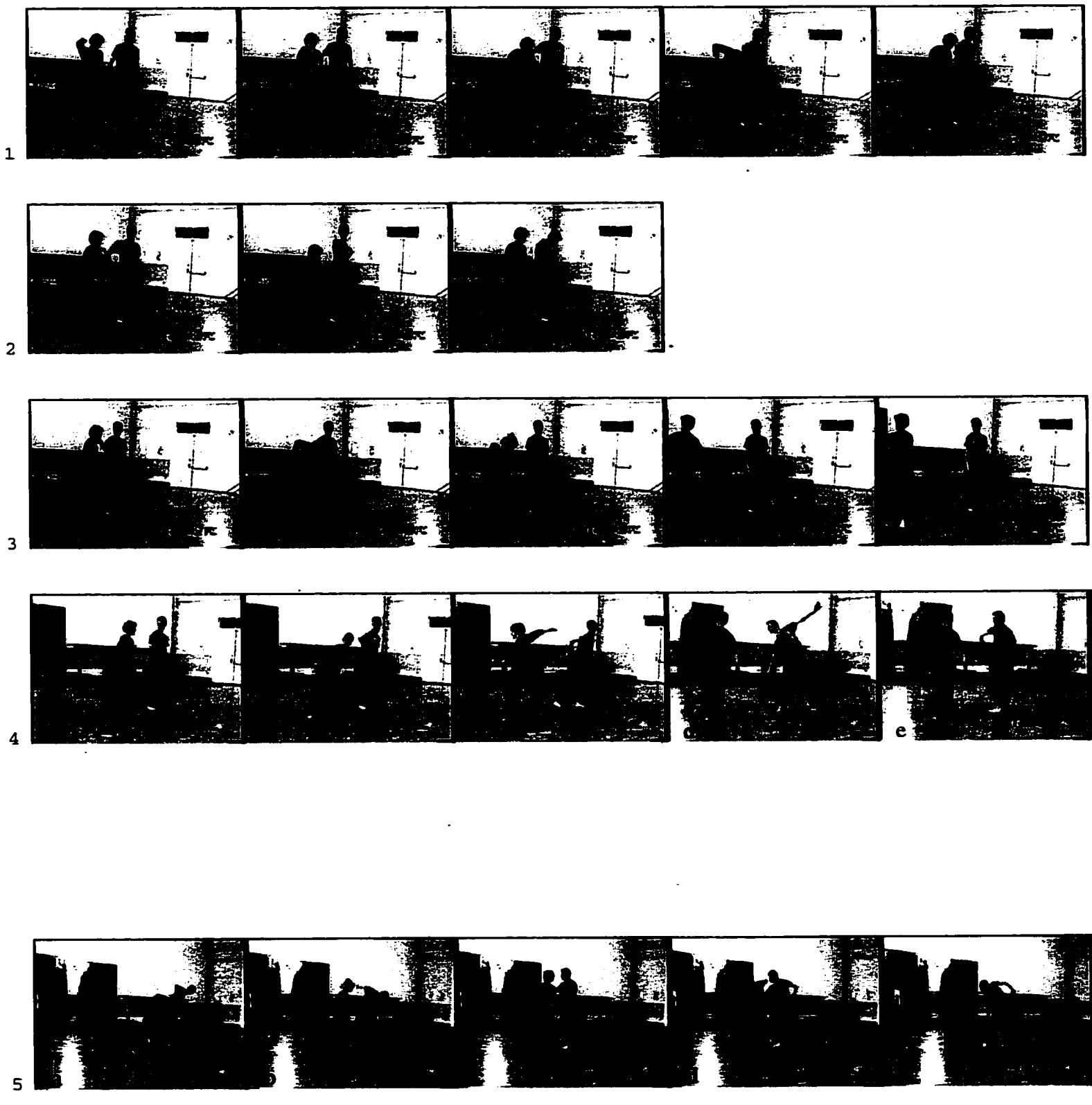


Figure 4.2 Crispin constructing and teaching phrase to George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g


h
i

Crispin settled on how the phrase would begin. The elbows rotating forward in Sequence 1 and 2 become a rotation of only the right elbow in Sequence 3, this time extending out to the side with the right leg and flowing into a turn (compare Images 1a-c, 2a-b, and 3a-b). In Sequence 4, Crispin repeats the series of steps in Sequence 3, this time arcing her left arm high (Image 4c) before arriving at rounded arms extended in front of her (Images 4d and 3e). She adds to the phrase in this sequence an arc of the right hand over the head and a turn to the back (Images 4e-l).

Sequence 5 is separate in time from the earlier sequences and depicts the last performance of the phrase in this tutorial; between Sequence 4 and 5, Crispin repeated the entire phrase or parts of the phrase five times, making increasingly minor modifications with each repetition. In Sequence 5, the rotating elbow prominent at the start of the composing process is now simply blended into the extending arm, and the arching arm movement (Images 4e-i) is now eliminated. (Compare similarities between images of Crispin in 5a-c with 4b-d; 5e-g with images 4j-l.) Crispin described the construction of a phrase as a process of clarifying the movement, or collecting what she can remember:

> I'm basically building the phrase with him right there, and you can see how it becomes more specific and somehow more limited as I go through the phrase....My lines might get cleaner. In the first version there were, I can already see a couple of things that I did that I'm not doing in this one. So there were five steps and now there are three. A lot of detail gets lost....Because I forget it, or I have to simplify to teach it, or I can't get it across.

For Crispin, both memory capacity and the need to teach the movement to someone else constrain the composing process.

Although Crispin has a dancer beside her in this example, her attention is largely inward and on the phrase under construction. The processes of composing—executing,

evaluating, and revising the evolving phrase—take place within Crispin's individual mind and body, evidenced by her starts, stops, and changes. Crispin was focused on finding the actions that would work for a single role in the quartet. Aside from George joking about the movement at one point and another where Crispin asked George to remind her how the phrase began, there was little talk between Crispin and her dancer. This was particularly true when Crispin was performing. Crispin doesn't ignore George, she simply concentrates on solving her problem. As she later explained, Crispin assumes her dancers will pick up the movement as she goes along:

> I pretty much assume they're with me, and if they have a question, they'll ask me, but the phrase is not really ready to have questions asked. It's still, I make changes every time I do it till it's done, and then we go over it, and say this, this, this, this, this. And then, 'Can I see it?' And we go over it again.

Only near the end of the tutorial in Figure 4.2, when the phrase has been fully constructed (it has a beginning, middle, and end) does Crispin check for understanding; when George performs the entire phrase with her, Crispin looks back at him (see image 5i), and George nods. In Image 5j, both walk away from the work space (the space on the floor where they had run the phrase) toward the mirrors, signaling the end of the tutorial. Crispin then called up the next dancer to learn a phrase.

George, the dancer in Figure 4.2, is well aware that the phrase is under construction. As witness to this compositional problem solving, George's task is different from Crispin's. George must pick up on the solution *as* it is being discovered or constructed. In Figure 4.2, George appears to conserve his mental and physical energies until Crispin is consistent in her movements. His efforts to learn the specific movements Crispin performs are minimal at the start of the tutorial. He watches Crispin at first and in Sequence 2 lightly "marks" the movement in his own body, gesturing forward with his elbows (Images 2a-b) but without performing the full rotation. Just after this, George looks away from Crispin (Image 2c) when he realizes she's still figuring out the

beginning. George is more attentive to Crispin as Crispin's choices become more set (they are repeated the same way). In Sequence 3, George simply watches Crispin, and then in Sequence 4 makes an effort to execute Crispin's exact movements in both shape and timing. When Crispin begins the turn backward in sequence 4 (see image 4j), George drops the posture of the phrase and steps backward where he can better observe Crispin's new movement. George resumes the posture and quickly performs the last turn in the phrase before both begin again (not depicted). In successive repetitions, his performance of the phrase closely approximates Crispin's own performance, though just behind in timing. In the final run (Sequence 5), Crispin and George are nearly synchronous; both have reached agreement on what the phrase is, at least at this stage. The completed phrase takes five seconds to perform; the phrase was constructed and learned in this interaction in about three minutes. As Crispin called up another dancer to teach, George practiced the phrase once more by himself, an aid to remember it.

At this point, a phrase has been *constructed* but it is tentative; it will be further modified once it is combined with other phrases in the quartet. George described a dancer's role as fixing the movement in mind only to the degree the movement itself is fixed:

> When [Crispin is] making material, it's a tricky thing. Because I want to be able to learn as fast as I can, I want to be on top of it, but I don't want too much in because it changes so rapidly. I don't want to start going 'Ok, this," because the next time she does it, she might do it half as much, or she might do it twice as much, or it might start at the shoulder. And so I'm trying to be as unspecific as possible. It's like, 'Ok, there's this thing, and it's about elbows.'

In the sequences shown in Figure 4.2, George watches Crispin as she composes, but does not attempt to physically execute the movement until the start of the phrase is somewhat set. Whatever the degree of its firmness at the end of this session, the phrase that Crispin constructed is now *held* in George. In effect, George and each of the other dancers serve as records or recorders of the movement, as well as working memory for Crispin, holding

ideas in their minds and bodies so that they might be repeatedly viewed and developed by the choreographer.

Organizing multiple phrases; dancers as feedback mechanism

Crispin's goal, of course, is not merely to create four separate phrases, but to build a quartet. More like a music composer than a writer, Crispin constructed separate phrases for each dancer with a mind as to how they would interact in simultaneous performance. Crispin cannot evaluate the actual quartet as a whole until she is able to see the four phrases in coordination. This was the next step. In this way, composing phrases in dance is much different from composing sentences in writing. Comprehension in dance is not the decoding of symbols in linear sequence, but grasping the impression of movements made by one or more dancers at the same time. Much like music composers who must write for separate instruments even as they "hear" the whole they are trying to construct, so too must choreographers compose the individual roles that will realize a collective movement image.

After teaching each a phrase, Crispin arranged her dancers in a square and asked them to perform their phrases together. It quickly became apparent that there were problems with the way the phrases intersected; two dancers accidentally collided with the two others at the end of the sequence, and all laughed at the unintended slapstick. In this "rough draft" of the quartet, it was obvious that modifications needed to be made to the movement in order for it to function smoothly.

At this stage in the rehearsal, the dancers functioned as a feedback system, alerting Crispin to possible breakdowns or obstacles in performance. As George explained, "[Crispin] is trying to solve the problem she constructed, which is to make this thing, and we're constantly giving her feedback about obstacles to the solution....A lot of things she'll see, but maybe not everything." Dancers, themselves problem-solvers in the

composing process, comprise a text literally able to talk back to its author. The dancers' performance alone provides evaluative feedback—In this case, they demonstrate that the current phrases as arranged will result in collision. Crispin responded to this particular breakdown by modifying her plans. She decided to separate the quartet into two duets and work with each duet individually: "Basically, two duets, one upstage of the other, will look like a quartet without much difficulty. So I, it was easier to turn them into two duets and then layer them with minimal interaction and still get that cubic, clockwork effect." This plan simplifies the demands of the task, since it is easier to coordinate interactions between two people than between four.

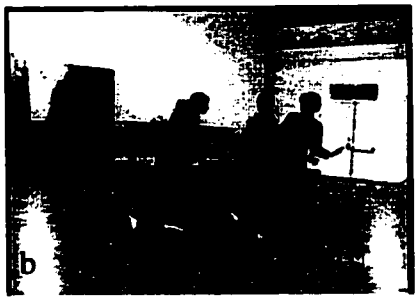
In this step in the rehearsal process, then, Crispin's problem has changed. Crispin is no longer focused inward on composing; her internal ideas for movement have now been externalized and recorded on her dancers. She can now bring her phrases together through arrangement of her dancers and view their effect when performed simultaneously. Crispin's concern now is not with the individual phrases, but their interaction when performed. The processes of composing Crispin earlier conducted alone—executing movement, evaluating it, revising—are now distributed between herself and her dancers.

Figure 4.3 depicts Crispin working with the first duet. As George and Johanna executed the movement, Crispin looked for ways she might modify the phrases to capitalize on potential interactions between the dancers. Crispin later explained her goal was not only to prevent a collision, but also to "tailor [the movement] so that people would physically interact.... I'm looking for a cause and effect thing with George moving over and Johanna turning and picking her leg up, how far away they have to be when something happens." During this segment, George and Johanna moved through their phrases slowly. Crispin stopped the dancers, or they stopped themselves at various points along the way, identifying specific problems and making minor adjustments (see Figure 4.3).

1 Crispin: Let's just look at Johanna and George together. (George & Johanna assume starting positions)

2 Johanna: Is this where we are? (stretches an arm back to measure distance from George; George moves farther away, correcting.)

3 Crispin: Can you, George can you shorten it up so that she can get around you?



(both return to starting positions, Johanna starts her phrase)

4 Crispin: (looking at George) And can you grab- (demos rotating right elbow and arm extension) What's your first arm movement?

5 George: First arm is (demos same movement)

6 Crispin: Can you have this arm up? (demos left arm curled to side; she moves in front of George and demos again so that he can better see.) And her leg's gonna come in there.

7 George: OK.

(George & Johanna at start positions again: Both start phrase, George catches Johanna's leg, pause, Johanna moves on, George doesn't)

8 Crispin: (to George) Go. Wait, don't you have –

9 George: I need to go *whoop* (swings arm over Johanna's head instead of regular movement which would be blocked by Johanna, arrives at bowl arms; Johanna continues movement of her phrase, modifying)

Figure 4.3 Crispin working with the first duet. George and Johanna identify obstacles to executing their phrase Throughout their interactions, the dancers and choreographer note temporal and spatial relationships.

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10 Johanna: And then (Johanna touches George's back and extends foot toward him where she would take next step) should I take a small step here and move closer? (looks to Crispin) Except, oh and then *quaccc* (Johanna shows impossibility of bringing arm around George)

11 Crispin: George, what's your move?

12 George: I'm about to fall and (George executes remainder of phrase, touching Johanna's shoulder as he leaves her, to indicate proximity. Looks at Crispin throughout to gauge her reaction. Johanna completes her phrase)

13 Crispin: (stepping in) So, Johanna can you move back here and be facing this way, (demos) and can you step your foot, the one you step on (inaudible) (backs out)

(Johanna performs first leg lift and step then stops, pointing in direction of sidestep toward George; Crispin assumes Johanna's same position)

14 Johanna: and then here (Crispin demos a large step to side beyond George) and so at this point, I should– should I wait for him to go or should I–

15 Crispin: (now out again) Yeah, why don't you wait for him to go.

ting their phrases, and make and learn modifications to the movement.
onships.

As illustrated in my opening example in Chapter 1, the group negotiates understanding through a language that is part action, part words. Crispin and her dancers are co-constructing the duet in this excerpt, though they take on different roles. Crispin is working on a problem of choreographic design, while her dancers are engaged in learning modifications to the material and identifying obstacles to executing their phrases as learned.

Evident in the transcript in Figure 4.3 is a subtle change in the relationship between choreographer and dancers. Although Crispin constructed the phrases and taught them to each dancer, she now repeatedly consults the dancers about what comes next. In Turn 4, for instance, Crispin asks George, "What's your first arm movement?" In Turn 11, she asks "George, what's your move?" The dancers are now (literally) the representatives for the movement set on them. In Turns 3 and 13, Crispin suggests changes in the movement while simultaneously consulting the dancers about whether those changes would work (i.e. "Can you shorten it up so that she can get around you?"). In contrast to their relatively silent role when learning their phrases, the dancers now begin to offer their own solutions to compositional problems. In Turn 9, for instance, George does not wait for direction but modifies his arm movement to arc over Johanna's head (Figure 4.3, Image d), letting Crispin know this change is "needed". Similarly in Turn 10 (Images e-f), Johanna asks, "Should I take a small step here and move closer?" Crispin, the choreographer and "eyes" for the duet, is the ultimate arbiter of these decisions.

Also evident in Figure 4.3 are processes for thinking through movement that allow the dancers to build an enlarged schema for the evolving quartet. In Turn 2 (Image a), Johanna stretches out her arm to check the distance between George and her; noting the distance allows the two of them to correctly reconstruct their relative positions the next time they begin. The exchange between Johanna and Crispin in Turns 14 and 15 (Johanna

asks, "So at this point, should I wait for him to go?") similarly functions to note a temporal relationship between Johanna's phrase and George's. The verbal and physical interactions of choreographer and dancers during the rehearsal (the questions asked, the answers given, the physical relations noted) help to set not only the individual phrases on the dancers, but also the relationships of those phrases to one another in space and time. These interactions model ways of processing information outside of the dancer's own body or kinesphere and enlarging one's understanding of the movement to include other dancers.

Generating additional movement

After bringing both duets to the same level of development, Crispin again asked all four dancers to perform the quartet as a whole. She then made additional changes to capitalize on potential interactions between the upstage and downstage duets. For the most part, Crispin stood outside the quartet, "rereading" the phrases in their new organization. When she saw areas that needed adjustment, however, Crispin would literally step into the draft and assume the role of a particular dancer in order to make edits. (See, for example, Turns 13-15 in the transcript in Figure 4.3.) Certain types of problems—those requiring new movement or modifications to the movement that Crispin could not simply direct her dancers to perform—were solved by *enacting* alternatives within the dance or physically manipulating her dancers. This strategy may be more efficient (it is faster to demonstrate movement than to describe it), but it also ensures that Crispin understands the problem from the perspective of the performer. Recall that in the last chapter when Crispin "threw" phrases to her dancers, she would learn the general phrases they had constructed in order to add to them in ways that looked *and felt* organic.

Executive vs. Local view: Functions within the system

In rehearsing the quartet, the dancers continued to participate in solving problems of execution using their own *local views* of the dance or understanding of their individual

phrases. As choreographer, Crispin is keeper of the *executive view*; she understands the relationships between phrases and the particular effect she's looking for. The dancers deferred to Crispin's judgment in their collaborative problem solving, as the following excerpt illustrates. In Figure 4.4, Crispin wanted Shawn to reach George in two steps rather than three. Crispin, Shawn and George addressed the problem together.

Crispin, as choreographer, must keep in mind all dancers' parts as she's organizing and editing the separate phrases. When George offers to "travel less" (Turn 7), Crispin first agrees but then realizes that George would then interfere with Sarah's phrase. For this same reason, she rejects Shawn's proposal for shortening the distance between him and George (Turn 12). Instead, Crispin offers a modification to the movement (Turn 14) that allows Shawn to travel farther in a different part of his phrase. In this case, Shawn's execution and proposed changes communicate to Crispin what is needed in order for the goal of two steps to be achieved.

Dancers as inspiration

It's clear from the examples above that dancers directly influence the composing process by providing feedback to the choreographer about potential problems and by occasionally proposing solutions. But dancers *indirectly* influence the composing process as well. The choreographers in my study often included in their evolving dance aspects of the very human nature of their dancers and the rehearsal process as a whole. In every rehearsal I observed, dancers joked about or exaggerated movement, made mistakes in performance, and improvised spontaneous solutions to compositional problems. These unsolicited solutions were frequently kept by choreographers and worked into the evolving dance. After Crispin combined the two duets for the quartet above, for example, one dancer, Sarah, found herself far away from the other dancers and improvised a humorous solution, hopping to Johanna and popping up in the center of Johanna's outstretched

1 Crispin: Shawn, can you get it down to 2 steps?
2 Shawn: Toward him? (pointing at George)
3 Crispin: (agreeing) From here to get to there. So (demos the solution)
4 Shawn: Can I slow down a whole lot?
5 Crispin: Yeah! You could actually pause before... (a)
6 Shawn: -'cause I'm like, *there*.

7 George: I could also travel less, is that ok?
8 Crispin: Can you, yeah, you can travel less (trying Shawn's movement). Actually, no, because [Sarah's] coming in here. (b)

9 Shawn: (to Crispin) Can I also, I want to say, can I also do (demos arm out and step back in his phrase) the traveling effect step, so instead of going straight back and turning- (c)
10 Crispin: Un-uhn.

11 Shawn: No?
12 Crispin: Un-uhn. (semi-audible explanation about Sarah and where she is in relation) (d) So this has to stay here (demos back step) and this (demos arm reach) can travel, you know? (looks to Shawn to see if he comprehends)

and Shawn working to modify phrase

e solution)

13 Shawn: What?

14 Crispin: So if you go here (demos back step again [e]), instead of going out (demos arm reach) and back (brings arm back in, feet together), you can go here (demos step back) and go less out and take a more (demos larger step away before feet come together, so traveling here [f])

g in here.

(demos
effect step,

(Shawn tries both the original movement and then the larger step [g], continues on taking 3 steps to where George would be)

nd where
nos back
know?

15 Crispin: (to Shawn) So that's where I want 2, those steps there. (h) (Shawn tries the steps again, this time 2) Boom, boom. No problem? (Shawn gives nod)

arms. Crispin laughed but kept the movement, changing it from a hop and pop to a slide, dip, and turn more in keeping with the quartet's current vocabulary.

As noted in the last chapter, choreographers often know their dancers well—they know their strengths and weaknesses as performers, and they know them as people. Dances are not merely set, but set on *particular persons*. Reflecting an awareness of this fact, George described the role of a dancer as not simply learning movement during rehearsal, but being available as a body and person to the choreographer's creative process:

> There's an entire piece that may or may not make sense at this moment but is getting built. So the thinking I kind of fall back on in my head is, try not to be judgmental, and be myself.... I was chosen for a reason, because of who I am as a dancer and as a performer. So if that's what they want to work with, I have to keep being myself. It's a difficult, really frustrating process to not interfere with someone else's creative process, to be malleable and willing and nonjudgmental and...[yet] not repress things that might be potential material for the work. As this work is created, it doesn't necessarily have a path, and the way in which I interact with Johanna might ultimately become the meaning of the piece.

George's comment that dancers are "chosen for a reason" implies that choreographers expect their dancers to bring something unique to performance or to the creative process. As George suggests, the actual relationships between dancers (i.e. the way he interacts with Johanna) might ultimately become the meaning of the piece. While it might be assumed that dancers merely do what the choreographer tells them to do, choreographers also capitalize on the individuals present before them for ideas and inspiration. Both the formal and informal interactions that occur between choreographer and dancers over the entire rehearsal period influence the moment-to-moment decisions that shape the final performance.

Dancers setting movement

Once Crispin had an arrangement in which the dancers could perform their parts without collision, she added only a few new movements to each phrase—brief interactions that allowed the dancers to return to their original positions in the square and repeat the sequence. Once the dancers were able to run the quartet smoothly, Crispin was able to evaluate it as a whole: At this point, Crispin decided that the quartet was too simple. To remedy the problem, Crispin instructed her dancers to learn the phrase of the person to their left in the square and add it to their own. This solution would extend everyone's phrase and lengthen the quartet, and at the same time keep the vocabulary consistent and avoid the need to generate new movement. At this stage in the rehearsal, another shift was evident in terms of setting. In a remark indicating a shift in ownership or authority over the material, Crispin instructed her dancers to "go to the source" to learn the new movement—"the source" for each phrase was now considered to be the dancer who learned it originally from Crispin. Separate phrases had been set on each dancer; directed to teach one another, the dancers were now individually responsible for the phrases they had learned.

Subsequent tutorials between dancers differed considerably from those in which the dancers first learned their phrases from Crispin. Originally, Crispin was absorbed with creating separate phrases that would coordinate in a clockwork fashion and build from her solo movement explorations. During this early stage of the rehearsal, the dancers observed a problem being solved, recording the solution as it was determined. Her dancers had now practiced these solutions many times. At the current stage in the rehearsal, the dancers faced the problem of how to teach their phrases, now processed and set in their own bodies, to a colleague. Figure 4.5 portrays Johanna teaching her phrase to George and illustrates features particular to teaching set movement.

Johanna's definitive talk and actions were typical of each of the dancers as they taught their phrases. Unlike Crispin's tentative starts and stops and relative silence, Johanna articulated a clear sequence of steps: "Ok, mine starts with..."; "And the next thing is..." (Turns 1 and 5). Her directions reveal specific relationships discovered in the phrase ("Your leg swings up; your arms are down"), including recognizable movement vocabulary; Johanna used codified terms (i.e. "forced arch" and "plié," Turns 5 and 8-9) to efficiently describe movements that would be known to George. In addition, Johanna used gestures to draw George's attention to important elements or transitions in the movement. In Image b, for example, Johanna's raised hand indicates a change in the orientation of the body; in Image c, Johanna's hand to her hip crease draws attention to a slightly bent knee and balance of weight on both legs. Such gestures were absent from Crispin's tutorial where, actively constructing her solution, they would have been difficult to tell apart from the actual movement in the phrase. Each of the elements noted above represents ways in which the phrase has been processed or set in Johanna's mind and body. They represent Johanna's growing schema for the phrase, including what she has selected as essential information to communicate to George.

Overall, the talk and actions demonstrated in the dancer-to-dancer tutorials—instances of teaching set movement—represent types of teaching interactions that may be more familiar in the regular school classroom. Johanna attends to her learner, frequently looking at George to check for understanding, continuing on when she receives his "OK" or "Mmhmm." Both dancers in this segment used the mirror as a tool for checking consistency in shape. In addition, Johanna's comment "I'm just holding this while you do your thing" (Turn 3) and gesture (Image d) relate the new phrase temporally and spatially to George's original. In this way, George is helped to understand the new phrase in relationship to a role he already knows.

1 Johanna: Ok, mine starts with (Johanna faces r
position (a)) Your leg swings up and–
orientation with arm (b); George does
George checks self in mirror)

2 George: Ok

3 Johanna: Ok, and then, um, yeah your arms are
(indicates stance with hands (c), looks
thing (makes small circling gesture wi

4 George: Mmhmm

5 Johanna: And the next thing is you bring this leg
foot (demos all, George follows alongs

6 George: Mmhmm

7 Johanna: And then you just come forward and c
her.)

8 George: Into a plié. (f)

9 Johanna: Yeah, a plié.

Figure 4.5 George learning Johanna's phrase

ohanna: Ok, mine starts with (Johanna faces mirror, George stands alongside and, looking at Johanna, takes same position (a)) Your leg swings up and—(Johanna demos leg up and turn to right, shows direction of new orientation with arm (b); George does same, Johanna moves to George's left now so that he can see her, George checks self in mirror)

eorge: Ok

ohanna: Ok, and then, um, yeah your arms are down, you just walk forward (demos) and then kind of keep this (indicates stance with hands (c), looks to mirror to check shape) I'm just holding this while you do your thing (makes small circling gesture with hand indicating where George would be in quartet (d))

eorge: Mmhmm

ohanna: And the next thing is you bring this leg forward and upstage and then come to a forced arch with your left foot (demos all, George follows alongside (e))

eorge: Mmhmm

ohanna: And then you just come forward and do a full turn (demos step forward and turn. George follows, watching her.)

eorge: Into a plié. (f)

ohanna: Yeah, a plié.

George's comment on the tutorial suggests that learning set movement is different from learning movement that is under construction. In watching the videotape of the segment described above, George was surprised to find that he adopted behaviors from technique class in learning the set material:

> The minute I started with Johanna, I started looking in the mirror. Which I never do with Crispin....Overall, my approach to the material is that it exists, it has set phrasing, it's specific. It's been given to Johanna, it's been given to me, so it now exists as a thing. Unlike when I was standing by Crispin and mirroring her while things were changing and evolving, this is not going to change and evolve. It's been given to Johanna and Johanna has set it, and now I'm going to do what Johanna does because I'm supposed to repeat it. This isn't a situation where my interpretation of it is sought.

Here George suggests that dancers have different roles when learning set material as opposed to material that is still being generated. For George, material under construction is open to interpretation or exploration, and a dancer's interpretation of the material matters to the choreography. George describes the *dancer* as setting the movement ("It's been given to Johanna and Johanna has set it..."), suggesting that it's the dancer's execution that ultimately determines the movement. Once movement is set, it is "not going to change and evolve." George taught his own phrase to Shawn in the quartet; George commented that needing to teach the movement—needing to articulate what it is that he does—both ends the period of exploration and clarifies the movement. As he explained, "In teaching it, I'm learning it more, and I'm translating it into something I can say or do to illustrate. So I'm creating greater specificity in my mind and passing it off in a more specific way than it was taught to me." The activities of teaching—reflecting on and articulating one's performance, identifying and correcting discrepancies in the performance of a learner—help the dancers to more firmly set their phrases in their own minds and bodies.

Facilitating independent problem solving

As I noted at the start of this chapter, the purpose of setting movement is to enable the dancers to enact the same movement text with more or less regularity. Ultimately it is the dancers themselves who must be able to reconstruct the dance without direction from the choreographer. As earlier examples in this chapter have illustrated, interactions between the choreographer, dancers, and environment shift over the course of rehearsal to advance the work of composing. As movement is set, dancers take on greater responsibility for the movement—they hold movement ideas in their bodies, remembering and performing them back to the choreographer so that she can review them, remembering (and sometimes suggesting) revisions and additions as the ideas are developed. Each rehearsal activity enables both choreographer and dancers to learn more information about the movement/dance. As the dancers learn their roles, solve problems, practice coordinating their parts, they develop and enrich their evolving schemas for the dance.

Two final examples from this episode of composing illustrate dancers' enlarged understandings of the movement as well as an increased ability or tendency for them to address and solve problems on their own. These examples also highlight the function of environment in setting movement. In the final phase of the rehearsal, Crispin had her dancers learn and add to their own the phrases of both the first and second persons to their left in the configuration, essentially creating a cannon in which each dancer would rotate through three roles in the quartet. Figure 4.6 depicts the dancers trying to figure out the details of the rotations and perform the quartet smoothly. Just before this segment, Crispin had directed her dancers to pay attention to the person in George's role or place in the pattern, since "all action will revolve around the George person." Comments such as this from the choreographer may facilitate dancers' independent problem solving. In this instance, for example, the comment gave the dancers a point around which to orient their movement as their roles in the quartet changed and the quartet as a whole traveled in space across the floor. Sarah in fact announced at the start of this repetition, "Now I'm

George," reminding her fellow dancers of the orienting role she was currently performing in the quartet.

The central illustration in Figure 4.6 is the nature of the problem solving between the dancers, as Johanna in particular figures out the last part of the phrase she is performing (Shawn's original phrase). Crispin, the choreographer, is noticeably absent in this exchange, though she sat by the mirrors observing the group. It is Sarah (in Sequence1) who talks Johanna through the movement and attempts to clarify Johanna's confusion over the arm. Johanna is struck by the awkwardness of swinging her arm underneath Sarah's outstretched arms (Images c, d; Turn 4), but Sarah assures her that "That's the way to do it." In Turns 6-7, Sarah and Johanna talk through the remainder of their phrases as they perform them. As in earlier activities in the rehearsal, the act of articulating what it is they are doing as they are doing it helps the dancers to note and clarify their relationship in space and time.

Still unsatisfied with the arm movement, Johanna immediately turned to consult Shawn at the end of the rotation (Sequence 2). Typically, the dancers would pause at the end of a run and wait for notes or direction from Crispin, but Johanna here pursues her own quest. In Sequence 2, Shawn, the "source" for the phrase, demonstrates the alternate ways the other dancers have solved this problem depending on their height; he places his own arm over George's outstretched arms; when he's in George's role, Sarah moves his outstretched arms much lower (Turns 11-13). Their exchange illustrates the dancers' own adaptation of movement to their particular bodies. The problems the dancers solve are practical problems—here, a problem of how to modify the movement to deal with the dancers' different heights—allowing the choreographer to think about the aesthetic consequences of their decisions.

(All execute third rotation)
Sarah: (to Johanna) And then here you're grabbing my hand to your heart (a)...So now, with your right hand, and your left hand out (b)... I'm going to go (swings Johanna around)
Johanna: How do we swing? (c)
Sarah: You go out-
Johanna: But do I just bring this arm (gestures wide with lower arm to show how awkward), you know? (d)

Johanna: Shawn, can I ask you a question?
Shawn: Yeah.
Johanna: When you get to the person that you (takes Shawn's hands and places them on her to show what section), do you, do you-- It's not, I don't understand (a), do you do a (demonstrates swing away with arm extending out) So here, this arm comes under here, under that person's arm.
Shawn: Actually, with me and George, I go- If you're this person, if you're George, go like that (demonstrates arms for George's role [b]), I go here (c). Sarah's actually-
Johanna: You put your arm OVER?

Figure 4.6 Dancers solving problems independently

Sarah: That's the way to do it. I do that part but I don't- (pause) So you do that part then you roll away. (e)

Johanna: So I just go right here (swings and walks backward to new position) (f, g)

Sarah: And I go- (steps to new position) (h)

Shawn: I put my arm over. (demonstrates both options [d]) The other person, depending on height, that might be easier for her. Like Sarah, she actually puts my hands down here when she comes (inaudible)(e).

(demonstrates swing out, arm above Johanna's [f])

(Johanna puts hand to own chest, tries again with Shawn playing George's role and extending her arm under Shawn's, swings out. [g, h])

Johanna: OK.

Further evidence of the dancers' independent problem solving occurred as the dancers ran through the quartet a second to last time. In this run, Sarah, rather than Crispin, stopped her fellow dancers to make a correction.

1 Sarah: (stopping movement) Oh. What's going on there? I have to--Can you (Johanna) let go of me sooner, 'cause I have to actually be on that side of you.

2 Johanna: Sorry, I forgot. I thought you were over here (points behind her, where Shawn is)

3 Sarah: So (inaudible)

4 Johanna: (overlapping) So where do I let you go?

(Both return to last move before mistake)

5 Johanna: From here...

6 Sarah: If we go here (starting rotation), and then you let me go there (Johanna releases Sarah), then I can get into (assumes proper position behind Shawn) there.

7 Johanna: (inaudible, assent)

(All assume beginning positions again.)

Where Crispin earlier would have intervened with a question or correction, Sarah is now the one to stop the run to point out something wrong. Sarah's request of Johanna, "Can you let go of me sooner, 'cause I have to actually be on that side of you" (Turn 1) and her solution (Turn 6) is evidence of an elaborated schema for the dance. Sarah not only knows her phrase, but also knows her relation in space and time to other phrases in the quartet. By comparing her experience of the movement to a mental model of what is *supposed* to happen, Sarah is able to identify the problem and propose a solution. Once the problem is resolved, the dancers assume their starting positions and begin again, with no prompting from Crispin. Through repeated practice—repeatedly enacting the phrases and receiving both physical and verbal feedback from fellow dancers and the choreographer—the dancers enlarge and strengthen a network of verbal and sensory associations that allow them to actively monitor their performance and self-correct where necessary.

It may be helpful to remind the reader here that setting is in many ways an infinite process. The example I chose as the focus of this chapter illustrates the development and learning of a quartet during one part of a single day's rehearsal, yet the quartet continued to be revised and developed after this day. Crispin drew closure to this particular rehearsal of the quartet when she asked her dancers to perform both "Smooth Machine" and "Square Machine" so that she might videotape them. The naming of these sections ("Smooth Machine" referred to a phrase created from thrown material; "Square Machine," the quartet) and the videotaping were further evidence of the material being set. In naming the sections, Crispin gave her dancers a way to chunk a particular sequence of movements; the videotaping served to help the dancers associate the name with *this* draft—in effect, a way of "saving" the draft in the dancers. The name allowed Crispin and her dancers to return to the material in the next day's rehearsal; subsequent versions of the quartet were given their own names—"Close" and "Expanded."

The data collected in this study suggest that setting information in mind and body follows a specific sequence. At the start of this rehearsal, the dancers learned to perform their individual phrases: they concentrated on their own kinesphere, the feelings of the movement in their own bodies, the relationships between different body parts, the orientation of their bodies in space, the timing and energy of the phrase. When performing their phrases as a group, the dancers began to establish relationships between phrases, enlarging their understandings of the movement to include, for example, where and when they came into contact with other dancers; where they would need to focus when executing a turn; or where and when they would need to move in order to successfully rotate to the next role. Changing rehearsal activities enabled dancers to process first internal sensory perceptions and then later, increasing details in the surrounding environment.

The tentativeness of the associations the dancers had established at the end of this rehearsal was evident when Crispin requested her dancers perform the quartet for the videocamera. She asked her ensemble to reorient themselves to face the windows, rather than the mirrors, so that she might capture the whole of the quartet on tape. The dancers responded with a groan. George later explained that while videotaping is not a big deal, changing front *is*, especially when the material is so new. He explained that when first learning movement, he and other dancers orient themselves to visual cues in the environment, and then to other dancers. Because this material was new, the interpersonal spatial relationships were not yet fully established and therefore weren't particularly reliable for figuring things out in a new orientation:

> Ultimately in performance and as material gets set, [interpersonal relationships] become much more important than broader visual cues. By the time you're in a dark theater, with lights in your eyes, your spatial awareness is really coming from your orientation with other people. But at first, you really want to know where the window is, you know? 'Ok, I was looking out the window when I did that, that's how I know I'm in the right place.'

George's comment suggests that dancers build a network of multi-sensory associations that act as a score of cues for reconstructing the dance in performance. While George mentioned primarily visual cues, other dancers in the study also described knowing and reconstructing a dance through tactile and kinesthetic sensation, counts, spoken cues, cues from lighting and music, and associated memories and mental images. Obviously, the range of information that dancers and choreographers use to set a dance in mind and body is broad. Like the musicians in Jean Bamberger's studies of music cognition, dancers establish a score of cues and "felt pathways" to reconstruct their performance. Within this environment, fellow performers figure significantly.

Setting: A recursive activity

Setting, like the other compositional and creative processes I described in Chapter 1, is a recursive or cyclical activity. As artists create, they attend to their perceptions, evaluate the result, make revisions to the artwork and/or to their goals and begin the process again, shaping and/or redrafting the work until it effectively conveys their intentions. In dance, these activities are also *distributed*, as evident in the episode of composing described above. Figure 4.7 outlines/summarizes the events of Crispin's rehearsal and highlights the joint nature of these activities in composing a dance.

Choreographer and dancers have different functions within this system. The recursive activities typically associated with creative processes are easiest seen by following Crispin: As Figure 4.7 shows, Crispin cycles through the processes of generating ideas for the dance, translating those ideas into movement and teaching the movement to her dancers, viewing and evaluating the result, and making modifications where she sees fit. Crispin has an overall goal—to compose a quartet in which the parts interact in a clockwork fashion—as well as procedural plans for achieving her goal; in addition to the actual movement of the dance, these procedural plans are revised along the way in response to Crispin's evaluation of the developing draft.

None of Crispin's work, however, would be possible without dancers: As can be seen in Figure 4.7, the dancers enable the process of composing by embodying Crispin's ideas and repeatedly representing the text so that she can view and evaluate it. In addition, they provide feedback to Crispin about obstacles to performing their movement as learned and offer suggestions on how these obstacles might be overcome. Although choreographers are ultimately responsible for the movement and composition of a dance, dancers are the foundation; as the dance is set on them, the dancers increasingly set the dance. Dancers may learn movement from the choreographer, but in their performance they demonstrate their own understanding of the phrase, how they conceive the movement in their own

bodies and psyches. When Crispin's dancers taught one another their phrases, their instruction illuminated how they had constructed and processed the movement physically, and which attributes of the phrase they found essential to its expression (at this stage of its development). By the end of construction, dancers are the ones who *know* or *own* the phrase. They are its record and recorder; they give it life in several meanings of the word—they physically enact/embody the phrase, and (as I will elaborate in later chapters) they use their experiences of the movement and their imaginations to give it meaning. In the true nature of joint activity, choreographer and dancers function interdependently.

Setting: A matter of degree

By speaking of *setting* as a range of activities that help dancers to reconstruct a dance, I hope I have defined the term broadly enough to apply to a range of dances. Not all dances are set to the same degree; some performances may be entirely improvised, with no intent to reconstruct the dance; others may include sections of improvisation. Sheri's dance about the Holocaust (see previous chapter) was an improvised performance, yet she had set a definite score for the dance, composed of "movement tasks" in a particular sequence—decisions about what she wanted to explore or have happen during particular sections of the dance. As a solo performer, the activities she used to settle on these decisions were somewhat different than those described in regard to Crispin's ensemble. Sheri videotaped herself performing and noted specific aspects of the dance she wanted to be able to reproduce. She then established relationships between these aspects and specific parts in the soundtrack or in the overall structure of the dance. In this way, even improvisational performers may set decisions that will allow them to reconstruct a dance with some degree of regularity. As with Crispin's dancers, Sheri's noted relationships function as a multi-sensory score for reconstructing those aspects of the dance she wanted to reproduce precisely.

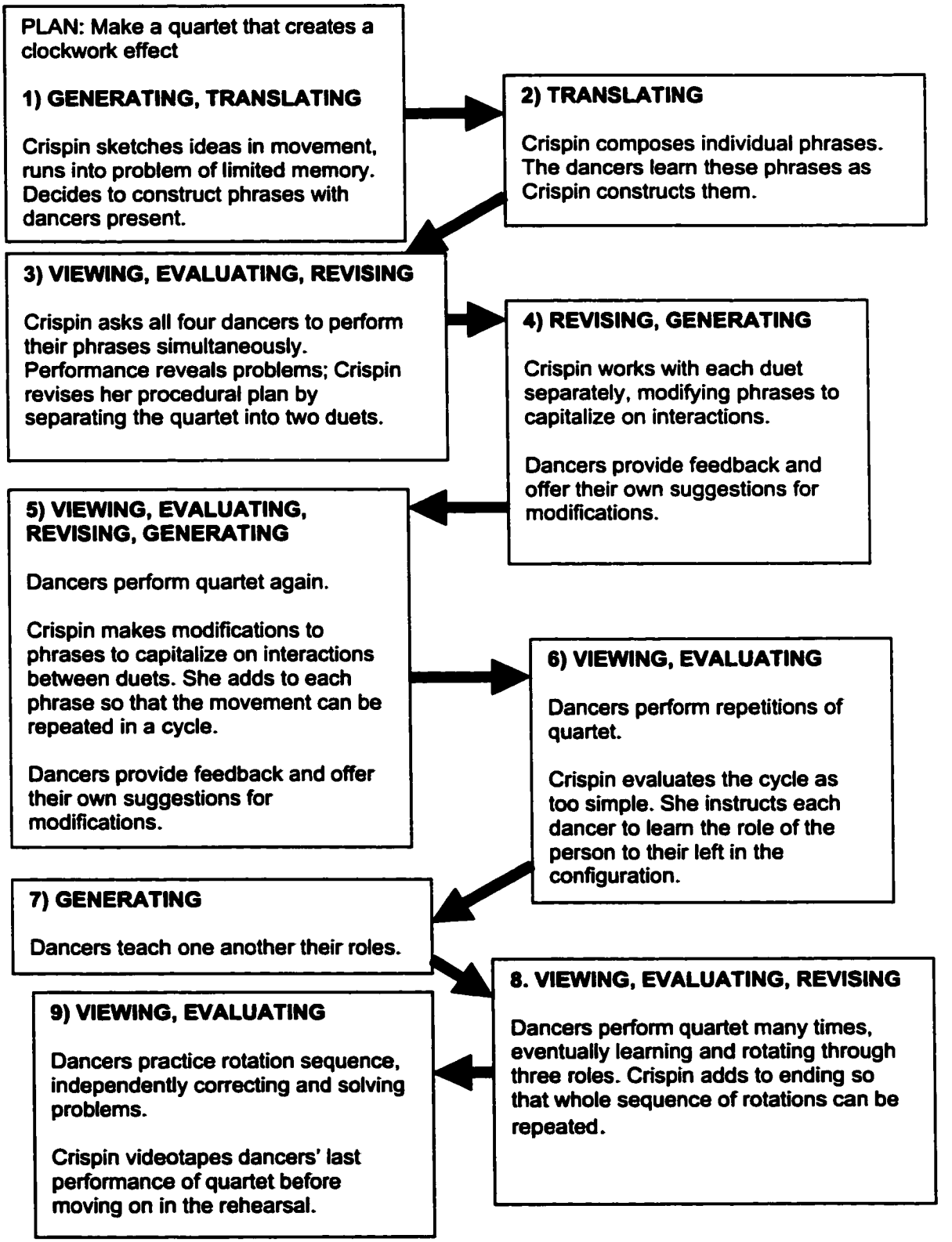


Figure 4.7 Flowchart of recursive processes and joint activities in composing quartet.

The levels of decisions that are set or settled on also change over the course of composing a single dance. In this chapter I described Crispin and her dancers setting a quartet during an hour of one day's rehearsal. During this time, Crispin generated and selected particular vocabulary and composed phrases on her dancers. She also organized and set the arrangement of those phrases in relation to one another. Crispin continued to explore variations on the arrangement over the next couple of days, however, before making a final decision about the material. And although Crispin had originally created the quartet to serve as a bridge between two existing sections of the dance, she eventually edited out the quartet altogether when considering the performance as a whole. Setting, then, is actually a series of decisions at different levels that shape the final performance (see Figure 4.8).

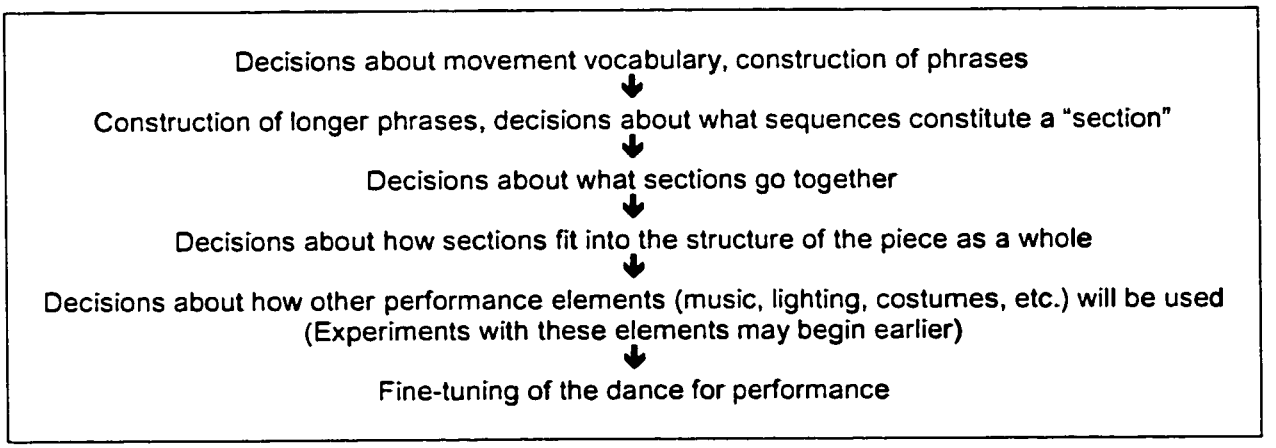


Figure 4.8 Typical progression of decisions made over the course of an entire rehearsal period.

Many of these decisions are, in effect, decisions about the meaning of the dance. Choreographers may articulate clear justifications for some choices, while other decisions may be made intuitively. Several choreographers in the study described movement or sections that "felt right" even if they didn't know why; other sections might be dearly

beloved but need to be eliminated because they simply "didn't work" in a particular dance. In the chapters that follow, I describe how choreographers and dancers settle on the latter decisions in the progression above.

Chapter 5:
SELECTING AND ORGANIZING: DEVELOPING MATERIAL

In the passage below, Lisa, a dancer, describes a range of rehearsal activities in the development of a dance:

> In the beginning, we were trying to generate material through a lot of improvs. We were improvising for a while to get into a certain kind of space, a certain landscape. We did some writing exercises, we did some word exercises to sort of [set] the tone....And then I think we made up phrases—We got coupled up, everybody made a phrase, and then we sort of connected them and made duets, connected our phrases one to another. And it kind of just went on from there, making another phrase, getting some phrases from Amii, really messing with those, working on entrances and exits, ripping apart those phrases, putting them back together in different ways, working with a partner doing that...

Lisa illustrates in her account a transition from generating material to setting particular phrases and then manipulating those phrases in a variety of ways. Over a course of rehearsals, Lisa and her fellow dancers built phrases, connected them, generated new material, learned phrases from the choreographer, took phrases apart and put them together. Although "selecting and organizing" may suggest clean and simple processes, I found that these were anything but straightforward in practice. Dancers and choreographers in my study frequently referred to the need to "mess with the material" at this stage of composing in order to better understand it and develop it into a unified whole.

In the last chapter, I described how a quartet was created and set on a group of dancers. At the end of the rehearsal, the quartet existed simply as a sequence of movements the dancers could reconstruct, but not yet as *developed* material or material integrated in the dance. Those processes—how it is that choreographers and dancers further develop and refine material and begin to organize the dance as a whole—are the subjects of this chapter. I again use a single, extended example from my data for illustration.

Developing material through rehearsal

All of the choreographers in my study came to rehearsals with a plan for the day, though it was usually flexible. In a single day's rehearsal, choreographers in the middle of composing a piece might juggle a range of compositional tasks—generating new material, rehearsing a section recently created, experimenting with an organizational structure, assessing what was yet needed for the whole. Procedural plans were often modified when, in the course of rehearsal, the choreographer (or dancers) uncovered new possibilities for movement or ideas for additional material. In this next section I use an example from my data to show how the structure of rehearsal activities occasioned opportunities to learn or make discoveries about the material and thus aid the system as a whole in the tasks of composing.

In this example, the choreographer, KT, and two of her dancers, Shane and Michelle, were rehearsing a trio. The trio was constructed during earlier rehearsals; in these early rehearsals, the dancers experimented with ways of getting to and from the floor without using their arms. The vocabulary generated by each dancer was then strung together, and all learned the longer composite phrase. As with Crispin's quartet, the sequence had been named in one of these early rehearsals; on the day I observed, KT and other members of the ensemble referred to the section as the "Women's Trio."

As one might imagine, given the origin of the vocabulary, the movement in the trio had an unstable, stumbling quality. The legs were the focus of the sequence; until this rehearsal, the dancers had paid little attention to what they might do with their arms. As KT later explained, the goal of the rehearsal the day I observed was to choreograph arm movement that complemented, or at least didn't distract from, the legs:

> [W]e were trying to figure out a way to articulate the arms so we're all cohesive....The material itself originated from legwork, trying not to use your arms at all to create it. So now it's like, well, we have arms, we have to deal with our arms, so how are we going to [use them]? Are we going to decide to use them at all? Or just a little bit?

KT described the nature of the legwork as "crisp," to be performed in unison, "without any little glitches or any individual affectations to the material." Thus KT needed to select arm movement that would be consistent with this quality.

Evident in this example, as in the example of the quartet, is the iterative and transformative nature of rehearsal and practice. KT and her dancers repeated the trio (a sequence lasting a little over a minute) five times during a course of twenty minutes. These were not automatic, mindless repetitions, but goal-directed performances in which the participants attended to specific aspects of the movement. Repetitions of the trio were interrupted by discussions of what was perceived in the performance as well as by clarifications of particular movements and how best to execute them. Different proposals for the arms determined which aspects of performance the dancers would focus on. The first time through, for instance, KT proposed that the group practice the sequence crossing their arms over their chests, trying the movement "without arms" (see Figure 5.1):

Figure 5.1 Shane, KT, and Michelle practicing the trio without using arms

The dancers performed the movement in unison, facing the mirrors, where KT (center figure) evaluated the visual effect. Several groans during the run indicated the physical difficulty of executing the movement this way. All agreed at the end of the run "That's hard!" and KT suggested they return to using their arms naturally. In this example, the dancers were unanimous on the physical evaluation of the movement. KT rejected the initial proposal—arms crossed over the chest—because it made the legwork too (unnecessarily) difficult to perform and interfered with the way she intended the movement to be read.

The dancers performed a second run of the sequence, this time using the arms naturally as KT suggested. Satisfied with the physical experience, the dancers focused next on how they might use their arms with intention:

1 KT:	It's better with the arms.
2 Shane:	Maybe there are at least, I think, I mean there are the places where we can be clear about this
3 KT:	Maybe places where they're down, or places where we use them–
4 Shane:	Yeah, and so, yeah, and where you do need to put a hand down and otherwise (inaudible)
5 KT:	So you guys want to try a round robin watching?
6 Michelle:	Sure (leaves the others to watch by mirrors)
7 KT:	So look for places where the arms could be really sculpted (demonstrating each option)—down, out, back, side.

Although brief, the excerpt above provides an example of how material is transformed as the group moves from one level of decision-making to another. First, KT' signals that at least a gross-level decision has been made about the arms (Turn 1): performing "with arms" is better than without. Shane, one of the dancers, then suggests that the group might be able to make further clarifications about when and how the arms are used (Turn 2), refining the level of decision-making. In the comments that follow, both practical and aesthetic criteria are laid out for these decisions: In Turn 3, for example, Shane suggests there might be times when the dancers "need to put a hand down" in order to smoothly execute the movement. In Turn 7, KT proposes that there might be "places where the arms could be really sculpted." In order to effectively evaluate options visually, however, KT needs someone to view the performance from *outside*. The strategy of "round robin watching" ensures that information will be collected on the next run related to both the kinesthetic and visual effects of the arms. Michelle stepped temporarily into the role of viewer, providing critical input on choreographic design. As KT later explained,

> [W]e're using Michelle as an eye...so she's outside of it, and we're inside of it, and then it's her job when we're done to say, 'This is what you did here, and it was working, and this is what you did there, and it wasn't working.' Or maybe it's her job to say, 'Yeah, I think you can use your arms there a little bit and it doesn't interfere with the legs,' or you know, 'I think we need to stick with the purity of the intention and not use them at all, and so how are we going to facilitate that whole movement section without using our arms?'

For KT, inviting dancers to take on the role of "eye" is one way to share the task of composing. KT viewed the round robin strategy as "integral" to the working process of the ensemble, commenting, "It's important that we're listening to one another, and that we all feel what it's like to be on the outside, and I in turn feel what it's like to be on the inside." According to KT, being on the inside gives her a chance to practice the movement as a performer and also feel empathy with her dancers. She also recognized,

however, that the strategy was "not a collaborative process in the true sense" since as choreographer she remained the person to make final decisions about the dance.

The choreographer's role as final arbiter is demonstrated in the next segment. Michelle provided her analysis as viewer, but KT disagreed with Michelle's first suggestion for the arms:

Figure 5.2 Michelle and KT evaluating use of the arms

1 Michelle: The whole first part works with the hands just down, they're just kind of like, it looks good. This part (a) seems like they could maybe come in, and then go down (inaudible).

(KT executes movement herself)

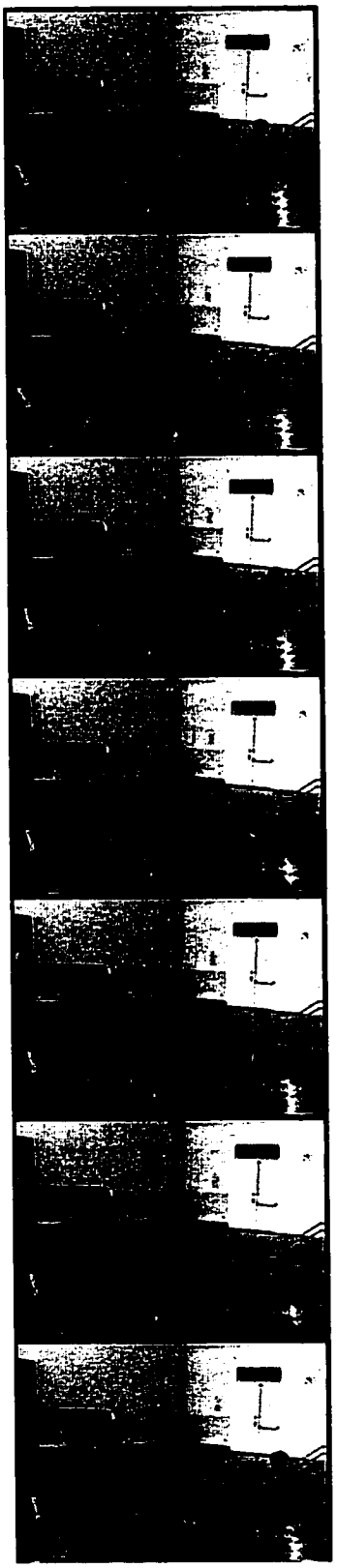
2 KT: Maybe they could just stay. Do you think they should go up? (brings arms back across chest- goes through transitions just before and after this section (b) to see what the arms do naturally or need)

Particularly vivid in this example is the way that Michelle's suggestion is demonstrated and evaluated. In Image a, Michelle demonstrates a section of the trio to show where the arms "could maybe come in, and then go down" (Turn 1). She performed the movement in question for KT and Shane facing *away* from them and toward the studio mirrors. In this orientation, Michelle can literally reflect on her own thinking as she enacts her proposal. In Image b, KT evaluated the proposal by performing the movement herself, and like Michelle, watched the results of her actions in the mirrors. She countered Michelle's assessment by remarking, "Maybe [the arms] could just stay" (Turn 2). KT executed the movement once more to recheck her analysis, including the movements on either side to see what the arms do naturally. She later explained her editorial reasoning:

> [Y]ou try it and you feel like, no, that's contrived, and you don't know why, but you say it's contrived, it's an extra. Maybe this phrase is about, you know, the minimalism of the upper spine and the minimalistic use of the arms—And so to have an arm gesture in there—that felt like an arm gesture—rather than, well, why would they go there? They wouldn't go there, they would just stay by the side. Because my eye as I did that was attracted to that gesture, and it just didn't feel right either.

KT rejected the proposed solution here because it stands out as awkward or contrived, drawing away from the integrity of the action as a whole, and because it just doesn't "feel right" or natural in the body ("they wouldn't go there, they would just stay by the side"). In addition, KT rejected the proposal because the arms attracted too much attention ("my eye...was attracted to that gesture") and distracted from the legwork at the heart of the movement. Both visual and physical experiences of the movement contribute to KT's assessment.

The dancers continued slowly executing the movement sequence, sharing aloud their analyses and observations regarding their arms (see Figure 5.3). The pattern of talk and action in Figure 5.3 is typical of the pattern I noticed across rehearsals wherever movement was being negotiated: One dancer made an observation about the movement, another dancer executed this movement again, attending to the specific observation, and both then reflected on the observation or continued with the process of perceptual analysis. In the exchange in Figure 5.3 for instance, KT noticed that she used her left hand to push herself up from the "pike" shape on the floor (Turn 1) and asked if Michelle did the same. Both then executed the movement, paying attention to how they each accomplished this transition (Image b, Turn 3). Still conscious of her arms, Michelle then noted her turned out elbows (Turn 4, Image c), an observation KT subsequently checked against her own experience (Image d, Turn 5). The dancers continued the sequence, alternating between perceiving, executing, and reflecting on their performance, like



1 KT (right): I'm using my left hand there on the floor, are you?

2 Michelle: A little bit.

3 KT: From the pike, to push?

(Both execute this transition)

4 Michelle: Here they're a little bit, they're kind of out (demonstrates elbows out) and I don't know if you want to bring them in.

(KT repeats last movement)

5 KT: Oh yeah (noticing arms out a little bit)

6 Michelle I kind of like that they're, the hands are kind of loose (shakes hands from wrists), it makes them seem even more immobilized, you know? Because the elbows are kind of in.

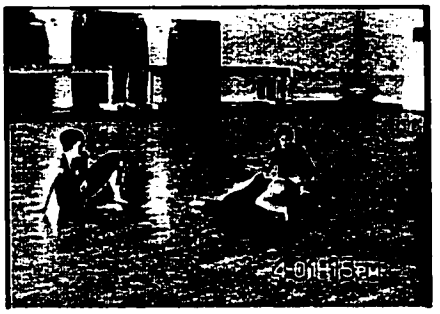
(KT brings her hands to the same place, agrees "uh-huh," and moves slowly to next move)

7 KT And I like using (propels arms around to turn body), using that there.

Figure 5.3 KT and Michelle analyzing arm movement

collaborating writers reading a text aloud and checking for dissonance. For the dancers, such deliberate reading involved articulating the details of execution ("I'm using my left hand there on the floor") as well as attending to the aesthetic qualities of the movement ("the hands are kind of loose; it makes them seem even more immobilized") and personal preferences ("I like using...that there"). By closely analyzing their performance, the dancers accomplished the goal for this run of clarifying when and how they use their arms. Through their talk and action, the dancers established mutual understandings of the details in the movement and at the same time, marked these details in their bodies. Conspicuously absent before the next run of the trio was any reminder of what was decided for the arms; these decisions were assumed known, even by Shane who merely observed KT and Michelle analyzing the sequence.

During the fourth repetition of the sequence, KT chose to be the "eye" and watched as Michelle and Shane performed the now-negotiated arms. KT was pleased with the results, exclaiming at the end of the run, "Wow, that looks good! Much better." She then gave verbal notes to her dancers largely about execution of the legwork in specific places. KT's positive assessment of the arms and subsequent shifting of attention to the legwork suggests that KT had (at least temporarily) reached closure on the arms. While demonstrating one particular push from the floor, however, KT again noticed the hands. Two other dancers in her company, Rob and Pablo, had stopped rehearsing their own section, and she involved them in the conversation:



KT: (looking toward mirrors & Rob & Pablo) This is kind of scary (arms toward chest, hands limp)

Michelle: Is it? It's too weird?

KT: I mean I kind of like it, it's like (makes grimace along with hands). (To Rob & Pablo) Were you guys focusing on this at all?

Rob: No, were the hands there?

KT: Kind of throughout (demonstrates last part of sequence again) They were kind of like, dead.

Rob: Yeah, they weren't distracting.

Figure 5.4 Evaluation of "scary" hands

In this example, KT again capitalized on her dancers' perceptual skill and used Rob and Pablo to check her interpretation of the hands ("This is kind of scary"). Rob's question "Were the hands there?" prompted KT to perform the sequence once again, attending to her hands throughout. Rob's evaluation "they weren't distracting" suggested that the hands were not so noticeable as to distract from the action in the legs. The comment gives KT the feedback she needs to draw closure to this part of the rehearsal; if Rob is right, KT has achieved her goal for the day: to choreograph arm movement that complements and doesn't distract from the legs.

KT joined Michelle and Shane to rehearse the trio one last time for the day. Although KT made no announcement at the start that this would be the final run, two moves indicated growing closure. First, KT asked Rob to *time* the trio; across my data, I found that timing and videotaping were common ways to close daily rehearsal on a section or capture the results of particular efforts. Second, KT reoriented the trio a quarter turn to the windows of the studio to where Bob, the composer, could view the movement from the front. This move suggested that KT wanted Bob to note *this* production of the trio as he thought about accompanying sound.

Finished for the time being with their own rehearsal, Rob and Pablo joined Bob by the windows. This might be interpreted as yet another indicator of growing satisfaction with the trio, since KT effectively elicits feedback from if not an actual audience, others outside the original group who might provide more objective assessments. From this end, the observers looked down the length of the studio and were thus at a distance from the performers more true to an audience member's perspective. Like an artist stepping back from his or her painting, the distance also allowed the observers to more easily view the composition as a whole. This time, Rob's feedback at the end of the run was specific to the hands:

Figure 5.5 Rob's evaluation of hands & new solution

1 Rob: (mimicking the curved hands over chest) This sometimes has a breast thing going on (a). I don't know if you care about that.

2 KT & Michelle: Yeah.

3 Shane: You mean, lower, like down here would be better? (Shane demonstrates a solution where hands are over ribs)

4 (KT moves to floor to execute hip lift where problematic hands come in, tries new solutions) (b)

5 Rob: Maybe, or maybe not parallel, asymmetrical. (b)

6 KT: (demonstrating asymmetrical solution [c]) Asymmetrical.
(All joke about the breast thing, exaggerating wrong movement.)

7 KT: (referring to the men's duet) Can we see the male dance now?

Rob's observation (Turn1) suggested that the hands over the chest might convey a quality KT didn't intend for the movement. Shane asked if moving their hands lower over the ribs would be better (Turn 3), while KT returned to the floor to execute the movement and agreed with Rob on an asymmetrical solution, with one hand lower than the other (Turns 4-6, Images b-c). As in earlier segments, KT returned to the actual experience of the movement in order to judge the "goodness" or fit of different options. By attending to increasingly smaller distinctions in the physical performance of the movement over the course of rehearsal, the group gains a greater understanding of the nuances or subtleties in the vocabulary. In essence, the trio is developed through a process of fine-tuning both the movement and its meanings, though the exact "meaning" of the trio remains abstract and unarticulated in words. Rehearsal on the women's trio ends for the day when KT effectively changes subject, asking to see the duet Rob and Pablo had been working on.

To sum, Figure 5.6 shows successive iterations of the women's trio, as well as its transformation through more refined levels of decision-making. Recall that KT had an overall goal for the day's rehearsal of the trio—to choreograph arms to complement the legwork. She accomplished her task by generating more specific goals with each repetition, goals that focus on increasingly smaller scale decisions. In the first two runs, for instance, KT was focused on the large-scale decision of whether or not the group should use their arms with the legwork. By the fifth run, her attention was focused on the small detail of how the hands should be oriented for a particular movement in the sequence. Note that each repetition of the trio was essentially composed of two parts: the physical execution of the movement and discussion/evaluation of what was perceived in the performance. In effect, the rehearsal zigzags between two different types of dialogue—internal dialogue between mind and body in which each dancer attends to his or her individual perceptions (visual and/or physical), and an external dialogue in which those perceptions are shared and negotiated among the group.

In this example, choreographer and dancers participate in a joint activity that helps to further develop and define the trio; it is the system as a whole that accomplishes this task and learns through the activity. As KT earlier pointed out, however, their working process is not a "collaboration" in the true sense of the word. As choreographer, KT is the one to direct the rehearsal process. She decides what will be rehearsed when and by whom, and what will be the focus of each repetition within a section (e.g. KT determined the group would start rehearsal of the trio by trying the sequence "without arms"). After the second run through the sequence, Shane proposed the next step of clarifying the arms, but it was KT who adopted the goal and determined how it would be pursued. Strategies such as round robin and inviting feedback from dancers not performing in the trio structured legitimate ways for her dancers to participate in the construction of the choreography. Through use of these structures, KT also distributed compositional tasks (in this example, observing the dance from both inside and outside the performance).

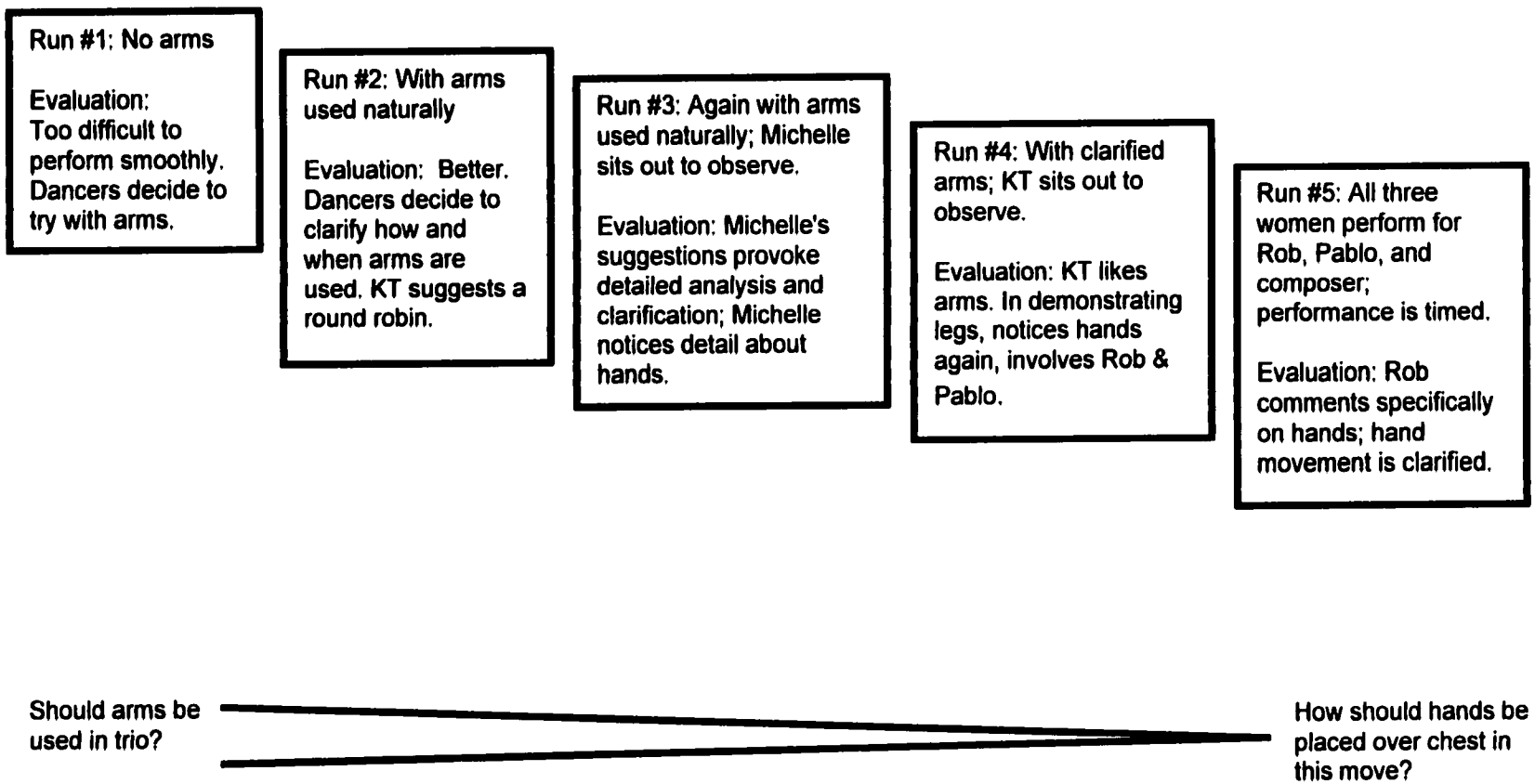


Figure 5.6 Summary of rehearsal sequence of women's trio. Scale of decisions made becomes more refined as trio proceeds through successive iterations.

Organizing material in time and space

As I mentioned at the start of this chapter, choreographers in the middle of composing a dance typically worked on a range of compositional tasks during a single rehearsal. KT and her dancers worked on seven sections of a dance on the day I observed, in various stages of development. At the start of the rehearsal, KT and her dancers practiced a section that had, at that point, been chosen as the opening of the dance. Questions about order arose when KT asked, at the end of practicing the section, "What should we do after this?"

Across my data, I found that organization marked a developmental milestone in the construction of a dance, a task that signals that enough material has been constructed to start thinking about how it will fit together. Considerations about how an audience might respond to material often emerged at this stage of composing. Choreographers considered how a viewer might make sense of (or be led to a particular experience of) events and images unfolding over space and time. They considered not only what one might *visually* grasp from the images on stage, but also how one might *kinesthetically respond* to those images. Recall in Chapter Three that the slow motion section in KT's dance on accidents was created because much of the existing movement for the piece was of the "same qualitative rhythm [of] standing, falling, crashing." KT felt the piece needed a section of contrasting energetic quality in order to be effective. Slow motion would provide viewers relief from the visual commotion and physical anxiety associated with bodies falling and crashing.

In response to KT's query ("What should we do after this?"), dancers in the ensemble again raised concerns about the energy or dynamics of different sections. One dancer suggested that another high-energy section should follow the high-energy opening, a

choice KT considered "risky." She later explained her reasoning by explaining the concept of energy and an audience's response:

> You know, you go up a stair and you get tired, and right before the top of the stairs, you probably have a little burst of energy to hoist you up the last 4 steps, and then you walk down the hallway in a slower, kind of relaxed fashion. Or you rush rush rush to get somewhere and you're late, and then you get there and it's a movie, or it's the opera, and you sit for a couple of hours, you know what I mean? I think that there are just really human, natural, matter-of-fact progressions of energy that we all experience. And I think subconsciously when people watch dance or look at any kind of art and see any kind of flow to something, they respond. And it's important to try to recognize, try to figure out what people respond to, how they respond to it: what would it do to put a really heavy, hard core, crazy section next to another really heavy hard core section? Would that introduce a scenario where an audience would just have to check out because it's a flight of stairs they can't handle?

KT calls on her understandings of natural rhythms and progressions of energy to make her compositional decisions. In Chapter 3, I mentioned how choreographers may call on an acute sensitivity to human movement in daily life to generate material. KT here demonstrates how that knowledge, as well as prior experiences watching dance, may be used to justify organizational decisions.

Although KT had raised the issue of organization near the start of this rehearsal, it wasn't a task that would be accomplished in a single day. Rather, organization was kept in mind by all as a task that needed to be accomplished over the next few rehearsals, and the prompt functioned to keep everyone open to possibilities as they arose during practice. The benefits of distributing this task were apparent halfway through the rehearsal; the ensemble had just begun practicing a section involving a small table when Rob

spontaneously leaned on the table and began the movements of the women's trio described previously:

Rob: Did you think of starting here? (begins trio sequence [a], leaning on table)
KT: (tries same) That's nice! With the table for support.
(Shane & Michelle lean in on table too; men back away, women try beginning trio moves, KT looks in miror [b], starting again)
Shane: Left leg?
(Women begin sequence again, starting with left leg)
Pablo: Nice.
Rob: Yeah.
KT: (to Rob & Pablo) Like it?
KT: (to Shane & Michelle) Maybe we could just make it (demos beginning of sequence away from table) this move away from the table (c).

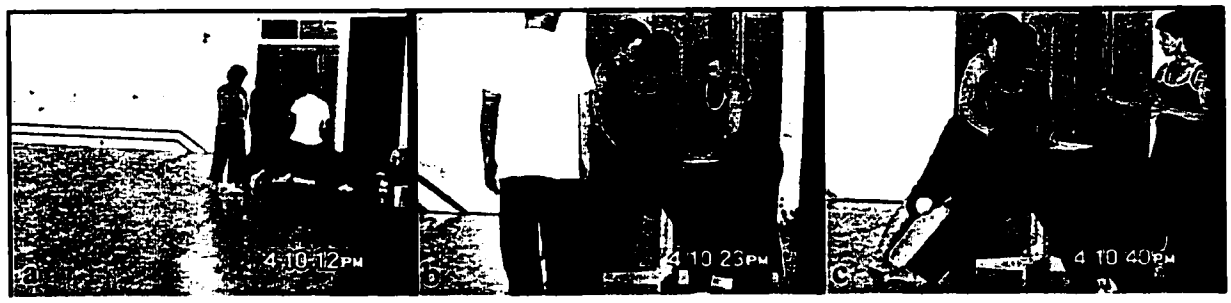


Figure 5.7 Potential new arrangement for women's trio

Although this section of rehearsal began with a question about how to move the table on stage, Rob saw a possibility for the trio rehearsed minutes earlier. KT quickly enacted Rob's suggestion, and checked in the mirror (Image b) to evaluate the visual effect of all three women around the table. The proposal inspired new ideas, as evidenced by KT's suggestion that the women might perform the beginning movements of the trio backing away from the table. It also prompted a shift in goals: In the discussion following, all of the dancers considered how the surrounding elements of the dance (the table, bells the dancers were to roll across the surface, and the men's duet) might be organized or reorganized to accommodate the new proposal.

1 Shane: Maybe we could push the table away while we're doing it.
2 Rob: Maybe just the beginning part, that you do twice, then you could just get into position?
3 (inaudible women as they bring table to center)
4 Rob: That's cool because it's the circle, it's all of us supported around it.
5 Michelle: I don't know (inaudible, a concern about how to get to positions)
6 KT: We'd somehow– Well Rob gave me the idea that they'd get up and do their thing, backing it up and creating a space for us, which I really like. But then we do have the problem to solve about the table (inaudible). I like the idea of pushing the table.
7 Shane: This whole (pushing table), I don't know.
8 KT: Where would you push it? I mean, I would push it off, but that's–
9 Michelle: I think we need to do something with the bells here.
10 Rob: Is there a way that Pablo and I could (inaudible, interrupted by Shane)
11 Shane: What if we, what if we introduce the table without the bells, and then came back with the bells? Then we wouldn't have to deal with the bells....
12 Rob: I'm wondering if there's a way that Pablo and I could make it to the table and do something with the table and the bells while the trio's going on.
13 KT: Yeah, I like that you would separate to create a space for us, I love that, but you could come back.
14 Rob: We could (inaudible) right together again like we do when we start the duet.

The new proposal for the trio and the subsequent conversation (above) illustrate the mutability of movement material. Although the women had performed the trio in a particular triangular formation when practicing it and choreographing the arms, the trio exists essentially as a sequence of movements. As evidenced by their discussion, the dancers consider the trio (at this stage in the rehearsal process) a free-standing building block: the movement might be broken up, repeated, reoriented, performed in unison or separately by these dancers or by three different dancers. Although the movement itself is set, its place within the dance is not. Rob's comment "Maybe just the beginning part, that you do twice, then you could just get into position?" (Turn 2) suggests that the women might be able to perform the beginning phrases of the trio around the table, then transition to their original triangular orientation facing front, a proposal they later enacted. In Turn 6, KT shared her vision for how the men's duet might be used to frame the trio, "backing it up and creating a space" for the women to perform. Mixed in with

hypothetical arrangements of the trio and duet are practical considerations of what to do with the table and bells.

The exchange above exemplifies the cognitive tasks involved in organizing sections of a dance and how those tasks may be distributed among a group. The process requires holding in mind (or in several minds) multiple aspects of different sections of the dance, thinking flexibly about those elements, and mentally and physically trying out multiple possibilities, over a period of rehearsals. In this way, the compositional units that choreographers arrange and manipulate are more like those of music composers than of writers. Sections of dance may be opened up, moved around, repeated, performed by one dancer or many, in unison or asynchronous, in different spatial arrangements, at different tempos, with different qualities, etc. As with music, themes and motifs may appear and reappear throughout a piece, introduced and echoed by different performers or groups of performers, set off by a contrasting background. As I mentioned in Chapter 3, material generated or decisions made during this middle stage in the composing process can be both constrained and inspired by already existing elements. In effect, choreographers are constantly casting forward and casting back as they plan and imagine the unfolding of a dance. These possibilities are evaluated in light of an evolving understanding of the dance as a whole.

For KT, later reflecting on the rehearsal, the proposed arrangement of the trio around the table was "exciting," not only because it offered a potential solution for how to transition between two developed sections of the dance, but also because it clarified for KT how she wanted the audience to experience the material:

> I always wanted to do that phrase more than we were doing it, and we had discovered there...a transition, which are bloody hard. Transitions are just hard. You think in sections, you create in sections, and then you have to put them together, oh god! So that seemed like, 'Yea, thank you Rob, here's a really nice

> transition for us to integrate the table and get going on this material.' And it also clarified for me that that is how I want to have the audience have a relationship with [the trio], to see it come into focus, like a lens in a camera, as opposed to see it in focus and then blur the edges. And that's what I wanted from the material.

In this case, Rob's proposal offered KT an opportunity to consider the audience's visual orientation to the trio and the possibility that they might view the trio more than once. Unlike her earlier considerations of energy and an audience's *kinesthetic* response to the movement, KT here raises the issue of how an audience might be led to *visually* experience the dance. Like energy, the unfolding of visual images may be purposefully crafted. For KT, deliberately organizing material so that an audience develops a particular relationship to it is an essential choreographic skill:

> I think it's important as a choreographer to allow a watcher to develop a relationship to movement, that's a great skill and craft, and you can wield that sword. It's different if you develop a relationship where the audience first sees the material in unison, facing front, say, and then they see it fragmented. That's different from [first] seeing movement fragmented and then seeing it all in unison....[I]t has a different feel, everything about it is different. And you make those decisions consciously.

KT uses strategies not unlike those of writers to craft an experience for her audience. In dance, however, the development of theme or climax, the application of foreshadowing are accomplished (and experienced) visually and kinesthetically. KT experimented in future rehearsals with many configurations of the Women's Trio in relation to other parts of the dance. In the end, in the actual performance of "Attracted to Accidents," the trio did in fact appear first with the dancers performing the sequence asynchronously, facing different directions, and later in unison, facing front. The table and bells had been eliminated.

Developing material: Learning about movement

In the last chapter, I showed how a system composed of choreographer and dancer(s) learns and sets a sequence of movements so that the sequence can be reconstructed. In this chapter, my example demonstrates how a system learns *about* the movement it generated—about what is essential in the movement, what the movement might signify or evoke, or how the movement might function in the dance as a whole. The performers rehearsing KT's Women's Trio do more than repeat a sequence of steps—they carefully and purposefully analyze their perceptions as they move, sharing their observations aloud. In this way, they learn what "arms" are the appropriate accompaniment to the legs, and that the hands hanging limp from the wrists look a little scary. The group also learns from Rob that the hands curled over the chest in one movement may suggest an unintended "breast thing," and that the trio could in fact be performed around the table, worked in somehow with the bells and the men's duet. Members of the ensemble socially construct the meaning of the dance: Through their talk and action, the participants show each other the dance (or potential dance) they see unfolding, and they teach one another about the movement by sharing their observations. In essence, these observations form the system's collective learning.

Current accounts from research on how writers or artists learn from the act of composing do not address how a *system* learns, but they do focus on how artists take from what it is they produce, consolidate this information, and use it to move the composing forward. Flower and Hayes (1994) write that "if one studies the process by which a writer uses a goal to generate ideas, then consolidates those ideas and uses them to revise or generate new, more complex goals, one can see [how one learns through the act of writing itself]" (p. 948). As I showed in Chapter 1, Keller and Keller, too, describe an adaptive and dialectic process in their account of a blacksmith at work:

> An umbrella plan must remain open to the potential for increasing specificity and refomulation as a blacksmith works. The process is dynamic and dialectic. Images govern production, the material results of which, as perceived, allow revisions and refinements to the governing images. (1996, pp. 148-9)

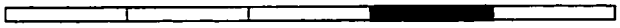
In these cases, thinking and creating are distributed across an artist, tools, and the medium itself (language, iron); in these distributed systems, it is the artist alone who learns from the interaction. Dance presents a case where the whole system learns through the act of composing. In this chapter, I described how KT *and* her dancers learned about the material through their interactions with each other and with the medium. Figure 5.6 in particular captures the same zig-zagging between perceptions and creative decisions, gradually clarifying and refining a desired image.

Developing material—learning *about* the movement generated—is essential to composing in dance. The system as a whole necessarily develops material, choreographer and dancers teaching one another about the movement as they perceive it. Among ensembles or even over different sections of the dance, however, this activity may look and sound different depending on how a choreographer structures his or her dancers' participation in the activity. In the example central to this chapter, KT encouraged a verbal discussion among her dancers about what they observed in the movement, visually and kinesthetically. In other instances, I observed choreographers learning about movement through their own physical explorations or through variations they would ask their dancers to perform. Sometimes the choreographers shared these collected perceptions aloud, but often not; in the latter case, the dancers came to an understanding of what was essential or significant in the movement from images or direction the choreographer provided and through their individual experiences in performing it. Here again, the *system* engaged in developing material, but the reflection and perceptual analysis externalized in the conversations between KT and her dancers took place internally in these other cases.

I began this chapter with a quote from Lisa describing how she and fellow dancers "messed" with material in the process of building a dance: "We got coupled up, everybody made a phrase, and then we sort of connected them and made duets, connected our phrases one to another. And it just went on from there, making another phrase, getting some phrases from Amii, really messing with those...ripping apart those phrases, putting them back together in different ways, working with a partner doing that." In essence, Lisa's account tells the story of Amii's decisions as a choreographer: it is *Amii* who directs the series of investigations that Lisa describes. With each iteration, Amii learns something from her observations that allows her to propose the next step. Amii may not talk with her dancers about what she sees, but the dancers still learn about the movement through Amii's choices and how she structures rehearsal.

In the chapters that follow, I continue to expand on how choreographer and dancers learn as a system and how each takes from this collective learning to further the composing process. It is the choreographer who takes what is learned to make compositional decisions and plan next steps. As I show in the next chapter, dancers, too, take from this learning to inform their performance.

Chapter 6:
ORGANIZING THE WHOLE



In the last chapter, I showed how one choreographer, KT, began to grapple with problems of organization. In the process of developing material and trying to figure out how one section might transition into another, KT considered how audience members might read and respond to the work—how they might respond kinesthetically to the energy in each section, or how they might develop a visual relationship to particular material. Accompanying these aesthetic considerations were practical concerns regarding the logistics of just who needed to go where and when to make transitions possible.

The number and complexity of such design and logistical considerations increases when choreographers reach the stage of organizing the dance as a whole. In this chapter, I describe how choreographers integrate a wide range of elements into a unified performance. Attention in this stage moves away from development of separate sections and exploration of material to more whole-text considerations: What is it the choreographer wishes the audience to experience overall? What is the unifying structure that makes sense for the piece? To answer these questions, choreographers consolidate knowledge gained over previous rehearsals and revisit/revise goals for the dance as a whole.

In this chapter, I use several examples to explain and portray the organizing task. I first show how this task fits into the overall composing process by introducing a timeline generated by a participant. Second, I show how one choreographer utilized a range of resources to help her think and rethink the organizational structure for her dance. And third, I discuss the significance of this step in the composing process for dancers. I

include at the end of the chapter an example of what the integrated products of this task look like in a choreographer/performer's reflection on her completed work.

Taking stock

As I mentioned in the last chapter, organizing sections of a dance into a rough beginning, middle, and end marks a developmental milestone in the composing process. Most choreographers do not begin organizing the dance as a whole until they have constructed a considerable portion of the material they will use and have begun to think about how it will work together. Scott, a choreographer and dancer who attended the group discussion for this study, described the organizing task as an occasion to "take stock." Initial plans for an overall structure are often incomplete, he explained, but they allow choreographers to figure out what they have, what they're missing, or what changes, transitions, or additions are needed to make the plan work.

Evidence of this revisiting, rethinking, and consolidating was especially visible in the timelines created by participants at the group discussion. At the start of this session, I asked all choreographers and dancers present to sketch a timeline of major events in the development of their most recent performances. I include in Figure 6.1 one example—Scott's depiction of "Self Love," a dance he created with Rob as collaborating partner. I chose Scott's timeline because it clearly shows how early explorations are re-visited and revised, and how material is built, messed with, and refined. Major developments include the types of activities described in earlier chapters: Under June and early July (the first two columns in Figure 6.1), for instance, Scott noted discussions he had with Rob about general goals for the piece. From these discussions, the two decided to base the dance on a text—a book of positive affirmations, Scott later explained, that Rob had received as a gift. Concurrently, the dancers began experimenting with movement ideas, looking for ways to distort their bodies and shape (middle of Column

SELF COME w/ ROZ — SCOTT

JUNE TO SEPTEMBER / NOVEMBER 1999

1999 JUNE

Initial Contact

No Specific Vision

but agreed upon general style of Physical Theater Dance Mix

July – 1st Half

Begin Weekly Rehearsals – 2x/wk

1.5 to 2 hrs/rehearsal

ⓑ Discussions about piece & [illegible]

– Concept emerges based on TEXT

– Initial Movement Generation: experiments → Disformation

Look for ways to Distort Body & Shape by wearing lots of clothes & making self misformed.

– No Video

– Select text to Memorize but nothing else written

– Each Dancer creates phrases which are then combined into one or two longer phrases

. Rehearsals chunky & go in fits & starts

July – 2nd Half

– Continue weekly meetings.

– Rehearsals still in fits & starts but because more material to work with can work in bigger chunks

– Initial phrases reviewed & text added in chunks but still no clear idea where going – just have a starting place & some very funny text.

– Abandon idea of distorted body through costume but keep idea of movement that is somehow not beautiful in traditional sense → to force selves out of habit

– Examine opening of piece although not sure of [illegible], introduce table & pencil sharpener & bowl of soup

– Perhaps one video shoot – but no writing down

August – 1st [illegible]

– Breakthr[illegible] decide [illegible] the [illegible] text & [illegible] instead [illegible]

– Write "what [illegible] self-de[illegible] text [illegible] feels [illegible]

– Creat[illegible] reflec[illegible] ment[illegible] dance[illegible] phra[illegible] large[illegible]

– Most [illegible] is [illegible]

– Video[illegible]

– Reorg[illegible] point [illegible] in mid[illegible] non-[illegible] 2nd h[illegible]

Figure 6.1 Scott's timeline for a dance

August - 1st Half

- Breakthrough when decide to take the self-affirmant text & distort it instead of the reverse
  - Write our own "what we really think" self-deprecation text by which feels true & dark
- Create movement reflecting dark mentality, each dancer makes own phrases w/ large movement
- Most movement is SET but is rough
- Video
- Recognize need point of unison in midst of non-unison in 2nd half & piece.

August - 2nd Half

Breakthrough - find music that fits concept, movement adjusts in terms of phrasing due to addition of music.

Breakthrough - find costumes that add an unexpected industrial/utilitarian & comedic element. Costumes simply happened & then informed the piece.

& Experiment with ways to deliver text, Rhythms & pace. Find a sense of Rhythm that feels natural.

September - up to performance

Clean, video, clean, show to others & make small fixes. Set in Space, Space it & Run it.

2). Eventually, they created phrases that were then combined and developed into "bigger hunks" of material by the second half of July (see Column 3). At this stage, Scott and Rob were just beginning to think about organization; Scott notes in the middle of this column, "Initial phrases reviewed and text added in chunks but still no clear idea of where going; just have a starting place and some very funny text...Examine open[ing] of piece although not sure of end..."

Under August in the timeline, Scott marked several "breakthroughs" in the development of the dance. These breakthroughs are in many ways the fruits of earlier experiments: the concept of distortion, for instance, first explored in costume and then in movement, is finally applied to the spoken text of the dance: in the beginning of August (see Column 4), Scott and Rob wrote their own self-deprecating statements and created a darker movement section to accompany the text. This section contrasted with material created for the opening of the piece—a section in which the dancers recite positive affirmations while performing, as Scott described it, more "sweet" movement. The dancers were able to organize a complete draft of the dance only after this first breakthrough. Note that Scott indicates "most movement is SET but is rough" at this point on the timeline, and that the dancers began to use video records to help them with their work. Once they are able to run a trial of the complete dance, the performers recognize they need a point of unison in the second half of the piece (bottom of Column 4). As Scott later explained, they were able to perform enough of the whole to understand "what was there, what was missing, and what felt good". Organizing the whole allows the performers to evaluate the structural experience of the dance: "We needed to have an understanding of the piece overall in order to be able to say 'We need to return to unison here, this will make it stronger'."

Scott notes additional breakthroughs on the timeline in later August. The dancers "find music that fits [the] concept" and "find costumes that add an unexpected

industrial/utilitarian and comedic element" (see Column 5). While Scott indicates that the "costumes simply happened," I would argue that the discovery of both appropriate music and costumes at this stage of the composing process is a natural result of the consolidating of information and understanding that occurs through organizing the whole. This was a pattern across my study participants: Although choreographers may explore ideas for music/sound, lighting, costumes, props or set design early in the making of a piece, particular choices for these additional performance elements may suddenly "make sense" as the dance progresses toward performance. All elements of the dance are now evaluated and choices made in light of a particular "logic" to the piece, a unifying concept or aesthetic that has evolved out of multiple rehearsals and a deeper understanding of the material. Note that the elements and activities Scott describes for the second half of August are whole-text considerations (bottom of Column 5); music, costumes, rhythm and pacing *can* be addressed once the full dance is structured.

Managing the task

Scott's timeline illustrates how the task of organizing the whole may function within the overall process of building a dance. In the next example, I concentrate on the task itself—the kinds of thinking and resources necessary to accomplish it. Like previous stages of composing I have described, organizing the dance as a whole was for choreographers a process of experimenting with multiple possibilities before arriving at a satisfying decision. In working across the entire dance, however, choreographers dealt with a greater number and complexity of design issues and logistical contingencies than previously. In order to handle these growing complexities, choreographers frequently called on other tools and resources to help them think. In the following section, I describe how Crispin used a video camera, notebook, and her dancers to assist with this task, and how these resources enabled her to think through (and rethink) her plans for the dance as a whole.

Organizing strategies

Ideas for organizational structures might emerge spontaneously in the studio during rehearsals (as in the example of KT and the trio in Chapter 5), but they also emerged from a great deal of thought, viewing of videotape, and rehashing by the choreographer, alone and outside of studio time. Almost all the choreographers in my study reported using videotape at this stage in the rehearsal process to record separate sections and get a sense, temporally and structurally, of the material they had to work with. Crispin, the choreographer in Chapter 4, explained that she often depicted sections of dance in notes and drawings on separate note cards and used these to order the whole: "I usually have notes...I would have note cards taped to my wall with all the different sections so that I could move them around like a storyboard kind of thing." With note cards, Crispin might literally arrange and rearrange sections of a performance, exploring hypothetical arrangements before enacting them with her dancers in rehearsal.

For the particular performance she was working on at the time I videotaped, Crispin had replaced her usual note card strategy with a series of notes and drawings in her sketchbook (see Figure 6.2). Although somewhat idiosyncratic, the drawings depicted on these pages represent well the kinds of information choreographers juggle and coordinate in this task. The drawings are of course incomplete; Crispin "read" her tentative structure to her dancers on the day that I taped and, in her talk, elaborated on her notebook shorthand. The discussion itself, however, was another occasion for Crispin to re-present her thinking, and she made several changes and notes in her sketchbook as a result of talking with her dancers. Below, I describe first the kinds of information represented in Crispin's sketch. I then use excerpts from Crispin's conversation with her dancers to show how this talk prompted Crispin to rethink her organizational plan.

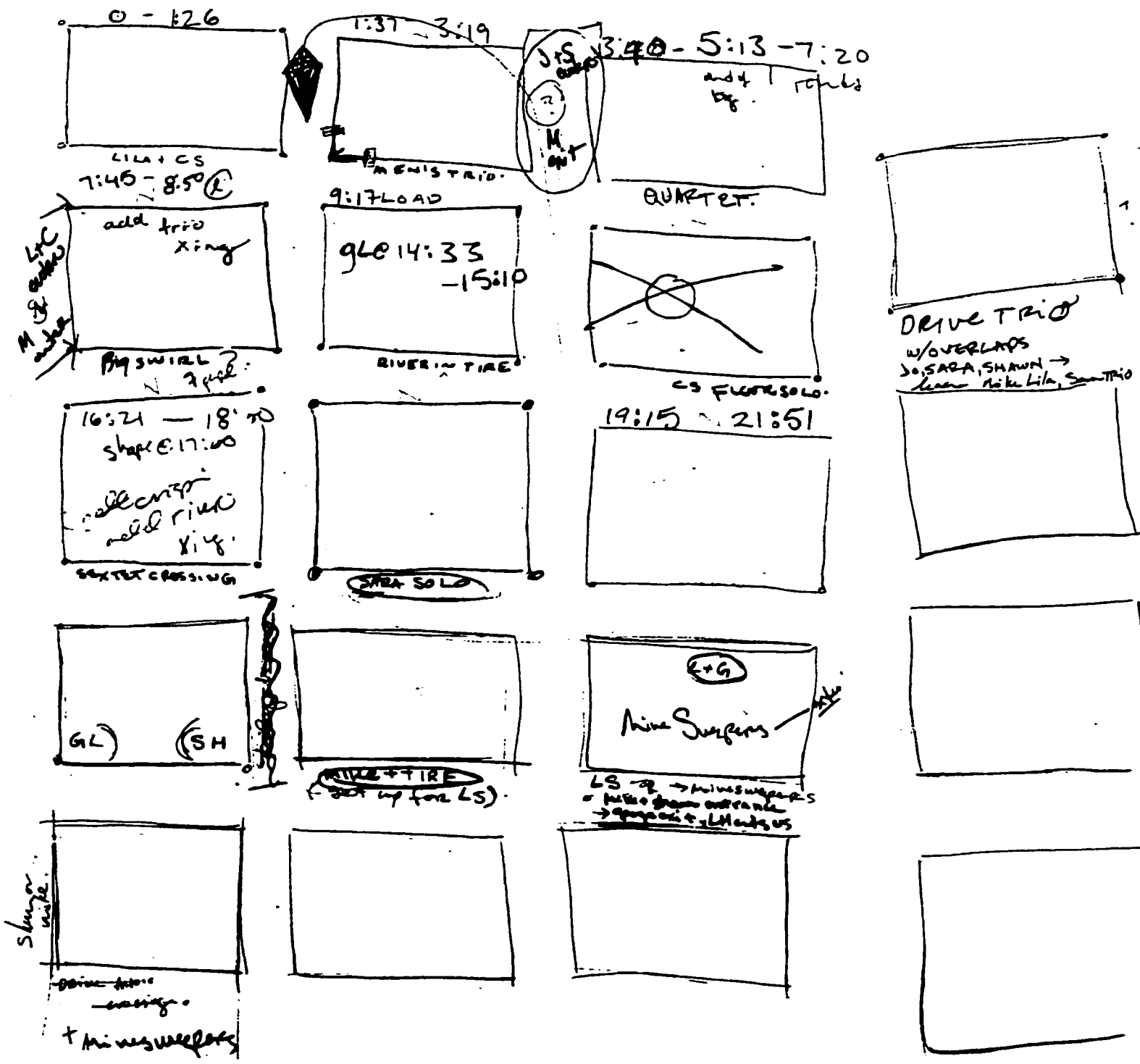
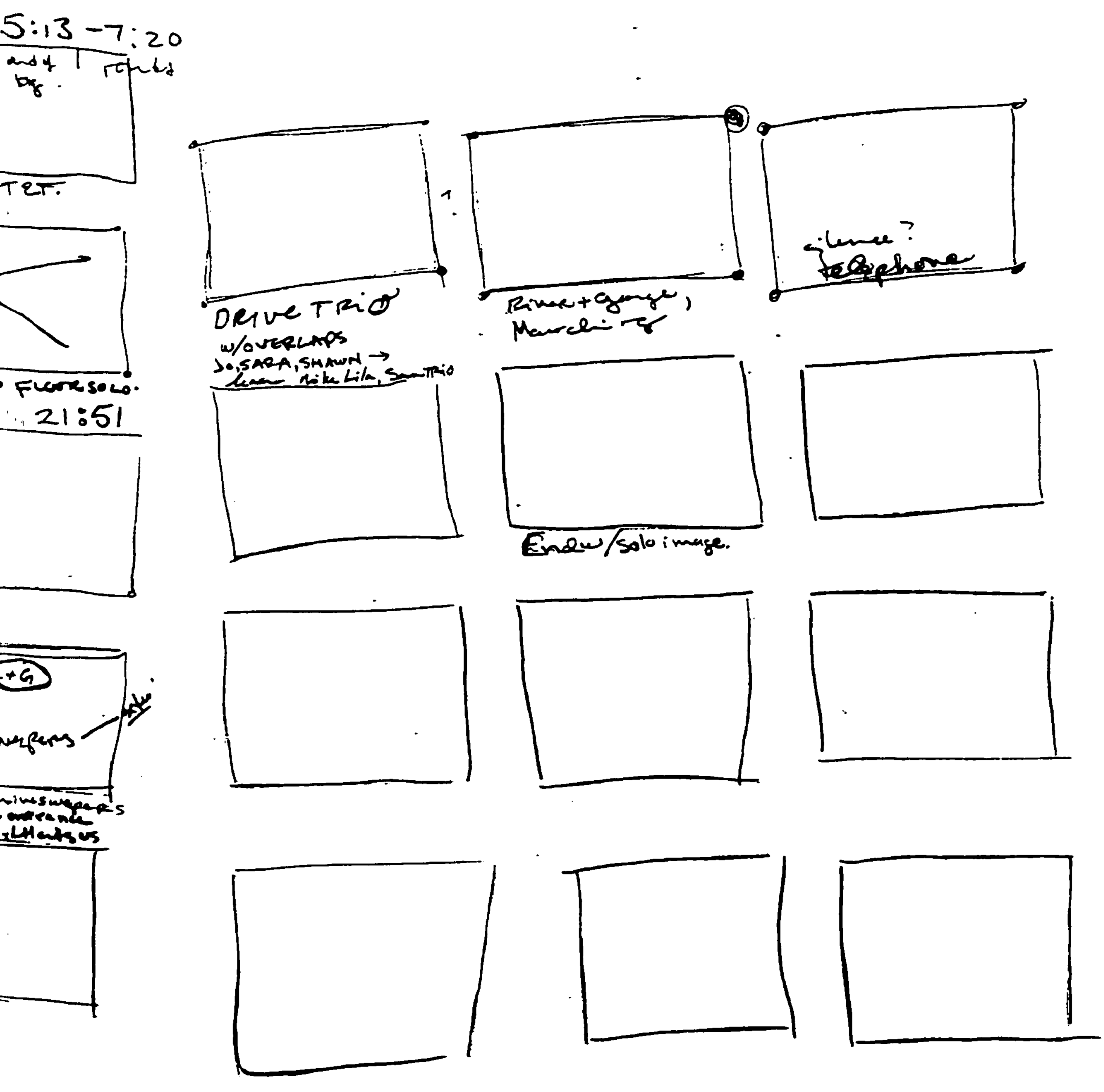


Figure 6.2 Notebook sketch of organizational structure for a dance


5:13 -7:20
DRIVE TRIO
w/OVERLAPS
Jo, SARA, SHAWN →
River + George,
Marching
silence?
Telephone
FLOOR SOLO.
21:51
Ends w/solo image.

Drawing a dance

In Figure 6.2, information Crispin would normally depict on a single note card is here represented in individual boxes: combinations of words and drawings serve as shorthand for particular features of events. Although spare, the information included here is a key to Crispin's mental representations of the dance, and to the kind of multi-modal images that choreographers in general coordinate in this task. The boxes are read in chronological order from left to right, and include information not only about movement but also about music and lighting. Crispin's sketch makes visible at least some of the information she considers important: Words below the boxes (red) name developed sections (i.e. "men's trio," "Big Swirl," "Minesweepers"), or describe a particular movement event (i.e. "River in tire"). Drawings within the boxes (yellow) illustrate movement pathways (i.e. the arrow in "sextet crossing," the swirl in "Mike + tire") as well as lighting designs (i.e. the circle in "Sara solo," the "starburst" shapes in the box following). Crispin noted that earlier drawings were more evocative of specific movement: "I used to make more drawings, but I don't know why I don't do that anymore. I think I know what [the sections] look like, I don't need to be reminded so much." Because her current piece was a combination of new material and three previously constructed performances, Crispin knew many of the sections well; she could easily reconstruct these sections mentally from minimal words and/or graphic symbols. "Minesweepers" and "Drive Trio," for instance, have no accompanying drawing in the sketch and are both sections that were fully developed for earlier works. Similarly, as one of the dancers in the opening section ("Lila + CS"), Crispin has little need to elaborate on what happens in this section.

Elsewhere on the sketch, Crispin marked entrances and exits (blue) (i.e. "George exit, LH ents US [enters upstage]"). Crispin later explained that such information is essential for designing transitions that work: "When I get to this point of drafting things, I have to know what's impossible, like if I just told you to enter from stage right but you just exited

stage left, it's a problem." Numbers over and within boxes (green) indicate time or the duration of different sections—information Crispin took off a video recording of the dance; boxes without numbers over them may indicate sections that are not yet fully formed and/or haven't been recorded. Choreographers in the study typically timed sections to get a sense of their temporal size; they often aimed to build a dance of a particular length at the outset, and timing was a way to evaluate where they were in relation to this goal. Finally, Crispin drew an "N" (orange) above some of the boxes as a note to the composer for parts of the dance that needed or could have new music. Overall, the boxes in Crispin's sketch serve as an outline for the dance as a whole. Within them, she coordinates a range of information relevant to the performance—who and where the dancers are in time and space, particular movement images and the sequence in which they appear, the relation of lighting and sound to those images.

Sharing the representation

As I mentioned earlier, Crispin's sketch represented only a tentative structure for the dance. Additional considerations arose when, at the end of the rehearsal I observed, Crispin took out her sketchbook and shared her notes with her dancers. The intent was to help them visualize the evolving dance as she did. As the dancers attempted to follow Crispin's thinking, however, they asked questions, clarified each other's misunderstandings, and identified potential problems and solutions. The act of building a common mental representation of the dance as a whole caused Crispin herself to rethink the dance as constructed, as in the following segment. Crispin began by simply listing sections in order (see Figure 6.2), assuming her dancers understood her references:

1 Crispin: Lila and Crispin duet. Men's trio, which we're making on Weds.
2 George: Men's trio?
3 Sara: (to George, reminding) With the balance/counter balance?
4 George: Oh!...

5	Crispin:	Mens trio, some kind of weird transition that made sense when it was a quintet, but now that it's a quartet, I don't know. So men's trio, something, quartet that's going to start with some kind of square, big square, so it's going to be much more spatial at the beginning (gestures wide with arms).
6	Sara:	OK.
7	Crispin:	Into the Big Swirl, which is probably going to be only 5 people.
8	Sara:	The big Crispin swirl, right?
9	Crispin:	Yeah. 'Cept that doesn't make sense now.
10	Sara:	Why is that?
11	Crispin:	I don't know, it just doesn't make sense to me, to just add someone.
12	George:	Because you haven't been in there yet.
13	Crispin:	I haven't been in there yet.
14	Sara:	And you would definitely only want it to be 5, you don't want it to be-how many people?
15	Crispin:	It could be 7.
16	Sara:	'Cause if more than one person is coming on, somehow that makes more sense.
17	George:	Mm-hmm.
18	Crispin:	Uh, am I using the trio crossing? (looks to notebook)
19	Johanna:	River wasn't in it, because she has the tire (inaudible)
20	Crispin:	Yeah, she's intentionally not in it. So it could be 7 people. And then River and the tire, through the point that she throws the tire down. And then...this is, maybe she actually would continue to do that floor stuff that she does, and I would have another, a different floor thing upstage. So at the end of Big Swirl people leave, and I'm dead up there, and then River happens, the tire goes down and then I have like a little shadow of her. (George leans over to look at notebook.)

Although Crispin had worked out an order for the piece on paper, problems with her plan became apparent as she articulated it aloud. She had intended to create a quintet that day in rehearsal but ended up making a quartet due to one dancer's absence. Reflecting on her plans, Crispin was no longer sure that the transition she had originally envisioned into the quintet now made sense for a quartet (Turn 5). She went on listing the next section, Big Swirl, but again confronted a choreographic choice—only five people in Big Swirl—that no longer made sense (Turns 7, 9, 11). The order so far—duet, trio, quartet, quintet—meant increasing the number of dancers on stage by one with each section. The "Big Crispin Swirl," as Sara referred to it (Turn 8), was a large swirling section in which Crispin emerged from the center lifted over the heads of other dancers. The fact that Crispin hadn't yet been part of the dance (Turns 12-13) made the choice not right

somehow; emerging from the group as an unknown element would make her role too prominent or the emergence unmerited.

The dancers joined Crispin in reasoning through alternatives. Sara suggested a possible change in which more members of the eight-member ensemble might be able to perform in Big Swirl: "And you would definitely only want it to be five, you don't want it to be—how many people?" (Turn 14). Crispin thinks and answers, "It could be seven." For Sara, having seven dancers is a choice that "makes more sense" (Turn 16), since Crispin then wouldn't be the only new dancer to enter. Crispin checked to see if she could use another previously developed section ("am I using the trio crossing?") as Johanna reasoned aloud why the number could be seven, but not eight: River was never in Big Swirl because she has the tire (Turn 19). Crispin made clear that River's absence in Big Swirl was an important choice in the choreography ("she's intentionally not in it") and went on to reason through the next sections of the dance. Prompted by her dancers' questions, she imagines an alternative sequence following the end of Big Swirl (Turn 20). In this brief excerpt, it's clear that dancers as well as choreographer have detailed representations of the sections of the dance; only by playing out these representations mentally can Sarah, Johanna, and Crispin evaluate structural possibilities, imagining the unfolding of images in space and time, and checking to see if they make sense or are possible logistically. The discussion prompted Crispin to rethink her structure; Figure 6.3 shows the first page of Crispin's plan again, this time with revisions highlighted. Crispin's notes "add trio Xing" and "7 add?" were written in and below (respectively) the box for "Big Swirl" after the discussion above.

As Crispin proceeded through her organization, she noted yet undeveloped sections, needed changes in choreography due to spatial configurations, and casting changes. Again, other dancers were involved in solving such problems, as in the following example in which Crispin considered a recasting:

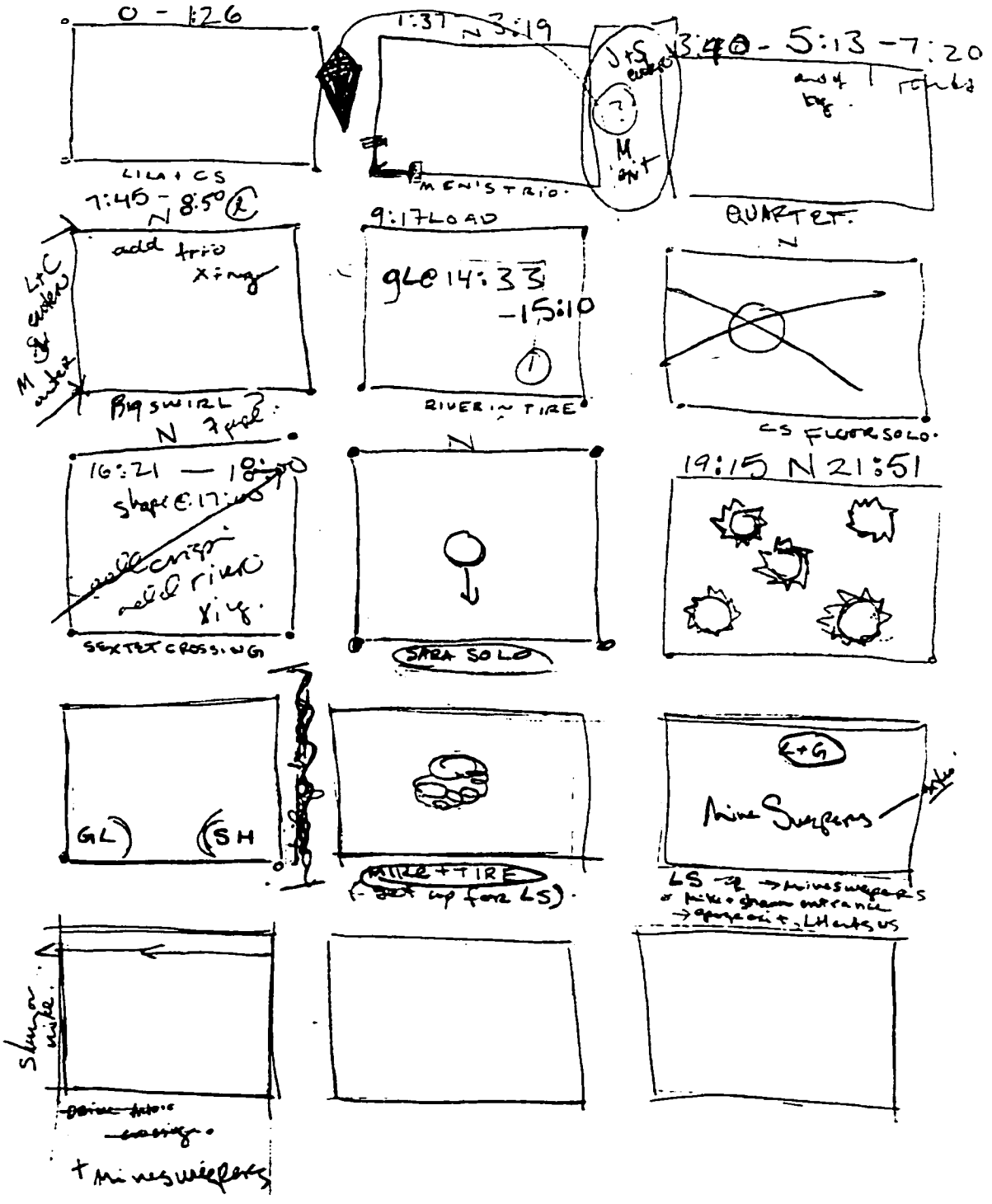


Figure 6.3 Revisions made to organizational structure

1	Crispin:	George and Lila end up upstage instead of down here. (to George, pointing) You end up over there, so we're going to have to change that choreography. Minesweepers continues. Trio crossing from Drive comes on (makes walking gesture with fingers).
2	Johanna:	Crispin, Lila-
3	Crispin:	Crispin, Lila, Mike, which doesn't have to be Mike. (thinks a moment)
4	Johanna:	It would have to be Shawn or Mike.
5	Crispin:	(nodding) It has to be Shawn or Mike. Ok, that's good to know.
6	Sara:	How are you figuring this?
7	Johanna:	Because you and I remember are doing Minesweepers, while George and Lila are-
8	Sara:	Oh, Minesweepers. All right, I get it.
9	Crispin:	Any time you notice something like that, that's great.

In listing the dancers involved in "Drive trio," Crispin realized that a different dancer could perform Mike's role (Turn 3). Johanna informed Crispin that her choices were limited to Shawn or Mike (Turn 4). When fellow dancer Sara asked "How are you figuring this?" Johanna reminded her that they and the remaining alternates for the trio were involved in sections happening simultaneous with the trio (Turn 7).

In this example, the dancers functioned again as extended memory for Crispin, holding in mind multiple aspects of the dance that must be coordinated in performance. The dance is effectively distributed among all members of the ensemble. While dancers' individual, local representations of a dance may not contain the same features as the choreographer's executive view (choreographers must keep in mind the overall effect of everyone's movement at any moment in the dance), the terrain of these representations overlaps in ways that ease the work of the overall task. For Crispin, the memory capacities of her dancers are highly valued and free her to focus on the creative aspects of composing. As she later commented, "There are so many responsibilities in making something that the more I can share with them, the better off I am. Because then I can just try to be as creative as possible and not have to remember [everything]." As in the previous example,

the exchange with her dancers prompted Crispin to make a note in her sketchbook: "Shawn or Mike" appears next to the box in the lower left corner, Figure 6.3.

At other points in the discussion with her dancers, the act of articulating her plans aloud caused Crispin alone to rethink several choices. While Crispin made many of her choreographic decisions on the basis of formal design considerations (the shapes, energy, and patterns in the movement), she made others based on dramatic considerations. At one point, for instance, Crispin explained to her dancers,

> Then Mike is going to mess around with the tire. Do you remember when he was doing that swirly improvisation and he was totally off center? (gestures with hands) He's going to come and take the tire away and do that and then go off. Which kind of scares me to have anyone touch the tire but River, but, we'll see how it happens.

In this instance, Crispin was concerned about having Mike touch a car tire—a prop used in the piece—not because it was literally dangerous, but because it disturbed a recognizable dramatic relationship already established between two other dancers. Reflecting on her comment later, Crispin remarked,

> I actually made that change, when I said it kind of scares me to have anyone touch the tire but River. I took Mike away from it, and now only George and River [touch] it. There was dramatic reason to do that....[A lot of the material] is very evocative, it's pretty formal, it doesn't have a narrative or overt emotional or dramatic agenda. But George and River are two very specific characters, I mean people will talk about [them]...because they interact with a prop, and they do recognizable relationship kinds of things, like they compete over [the tire] and there's manipulation and stuff like that. Their behavior is more obvious.

Crispin's decision was based on anticipation of how an audience would read the work. She draws distinctions between "formal" movement and movement the audience would recognize as more dramatic or narrative. Having Mike touch the tire links him to the

relationship already established between River and George, and changes the way Mike's role would be read and interpreted within the dance as a whole. Thus decisions about *who* dances *what* vocabulary influence how meaning is constructed in the composition.

As Crispin shared her vision for the dance with her dancers, she essentially thought aloud, reasoning through multiple elements of the task. She demonstrates a particular type of reasoning—an ability to construct sense from movement images and their sequence, the numbers of figures on stage and their relations and placement, energetic qualities, dramatic relationships, the lighting design ("This is all happening with lights coming up and going down, at least not concealing any entrances and exits...") and music. As choreographer, it is Crispin's role to imagine the completed draft. She supplemented known sections with sections yet to be created, drawing on an aesthetic logic determined by the piece itself; ending the structural plan, she explained to her dancers,

> You march, and there's probably going to be something started on top of the trio...And it does go into some kind of banking image, but not the gentle image that's happening now. And then somehow it ends with a solo, I don't know how, what or how. But I'm sure it will come to me.

Crispin constructed a unified whole by supplementing known components of the piece with imagined additions and changes. In this case, the "whole" was a 30-minute piece with eight dancers that integrated new material with material created over the last two years for three earlier, separate performances. Even her dancers appreciated the significance of Crispin's accomplishment; Sarah commented at the end of the discussion, "How did you figure that out? That's a monster."

As shown in this example, the "figuring out" of a complete draft of a dance happens over several occasions and requires thinking through multiple aspects of performance. Crispin used a range of tools and resources, including her dancers, to accomplish this task. Video

recordings of different sections of the dance allowed Crispin to get a sense of the temporal size of different sections and imagine how they might fit together, or what types of changes or additions would be necessary to create effective transitions. Through notes and drawings, Crispin outlined in her sketchbook an initial structure for the dance as a whole. This was an opportunity to consolidate a range of information in a single representation; she re-presented this information again in talk to her dancers, prompting further reflection and rethinking. Additional revisions to the structure would be made again in yet another re-presentation when her dancers enacted the draft in a future rehearsal. Crispin reported going through another full cycle of these events (drawing a revised outline in her sketchbook, talking with dancers, enacting the plan in rehearsal) before settling on a final structure for the dance that would then be fine-tuned.

Significance for dancers

As mentioned earlier, the act of organizing the dance as a whole marks a significant developmental point in the rehearsal process. As George, one of Crispin's dancers, later explained, "The talking through, part of it was for Crispin, but part of it was for us to start [thinking about a whole]...[The day] you recorded was not the end of the actual creation rehearsals, but the end of exploratory creative rehearsals." While the process of arriving at a satisfying structure for a dance may represent the culmination of a task for choreographers, it represents the *initiation* of a different task for dancers. Once a structure is decided, dancers in effect have a beginning, middle, and end to a story—a "script" of sorts for a performance. The development of a structure for the dance as a whole, then, has special significance for the dancers. Given a particular sequence of events, dancers can begin to establish the relationships between different sections of the dance and between their own role and the roles of others within those sections, essentially constructing a plot or purpose to their performance. As more and more pieces of the puzzle are added, dancers are able to construct richer interpretations of the dance as a

whole. By sharing her tentative structure for the piece, Crispin not only conveyed to her dancers how she envisioned the dance unfolding, but also signaled a transition in the composing process.

George described the overall structure as a "map" for his experience as a performer: "[Early in the rehearsal process], you're blind, you've just been making stuff, and it doesn't mean anything to you, except maybe it feels good and it's fun to do...but then suddenly someone gives you a map of what happens to you." For George the organizational structure functions to make sense of the movement and interactions that the performers previously practiced separately and without relation. "You start going, 'oh, well this interaction that I have with Johanna happens before that thing that Johanna and I do together later,' it's the precedent for that. It has some emotional tenor that it didn't have before." Both the sequence of sections and their specific movements suggest to George the import of the material. As an example, George cited learning that a solo created independently for River would begin while six other dancers were on stage. In the plan, the dancers, including George, exit and then George returns alone at the end of River's solo to join her in a duet. The sequence makes the initial exit especially significant, as George explained: "As the six of us leave, we all sit up and look at River, and I look at River, and looking at River and knowing that I'll be with River [again] is very different from looking at River and knowing that I'm leaving River. And suddenly then I have something to perform."

George reached for Crispin's notebook at the end of the group discussion and read in its boxes an emerging logic to the piece—a logic accessible to someone with knowledge of the dance and fluent in the interpretation of bodies on stage. When presented with a copy of Crispin's notebook pages during his interview, George explained,

> Crispin has little stage diagrams for each section and their spatial relationships, you know, a drawing of the trio coming downstage on a diagonal, and you can

> just look and see that there's this motion. These people come downstage and then this sextet happens upstage and these people disappear. So you start, that creates meaning, you know, whether River's solo is upstage of the six people who are on stage, or it's downstage.... [I]t starts to build the logic of the piece.

George read Crispin's drawings for information about his own role. He first appears in the dance as a member of the men's trio, then the quartet, and then the larger group section, Big Swirl. Not appearing alone or separate from others on stage for the start of the dance sets up a particular dynamic that is later contrasted with River's solo:

> So [in these first three sections], I'm a member of a social group, I haven't been differentiated. And then River has her solo. So essentially, we're just a big mass of people, and River is the counterpoint to this mass of people. She's the antidote, she reveals something about separateness after all of this group stuff.

George uses the sequencing and casting of the sections to construct meaning, and to understand his own role in supporting the dance.

As I mentioned in earlier chapters, dancers do not merely perform steps, but perform their interpretations of movement and of the text as a whole. These interpretations are formed from many sources of information: discussions about the choreographer's ideas for the piece; direction from the choreographer about how the movement should be executed; from the experience of the movement itself and what it feels like to perform; by the structure of the dance—sequencing, timing, spatial relationships, numbers of dancers on stage, who dances with whom, when, and how; and by the whole history of rehearsals and personal interactions through which the dance has evolved. Once the organization of the dance is set, dancers begin their own creative process, developing a performance that will realize the dance.

An integrated whole

So far in this chapter, I have described examples that show what is involved in the process of organizing a complete draft of a dance. Choreographers consider a range of performance elements as they craft a unified whole. Dancers, too, consider these elements as they integrate a choreographer's vision with their own experience of enacting the dance. In the end, what is hoped for is an integration of the choreographer's vision with dancers' interpretations of that vision in their performance. To close the chapter, I include the reflection of a solo choreographer on a fully developed dance; in essence, Sheri presents the final synthesis of this integrating process.

When I observed Sheri for this study, she was rehearsing a piece that had been previously completed and performed. Recall from Chapter 3, this was a dance based on the events of Kristallnacht; Sheri was running through the piece once again in preparation for an upcoming performance abroad. In contrast to the questions and problems KT and Crispin wrestled with in earlier stages of rehearsal, Sheri's description of the overarching structure of her dance shows the resolution of multiple investigations:

> There's one kind of arc that happens in the course of the dance that is not totally linear, but it is a structuring device in the dance. I'm moving from an image that's very close to death away to something that's very lively, 'life-ly'. And so in the very beginning, you don't see my face, you see my back....And then you see me just do this kind of flip thing... Sometimes when I'm performing the dance, it feels like I'm kicking awake. Like something got moving again. So this is like a step: I'm seen moving across the space, my movements are larger, they move through three dimensions more, my limbs get extended. It starts with me doing the movements upstage and then I eventually work it, you know, it travels downstage. So, [now] there's this quality of sharpness that I was sort of working

with on a really small scale through the torso, and this time it's extended through my whole self.

Sheri is both choreographer and performer in this piece; what is interesting in her account is how she weaves together these different perspectives, combining the experiences of performer with the aesthetic intentions of the choreographer. The structure of her dance reflects what she has learned in both of these roles. Sheri synthesizes visual images, physical experiences and qualities of the movement, spatial relationships on stage and changes in the scale of the movement to create a unified whole. Decisions about what happens when and where on stage convey and support a central structure to the dance, a progression from more deathly images to images that are more "lively, 'life-ly'."

Elsewhere in the interview, Sheri described additional decisions regarding lighting, music, and visual focus: early in the piece, Sheri looks out at the audience while visualizing and responding to a particular scene in her imagination. Near the end of the dance, she looks out at the audience again, but this time *sees* them and is present in the moment with them. The move from an internal focus to an external one, encompassing the present world around her, supports the shift from more deathly to more lively images. Accounts such as Sheri's provide examples of the kinds of information choreographers and dancers attend to as they read, interpret, and construct meaning from movement in performance.

Organizing as a transition

In this chapter, I have concentrated on showing the range of performance elements (both aesthetic and practical) choreographers consider as they organize a complete dance. Choreographers in my study reported examining multiple issues as they sought an overall structure for their work: the energy in the sections, the qualities of the movement, how the audience would be visually introduced to phrases or themes in the work, how these

themes would be highlighted through repetition or rearrangement, how dramatic elements or narrative would be structured and set off from other elements in the dance, how the audience might follow the change or transformation of an idea over time. In the course of developing movement sections and experimenting with their arrangements, choreographers formed a greater understanding of the internal logic unifying the work as a whole. This was not a prescriptive logic, but one that evolved from the work itself, an interplay between the choreographer's goals for the piece and the history of constructing the dance. Although choreographers may never articulate this logic in words, what they *do* in terms of structuring rehearsals and rehearsal activities indicates the path of their thinking. Like the verbal protocols Scardamalia and Bereiter (1994) gathered from writers writing, such accounts of thinking processes are far from linear. The compositional elements that writers might address in the act of writing become in dance multi-dimensional considerations: choreographers foreshadowing a theme consider not only movement and sequence, but also how that movement will be performed and by whom, its placement on stage, the orientation of dancers to one another and to the space, lighting, music, props, etc.

In earlier chapters, I discussed how the system composed of choreographer and dancer(s) learns and accomplishes cognitive tasks. As the examples in this chapter demonstrate, cognition may be distributed not only among individuals but also between individuals and particular cultural tools or artifacts in their surroundings—these, too, become part of the system of activity. Choreographers in my study used video cameras and tapes, pen and paper to *think with*—to record, represent, and coordinate a wide range of information and knowledge relevant to the organizing task. Given this description, dancers too might be considered "tools to think with" in composing a dance, but they are also *co-participants* in the creative process. Crispin used multiple modes of representation over multiple occasions (sketching a plan, talking it through, enacting the plan with dancers) to think through and coordinate elements of performance that needed to be unified in the

final form. Her dancers were not only records/recorders of information, but also active intellectual partners, joining Crispin in thinking through the dance, proposing solutions to problems as they were identified.

Organizing the dance as a whole is significant within the rehearsal process: it marks a transition from generating, exploring, and developing movement material to reviewing, consolidating, and refining what has been created thus far. It also marks an important shift in the relationship between choreographer, dancers, and the dance. Over the course of the rehearsal period, dancers gradually take on more and more of the dance; what begins as a mere idea in the mind of the choreographer at the start of rehearsals must eventually become a fully-formed work performed independently by dancers. Organizing the whole marks a point at which dancers shift from practicing and developing movement to *inhabiting* the movement and imbuing it with meaning. Several participants in the study likened the rehearsal process in dance to the process of composing a script for a performance. Once the organization of the dance is set, they explained, the script is finished, and it is then the dancers' job to interpret and perform it. Unlike actors who receive a script ready-made, however, dancers are present and intimately involved in the writing process, constantly interacting with the author. Ultimately their performance is informed not only by the final script itself, but also by the conversations, interactions, and experiments with the medium that went into composing it.

In the next chapter, I describe the final stages of composing a dance. As choreographers make final edits to the dance, the performers construct the internal experience that will bring to life on stage their experiences of the movement and the history of the dance making.

Chapter 7:
POLISHING THE DANCE, GENERATING A PERFORMANCE

Rob, choreographer and dancer, describes below the point in the development of a dance in which decisions about who is doing what, where, when, and how have been made:

> Getting to a place where you can run it is where I think the piece really starts to grow. Working on all these parts, it's hard to get the form of the piece, hard to feel it, and the tempo of the whole thing, where the climax is and what happens to us over the course of the piece, how the beginning, middle, and end finds its way. That's the end goal—to make a whole, an experience that goes, you know, kinesthetically and every way from the beginning through the end.

At this point, the dance is more or less organized as a whole and is set to the degree that it now can be "run" (repeatedly performed) from start to finish. One might say the dance now exists as a complete draft. It is during this final stage of composing that choreographer and dancers can begin to experience the dance as a whole, whether as a performer within the piece or as a viewer. In dance the process of making final edits to a piece or section is often called "polishing" or "cleaning"; it is a process of clarifying both the aesthetic or conceptual *intent* of the dance as well as its physical *execution*. While both choreographer and dancers are involved in this process, dancers also work on generating a fully-dimensional performance that unites interpretation with movement, creating finally "an experience that goes kinesthetically and every way from the beginning through the end."

This chapter is divided into two parts. In the first part, I show how choreographers and dancers clarify fine details of performance as they polish their work, and how they use a variety of tools to help them with this process. I include in this section a description of

"showings" and how choreographers use their colleagues for editorial feedback on their work. In the second part, I address intention from a dancer's perspective. I show how dancers construct an "internal fiction" or "psychological supports" to perform for the audience a fully embodied interpretation and experience of the dance. For both dancers and choreographers, the final stage of rehearsal is a time to more clearly articulate ideas and intentions in every aspect of the dance. Polishing is in many ways the process of subjecting all parts of the dance to the unifying aesthetic that has been developing or discovered in the course of organizing.

Polishing/Cleaning

I included at the start of the last chapter Scott's timeline of the development of a single dance. His final note on the timeline reads: "September–up to performance: Clean, video, clean. Show to others & make small fixes. Set in space, space it & run it." These are the compositional activities that comprise final preparation for performance. Except for the last activity—setting the dance in the actual performance space and figuring out spatial relationships within that environment—these are among the activities I observed in the studio for those participants who were nearing performance of their pieces. In the following section, I go into more detail as to what cleaning entails.

Rob and Ryan were a little over a week away from performance when I first observed them in the studio working on their dance theater piece, "Entente." This was a piece juxtaposing ideas about high and low art, incorporating text from Shakespeare's *Romeo and Juliet* and the movie *Caddyshack*. On the day that I taped, the organization of the dance was mostly set; Rob later reported, "We had most of the structure; there were a couple of parts that we wanted to develop, that we needed to finish. But what we were ultimately striving for was to finish the structure from A to Z through the whole piece so

that we could start to run it, and through running it find out where the fuzzy areas were choreographically or motivationally."

Both Rob and Ryan were performers in the piece as well as collaborators on the choreography. Without an outside choreographer to direct them, the two made frequent use of videotape at this stage of composing to review their work and plan next steps. When I observed them in the studio, the two were reviewing a tape of the dance they had recorded a day earlier and taking notes on aspects of the performance they wanted to improve. Rob explained how a video camera allows a performer to be the outside observer of his or her own work:

> In rehearsal, if I'm in the piece and we don't have an outside eye, then [the video camera] becomes the objective lens through which we're able to see certain lines in space, how we're using the space, whether or not some parts are as clean as we want them, whether it seems like we're relating, whether it seems like a scene is strong, our motivations are clear and our reactions to each other, all the detail, it just helps with cleaning dynamically and spatially. Whether we think the movement works, or the movement with the text, pretty much anything we can see. Most of it seems like it comes down to cleaning up arms and legs and spatial issues—those are easier to see than dramatic things.

Notice that at this stage in the composing process, Rob remains concerned with design issues and physical execution (lines in space, use of the space, dynamics in the movement). He has added to these concerns, however, issues of motivation and the relationship between the dancers, the movement, and the text the two are speaking. As I mentioned in the last chapter, these types of whole-text issues are generally addressed after the dance has been organized as a whole. Once the "script" of the dance is complete, the dancers work to articulate their interpretations of it in every aspect of performance.

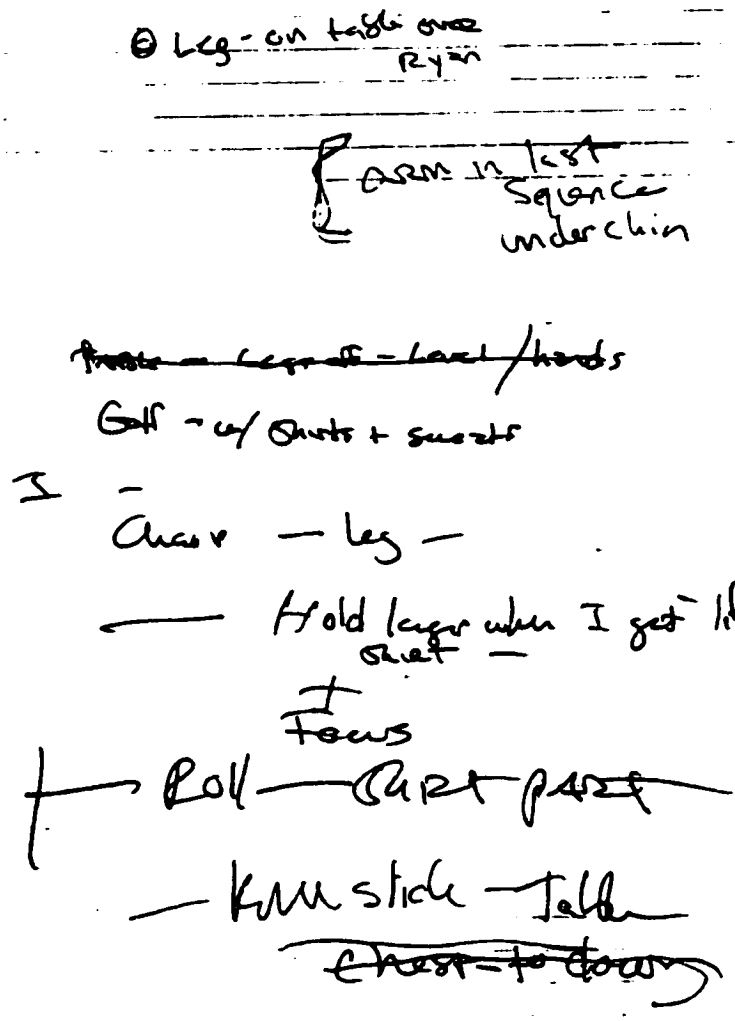
Unlike the large-scope problems I described choreographers working on in earlier chapters, Rob and Ryan's notes for rehearsal emphasize fine-tuning—Figure 7.1 is a copy of the notes the dancers took while watching the tape of their earlier run. Rob's interpretation of the notes, included alongside, show the diversity of issues the two dancers saw as relevant to the task of polishing. There are notes to go over the execution of movement to make it more clear and "clean." as well as notes on timing, spatial relationships, motivation, focus, and verbal articulation. As Rob mentioned in his comment about the "arabesque leg" (second comment), viewing the videotape may also trigger new ideas for a particular section, a new solution to a problem only noticed on the video. While some of the notes functioned as mere reminders to the dancers for the next performance (i.e. "chairs—1st fast"), other notes were about more substantial problems requiring time in the studio to work out.

In the following example, Rob and Ryan work on one of these problems. During the opening of the dance, the dancers perform, symmetrically and in unison, a series of slow movements around and on top of a table. The two devoted half an hour of rehearsal time to cleaning this section—a section that in real time took two and a half minutes to perform. Cleaning requires attention to detail, as Rob later explained:

> We're basically trying to figure out how to do this unison part so that we're really identical. We're making all the decisions about where the hands go, how we're using the table to move our bodies, what cues we can give each other as to when to do the next movement or how fast or slow...We want it to be very symmetrical and very even and very together...so there's all these little parts.

Although the movements were already set and known to each dancer, Rob and Ryan still needed to negotiate "all these little parts" in order to ensure an identical performance.

Dealing again with the absence of an outside observer, Rob and Ryan used additional tools in the environment to help them with their work. Figure 7.2 shows video images of



1) **"Leg on table over Ryan"**: In the opening, my legs come over him and the pathway of my leg and his legs wasn't very clear. So that was something we wanted to clean up.

2) **"Arabesque leg"**: Sometimes I see a new idea on the video, not necessarily something that needs to be stronger. I jump over his shoulder and he says the first line of the next scene....I felt like when looking at it, it would have been stronger if I jumped over him and he just stayed there and said the line and took a beat to change the energy.

3) **"Roll—shirt part"**: We had an idea where we're actually rolling up the sleeves of our shirts...this was one part [of a gesture] that he had put together that was not yet in my muscle memory or wasn't very clean, and so I wrote that down to make sure I went over it.

Figure 7.1 Notes on cleaning taken while viewing video + Rob's verbal interpretation of these notes

Set walking away from Table
"I didn't think you'd understand" don't swallo
- Chairs 1st fast
Focus
Be the Ball

Table Struggle
2 Chairs

Be the ball
STOP kick face

4) Ryan wrote **"Set walking away from table"**—which is after the golf swing, he wanted to start the scene a little bit earlier instead of taking the time to walk down to the chairs.

5) **"I didn't think you'd understand'—don't swallow"**: don't swallow the line...Sometimes the phonetics in the lines get a little blurry.

6) **"Chairs—1st fast"**: There are two little sections with chairs, and the first one seems to work better when we just push through it faster, and the second one will be a little slower, just for a range of tempo.

7) **"Focus"**: I'm not sure which sections, but in general that's usually one of the later things to come after the movement and the text. Where are we looking? In some of the movement sections, are we focusing on each other, around the house, or are we [looking] up and out, on the horizon?

8) Ryan wrote **"Be the ball,"** he's doing this kind of Zen movement and talking about being the ball. He was working a lot on motivation, what he's doing there exactly, how he should move through that.

9) **"Stop kick in the face"** is this fight section where he's pushing me backwards and I need to stop him before I kick him, because when I don't stop him, it's just not as clean.

(Both start from top with upstage hands sliding across back of table)

1 Ryan: (figure on left) Does our hip touch there? (inaudible)

(Both continue, sliding hands to front of table)

2 Rob: So that arm, when that hip comes up, are you doing hip without body, or body? (demos difference) I think we should just do hip without moving in (demos hip to edge of table, looking to mirror), and then move in (brings torso to center of table)

3 Ryan: As this, that arm goes up?

4 Rob: Um, I think we're here (leans torso on arms), and then the legs come up.

5 Ryan: Right. But are the legs with the hand or-- So it goes hip, and then body?

6 Rob: And then fingers, legs together?

7 Ryan: Fingers...(singing) Head, shoulders, knees and toes, knees and toes... (both laugh)

8 Ryan: I'm getting confused. (both go back to beginning stance) Ok, so zoom (sliding hand), hit... Are you sideways though? (looking at Rob) Kinda looks it.

8 Ryan: I'm getting confused. (both go back to beginning stance) Ok, so zoom (sliding hand), hit... Are you sideways though? (looking at Rob) Kinda looks it.

9 Rob: Actually, the front of my leg hits here (shows with hand where leg contacts table)

10 Ryan: (checks on own body) Ok, that's where it's hitting me...

(Begins opening hand slide again) Boom, boom, and then hip (hip on table, both watching in mirror), so, let's see...

(backtracks to last move) It looks like, so your legs come off on the lean in, and then they straighten on that?

11 Rob: I don't know. What if we separated them? Like we could do just the hips,... body,... legs... and hands (demonstrates segmented phrase).

12 Ryan: Yeah

13 Rob: (inaudible) we could do a cue in the tape.

(Both step back to starting positions, begin sequence again)

Figure 7.2 Dancers cleaning opening movement of dance

Rob and Ryan from this episode of cleaning, along with transcription of their talk and actions. The dancers had moved the table from the center of the studio closer to the mirrored wall at front. Here, the dancers were able to note minor discrepancies and make eye contact in the mirror. Throughout the episode, the dancers used the mirror as a tool to reflect on their performance and to communicate with one another. Rob and Ryan began the rehearsal standing at opposite ends of the table, looking to the mirror to check and coordinate the overall shapes of their bodies in relation to the table and to one another.

As the transcript suggests, cleaning in this case involves negotiating exactly what movement will be performed. Rob later explained it as a process of "making and cleaning movement at the same time." In many ways, the exchange between Rob and Ryan closely resembles the talk and action between KT and her dancers as they developed arms for the women's trio (Chapter 5). Notice again that the dancers exchange perceptions or experiences of the movement, and then test and clarify those perceptions before moving on.

By very slowly executing the movements in the opening sequence and watching their performance in the mirror, the dancers were able to identify specific problems with timing and execution. As Figure 7.2 shows, this cleaning episode is actually a series of stops and starts: stops are initiated by confusion or a perceived discrepancy in the movement; the movement is then clarified or negotiated, and agreement begins the run again. In this example, the dancers confront the problem of how to lower their bodies to the table in unison. In Turn 5, Ryan asks for clarification, "Are the legs with the hand or—So it goes hip and then body?" followed by Rob's own query, "And then fingers, legs together?" Each performs the movement again, searching for an answer to their questions. Ryan announces he's getting confused (Turn 7) and begins to articulate the sequence aloud, naming significant cues in the movement (i.e. "hit" refers to the moment when Ryan and Rob's hands meet in the center of the table). His

actions are much like someone pausing to read aloud a confusing sentence, parsing out the vocabulary, making sense of the whole.

Ryan again asks for clarification when he notices that Rob may be turned sideways, slightly outward from the table (Turn 7). This detail and others—just when and where the leg meets the table (Turns 1 and 8), the exact sequence of how the body will be lowered—illustrate the level of specificity involved in cleaning. Rob proposes a solution in Turn 10 that segments the movement into its component parts: first the hip is lifted onto the table, then the torso is lowered toward the center of the table; the legs are then lifted, and finally the hands are repositioned at the front of the table in preparation for the next move. Though less than a second separates each segment of the phrase, the result is indeed a "cleaner" or more clearly articulated action when the two dancers perform it again.

Throughout the episode of cleaning, Rob and Ryan used a variety of strategies to communicate with one another and coordinate their performance. Both used the mirror extensively to see what the other was doing. At times, however, the dancers faced away from the mirror or blocked the other from view. In these instances they verbally described their movement as they performed it, gave sound and/or visual signals (i.e. a hand slap to the table and wave), or if necessary, stopped and watched the other execute the movement individually. The dancers also negotiated strategies to help them coordinate their movement *in performance*. On stage, they would no longer have a mirror or be able to talk through the sequence. In Turn 13 (Figure 7.2), for instance, Rob suggested that the two could coordinate the sequence of hips, body, legs, and hands using a cue in the soundtrack. At other points in the rehearsal, the two proposed strategies for synchronizing their movements such as watching one another under the table or coordinating timing (i.e. "I could wait for you to get where your [arms come together]"). These types of comments were common in the rehearsals I observed, especially for

dances that were nearing performance: "As soon as so-and-so completes her turn, begin the elbows to the right." As George noted in the chapter on setting, he first learns movement in relation to the four walls of the studio, and then begins to learn it in relation to other dancers; in performance, surrounded by dark beyond the stage lights, dancers must learn to organize and cue off a dynamic environment.

During their last run of the sequence in rehearsal, Ryan and Rob negotiated *focus*. Focus might be thought of as the "choreography of eye movement."[1] Ryan included focus on the list of things to do for the day (see again Figure 7.1). As Rob's accompanying comments explain, focus is generally one of the last things to address in creating a performance. In this rehearsal, the two dancers did not bring it up until after they had set the details in the movement and did not have as great a need to use their eyes to note problems. The excerpt illustrated in Figure 7.3 below suggests that the negotiation of focus is relatively straightforward; Rob and Ryan slowly ran through the movement again and easily reached agreement on where they should look and when. Some of their decisions were aesthetic (e.g. Turn 7, "I think a little pan would be cool") while others were practical—e.g. the two had earlier negotiated looking under the table (Turns 11-13) in order to synchronize the next move, a lowering of the outside leg to the floor. In other instances, a choreographer might set the focus for her dancers in order to support particular meaning or dramatic relationships in the dance. KT, for instance, reported that it "made more sense" for her dancers to look at one another during a certain sequence in her dance than for them to *not* look at one another.

The cleaning session closed with Ryan's comment, "Let's tape it to see what it looks like." Although the dancers could certainly see their performance in the mirror,

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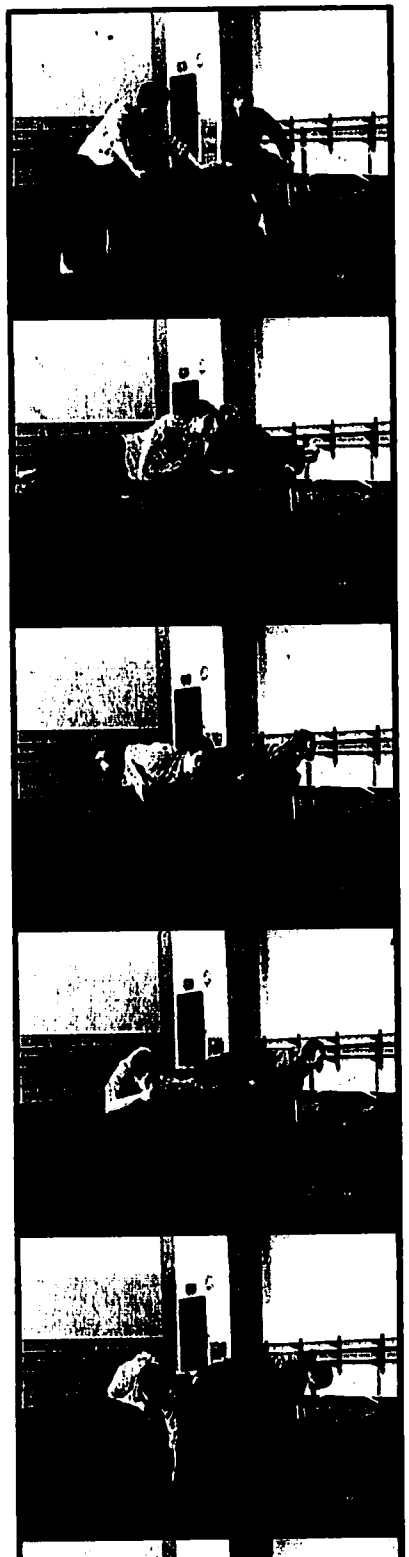
[2] Because the eyes convey so much information about emotions and relationship, choices about focus greatly influence the interpretation of a dance. Almost all participants talked about focus at some point in the study, during either their rehearsal or interview. In books on making dances (i.e. Blom & Chaplin, 1982; Humphrey, 1959), novice choreographers are strongly advised to attend to focus in a composition and to understand its power in relation to the dance.



(Ryan and Rob begin table sequence again, watching in mirror)

1 Ryan: What about our focus? (stops and pulls back to last position)
2 Rob: That's a good question.
3 Ryan: That's a great question.

4 Rob: Maybe look at each other to here (both lean in to center of table) then pan, looking straight out.

5 Ryan: So we're looking out at the house—

6 Ryan: Keep it forward there? Or let it, kind of as you go (gestures with hand, a sweep of focus following the head), let the focus go.

7 Rob: I don't know, what do you think? I think a little pan would be cool.
8 Ryan: Yeah.

9 Rob: Maybe down with the arm? (both follow arms with gaze to corner)

9 Rob: Maybe down with the arm? (both follow arms with gaze to corner)

10 Ryan: And then reaching back (both turn to back)

11 Ryan: We're looking under?

12 Rob: Well, before we were.

13 Ryan: Oh yeah, for this part.

Figure 7.3 Dancers set focus for opening movement

videotaping allowed them to see what an audience member might see and to catch additional discrepancies. The two dancers ran the section once more, in real time with revisions, and taped it. They planned to view the tape again at their next rehearsal and continue to clean the movement as necessary. Again, across the rehearsal timelines created by participants in the study, use of videotape was common; videotaping increased as rehearsals neared performance.

Cleaning with an ensemble: Giving notes

When a choreographer composes a dance on one or more dancers, cleaning often takes the form of individual notes. Choreographers watch the whole dance or sections of the dance and then give verbal notes to the dancers on particular aspects of performance—much like the notes Rob and Ryan took when they watched their videotaped run. (In many ways, they are also like the final edits writers might mark in a document—but as a dance is written on dancers, so too are the edits.) Figure 7.4 provides an example of Amii, a choreographer, giving feedback to her dancers on the day before a performance. Here Amii is the "outside eye," communicating her observations and evaluation of the performance through words and movement. In this example as in Rob and Ryan's case, Amii wanted the dancers to be in unison, performing the same movements synchronously. In Figure 7.4, Images b and c, Amii demonstrated small differences in the way two of the dancers executed a phrase. With such subtle differences, it would be difficult for Amii to make her point through verbal direction alone; she must become each of the dancers to show them what they cannot see from their own perspective. In the last image, Amii demonstrated a moment in the dance in which two of the dancers lower a foot to the knee and immediately arch their upper bodies when it hits. As shown in the accompanying exchange (Turns 3 & 4), it is Amii and Michelle, one of her dancers, who co-construct the fine distinction between performing the movement as demonstrated and performing it with a brief pause between contact and the arch. Although the shift is "subtle," Michelle acknowledges that it matters (Turns 5 & 6).

1 Amii: I think it would be worth our while just to get, to have you guys do your opening once through in perfect unison. It's really close, but there are a couple little places that are off.

2 Amii: I think the thing about this (to Kelly) (rises to demo) is that Lisa uses her hands, she uses her hands to get to up...

and you're just totally sitting upright, and so it just makes it harder and it's a little different.

3 Amii: Alia and Michelle, that looks really nice, (moves to floor to demo) where the foot is like 'ewwww...pchrr!' and then it goes right on the beat. That looks really nice, rather than—

4 Michelle: Staying there and resting.

5 Amii: Yeah. A subtle shift, but you know...

6 Michelle: Yeah, it matters.

Figure 7.4 Amii giving verbal notes to dancers on performance

During this next-to-last rehearsal before the actual performance, Amii watched the dance all the way through and gave notes at the end of the run. At times Amii had the dancers re-perform particular sections as she gave feedback; the dancers then practiced these sections once or twice to solidify the changes. Many of Amii's verbal notes focused on the execution of movement, but they also dealt with timing, spatial relationships, motivation, and the narrative aspects of the piece.

While the dancers received feedback from the choreographer during the polishing stage, they also posed questions of their own. Dancers asked questions about details in the movement or about the relationship between their own performance and the structure of the dance as a whole. In seeking to embody a clear intention, dancers sought to clarify the relationship between the precise execution of their movement and its specific motivation. Focus, again, and its importance in establishing intention, is addressed in the following excerpt. In this example, Kelly, one of Amii's dancers, sought advice to clarify this component of her performance:

1 Kelly: I guess I'm still a little lost in—If I'm not looking at someone, where am I looking?

2 Amii: Like when?

3 Kelly: Um, I don't know, I feel kind of like my focus is all over the place. And I don't, maybe it's because I don't feel comfortable looking out (gestures directly in front) for some reason.

4 Amii: Mmm. How about when you look out on your solo?

5 Kelly: Yeah, that's really the only place that I feel comfortable looking out. So I guess I just don't know what, if we're supposed to find, carry that sort of peeping thing throughout the entire thing or if it's just at specific moments--

6 Amii: Well, no, I think it would be nice to, that first thing, the duet against duet team, the team thing, it seems more like you're just introducing yourself or whatever, like it's the first thing. So especially when you look out there, it's not for you to go, "Hmm, what's going on over there" (demonstrates) it's like "I'm the opposing team, I'm introducing myself." It's like a hello cheer.

7 Lisa riffs on a cheer: I'm here/to tell you... (all laugh)

8 Amii: Ok? I mean I'm sort of proposing these things, 'cause I just want you to start, but that is your own (inaudible) And then is there something else that feels funny?

9 Kelly: Yeah, a little bit. I see this person do this small thing and fall down, so do I acknowledge what's going on below me or do I just walk out? What am I doing?

10 Amii: You walk out to support Michelle.
11 Kelly: Ok.

In this example, Amii helped Kelly to solve a problem she experienced as a dancer. Kelly felt "lost" without a clear idea of where or why she was supposed to be looking and worried about how that would affect the dance. As she expressed later, "I feel insecure because I don't know what my focus is...I feel like I have no intention, therefore I *look* like I have no intention." In the excerpt above, Amii asked Kelly to talk about the particular places in the dance where she had trouble with focus, then provided specific ideas or images that might help Kelly embody an intention. Note here the very subtle differences in how Kelly might visually attend to the environment around her: though the movement may be performed in the same way, looking out as if asking "What's going on over there?" differs from looking out in order to introduce oneself (Turn 6). In Turn 9, Kelly identifies a point in the dance where one might naturally be motivated to attend to the person who falls down; in this case however, Amii gives her a different intention to embody--to "support Michelle" (Turns 9 & 10). In Turn 8, Amii makes clear that she sees her role as offering suggestions ("I'm sort of proposing these things") and that Kelly is free to adopt them if they are helpful.

Kelly's concern about focus in this excerpt reflects a more general concern about intention expressed by many of the dancers in my study. As I will address in greater detail later in this chapter, dancers saw themselves as responsible for conveying a clear intention or purpose to their movement and valued intention as an important element of a strong performance. By encouraging Kelly to reflect on parts of her dance where she felt uncomfortable and suggesting possible ways that Kelly might focus on the audience, Amii helped Kelly to develop a plausible motivation for her actions. Through such exchanges during rehearsal, choreographer and dancers mutually constructed a performance that conveyed the choreographer's vision for the dance.

Showings

Just as writers have editors to read and comment on their work, so too do choreographers. Trusted friends and colleagues were often invited by choreographers to view nearly finished dances and offer constructive criticism. The day I observed Rob and Ryan in rehearsal, they were adding a contrast in the dynamics of the movement in one section and working on enlarging the floor space they would utilize on stage—suggestions offered by a friend who had observed their rehearsal days earlier. Later in the week, I attended an informal studio showing of the full piece, with soundtrack and costumes but no lighting. To this performance, Rob and Ryan had invited a range of family, friends, and colleagues with different levels of experience in dance. In this case, most of the audience members were unfamiliar with earlier versions of the dance and were able to provide feedback based on the single viewing audience members typically have.

Figure 7.5 is Rob's summary of the notes he took from the showing, rewritten and organized on a notepad as a plan for the next rehearsal. Like the comments from editors and reviewers reading a manuscript for the first time, the remarks Rob gathered represent aspects of the performance he and Ryan could not perceive themselves; the two dancers were too close or familiar with the piece, or some things simply would not be apparent on videotape. Although a cryptic list with little meaning for anyone unfamiliar with the dance, Rob's explanation of the items shows just how they inspired revision of the work.

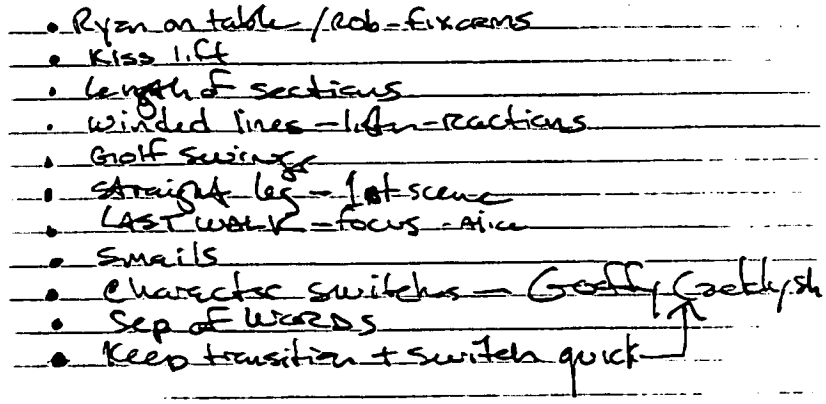


Figure 7.5 Notes taken in response to comments made after studio showing

Some of the comments from viewers were about small or superficial aspects of the dance; other comments inspired deeper thought on the dance as a whole. In the excerpt below, Rob reflected on conflicting comments made about the last section in the piece, a section in which Ryan performs a series of movements standing on the table center stage, and Rob circles with his own movement:

> We put [this part] in because we were trying to find places where we could extend the piece. [Last week, our friend] had mentioned that [Ryan and I] were always together, always connected, and that if we did something different, if we separated ourselves, that would be refreshing. She still felt that way at the showing, but other people mentioned that this is where they lost the connection between us...this is where they lost the line of the piece... So the problem became how could we keep the connection between us and still have this transition into something a little more introspective? That's what the last scene feels like to us, we're both kind of scared and feeling alone but together. The solitude of Ryan up there—with the lighting we have in mind—he's going to be kind of isolated and you're just going to see little glimpses of me. So it came out that if I were to make a relationship between what I was doing around the table and what he was doing—you know, his right hand is in a fist at a right angle to his chin, and as I'm traveling, I [might] accentuate that line, so that we create a relationship between lines and the vocabulary even though we're separated and we're dynamically different. That may just keep the connection between us enough so that that section doesn't feel like it's coming out of nowhere.

In essence, Rob gives an account of integrating constructive criticism in the composing process. Rob and Ryan created the final table section partly to lengthen the piece and partly to respond to an earlier critique that the two dancers were always together. The new "introspective" section in which the dancers are separate, however, was interpreted

by some viewers at the showing as problematic. In the excerpt above, Rob envisioned a solution for the section that also came out of suggestions offered during the showing.

Generating the performance

From the perspective of the dancers, polishing the performance is a generative or creative process, at least internally. While choreographers refine the final shape the dance will take, dancers infuse that shape with purpose and meaning. In contrast to other compositional activities I've described in these chapters, dancers in my study reported that the process of developing an internal script is largely individual and private. In the following section, I build on ideas I began to address in the last chapter about how dancers (with help from the choreographer) take a "movement script" and develop a fully embodied performance.

Developing intention

As I've described in earlier chapters, dancers gather information about the meaning or content of the dance from a variety of sources: the title of the piece, discussions about content, the movement itself and the structure of the dance as a whole, or specific words, images, music, etc. supplied by the choreographer. Dancers also bring their personal experiences to the interpretation of movement—the experience of performing the movement, or perhaps an experience that inspired its creation. All of this information is gathered over the course of rehearsals and through multiple interactions between choreographer and dancers. As George described it, "The rehearsal process is itself a dialogue. I mean, whether it's talked about or not, getting, as a dancer being given material, and knowing maybe a title or something, it's an ongoing investigation of what might be communicated to you or from you." Rob echoed the dialogue analogy to describe the rehearsal process: "I think sometimes...you get to a point where you've

made all the movement or whatever, and you go back and you have to remind yourself where you started in a way. But...those conversations keep going on, it's not that you sit there and talk about it and then make the dance, but there's, even in just subtle kinds of conversation, a reminding of what [the dance is about]."

This ongoing investigation/dialogue between choreographer and dancers of what might be communicated and how is perhaps at the heart of composing in dance. It is a lengthy and involved conversation, only part of which takes place verbally. When choreographers organize the dance as a whole (see Chapter 6), they essentially organize and make sense of the conversation. As they make final edits and polish the dance, choreographers are in many ways concluding their role in the dialogue; it is the dancers, in the end, who present to an audience the products of this joint investigation.

In the final stages of composing, dancers take the information they have gathered over the course of rehearsals and synthesize it in the creation of a personal subtext for the dance. This process is much like the process actors go through when preparing a theater performance: beyond learning their lines and actions on stage, actors must also create objectives that give credibility and purpose to their lines and actions. An actor's objectives often guide his or her actions moment to moment; they *support* but are not *the same as* the director's intention for the play as a whole. If and when an actor's choices do not support the director's vision for the performance, they are often corrected with specific direction. It is this aspect of a dramatic performance that distinguishes rote execution from a "lived" performance. In dance, creation of a personal subtext appears to serve a similar function, moving the performance beyond mere locomotion to a fully embodied dance.

Unlike actors' objectives, dancers' intentions often extend beyond narrative motivation to more abstract concepts. The dancers in my study described creating a movement subtext

from remembered experiences from daily life (including prior rehearsals), images visualized while performing (e.g. a seascape; melting), attention to particular sensations in the movement, or invented dramatic scenarios with other performers. Like actors, dancers saw the development of intention as highly personal; once developed, these intentions were rarely shared aloud. Dancers developed intentions gradually throughout the rehearsal process, but like the rest of the dance, these were often clarified and elaborated during the stages of running the dance (and often during the actual performance as well). George sought an apt metaphor to describe a dancer's process of finding meaning in the dance as it is being created:

> The rehearsal process is like watching a landscape fall down around you....things start popping down in the world around you.... It's like a maze you have to learn to negotiate as it's being built. You know how to get to the end and then someone puts up a wall. So then you need to find another way....I feel like as a dancer, that's the biggest task: things are getting created and created, and you have to figure out—intention is an exploration of getting from A to B as the path from A to B continues to change....You have to learn to negotiate a maze that's constantly changing, and then you have to figure out why you're going from A to B. [And] every time [you rehearse the dance] until it's completed, or until the structure's there, you are finding, you are learning more and more about your path.

As the dance is built, dancers are given more and more material for their own creative process. Dancers considered the final stages of composing highly generative; as Rob commented in this chapter's opening quote, "Getting to a place where you can run it is where the piece really starts to grow."

As shown earlier in the discussion about focus between Kelly and Amii, choreographers may assist dancers in finding intention to support movement. In another example, Rob reported giving his dancers particular qualities or images as a motivating force in the

movement. In this piece choreographed for three women, the movement and music were unrelenting:

> There's no speaking, it's just a pure movement piece, and all I could tell them was kind of my images around, you know, what I felt the piece was about, and it wasn't something literal or narrative necessarily. It was a kind of quality, and that quality should become their motivation. That's what I tried to give them as far as how to attack the movement spatially and dynamically, in their focus and in their bodies.

In essence, intentions synthesize images in mind and body.

Occasionally, dancers may share among themselves solutions to the problem of intention, though I found such exchanges rare in the rehearsals I observed. Lisa, another dancer in Amii's ensemble, contributed to the conversation about intention by sharing a particular image she'd developed from the title of the piece, "Molting":

1 Lisa: You know what helped me this time? Really seeing snakes shedding their skin.
2 Amii: Seeing it the whole way through?
3 Lisa: The whole way through. Just like crawling or—
4 Amii: (to Kelly, joking) I don't think you're going deep enough.
5 Kelly: I'm not! (all laugh)
6 Lisa: Just like nodding to begin the molt, I don't know. Ok, that was just me then, it got really snaky for me. Not snaky but shedding.

In this excerpt, Lisa is lightheartedly teased on her choice of a motivating image. Her apologetic response, "Ok, that was just me then" (Turn 6) suggests just how personal these images are or can be. For Lisa, the image of snakes shedding their skin helped her make sense of the movement or, in George's words, gave her "something to perform". A simple movement—a nod in the beginning phrase of the dance—became for Lisa a place to begin "molting".

When developing their movement theater piece "Entente," Rob and Ryan looked to the words and narrative relationships portrayed in texts that inspired the piece—the movie

Caddyshack and Shakespeare's *Romeo and Juliet*. As Rob explained it, motivation and movement evolved together. Motivation here was linked to the development of specific characters and the actions of those characters:

> In this piece, everything stems from the scenes, it comes from the text, who we are. If I'm the goofy kid and Ryan's the mentor and he's showing me how to do something, you know, I've got to maintain that kid in my posture and in my voice, and he's got to maintain the mentor... So in "being the ball" that rolling back and forth, I do it a little bit goofier than he did, and that all just comes from the lines. And [when] we're doing the Shakespeare and we're kind of being buddies and kind of fighting, we go 'Oh, you're always causing trouble'—The movement is kind of athletic, the way kids are, the way guys are. Kind of challenging each other on little balances and very athletic, low-to-the-ground movement. So the characters give us the motivation, and that motivation transfers into a quality, and we start to build the movement.

While text might suggest specific qualities that in turn inspire movement vocabulary, embodying the particular motivations of characters may be more subtle. During the showing of their dance, Rob and Ryan received critiques regarding motivation. For Rob, it was a matter of attending equally to movement and intention: "We'd lost our characters, we'd been paying so much attention to all the movement in the space...That was strong, but what we needed to focus on now was really being in the world of *Caddyshack*, being a little goofier, you know, being those characters more and maintaining the uprightness and nobility of the Shakespeare characters." In the final stages of editing their work, Rob and Ryan focused on fine-tuning distinctions in the characters and worlds they'd created through movement and text, thus clarifying the juxtaposition between high and low art that was the intention of the piece as a whole.

Intention: Dancer's vs. Choreographer's

Choreographers may give dancers particular images or scenarios to think about as they execute movement, but as I mentioned earlier, much of the work of creating a subtext or finding the intention behind the movement is personal work for each dancer. Dancers and choreographers may or may not have the same ideas about what is to be conveyed in the movement. As George explained,

> [The choreographer might say] things like "This is a grassy field," or "You're watching a ship receding from the horizon," things like that, that create a kind of environment...In a given performance, there might be two or three of those things that come from a choreographer and twenty things that come from me that I do. And with respect [for the choreographer], I try and do them in rehearsal, I try to do them consistently when we run things so that if it's wrong, I get feedback...[W]hen we're running things...that's when I start playing with images and different things, like I try to come up with a—I don't want to say 'narrative' because it rarely exists like that; it's more like 'support psychology.'

As with actors' objectives, a dancer's intentions are rarely addressed by the choreographer unless they appear to conflict with the choreographer's vision for what the movement should convey. The choreographers in my study appeared otherwise reluctant to interfere in the process, preferring that dancers themselves find an organic relationship to the movement. Crispin commented,

> I find that in rehearsal the only time I have to talk about intention is when something's not working. And it seems to be about execution, it's when execution is awkward, so that I have to give an extra or more tangible idea to somebody so that their body and mind can do the same thing together....My preferred method is to have intention come from the activity itself so that the relationship, the movement and relationships both evoke intention in the performer from doing it and from the practice of doing it over and over again...Understanding the

> emotional shape of that thing in the world then loops back into incoming intention for that performer.

For Crispin, an effective intention unites body and mind. It may be one thing for dancers to "learn" the physical text, and yet another for them to effectively embody its meaning. For Crispin and other participants in the study, it is the practice of doing the movement and running the dance that leads to "understanding the emotional shape of that thing in the world," or what the movement both evokes and signifies for the dancer in a larger social/emotional context.

Lila, a dancer in Crispin's company, expressed fascination with the fact that her own discoveries about the material might have little to do with Crispin's overall choreographic vision:

> [Crispin and I] spend a lot of time talking because we write grants together...and I feel like I have a lot of information [about the dance]. In rehearsal, I don't forget about all that...but when the movement comes, I learn the movement, and that's the fascinating moment, like what do *I* feel when I'm doing this thing that came out of [someone else's] pretty clear intention? ...What does it feel like to do it? Does it have anything to do with the [original] intention, and if it doesn't, how do I sync it up? Like, *I'm* going to be doing this movement, so how do I, what do I do with the original intention? ...It's just a fascinating part of the process, as a dancer of somebody else's work.

Lila recognizes that the intention must have meaning for her, since she will be the one to perform the movement, yet her choices must also "sync up" with the overall intention for the piece. Lila describes another example of the dancer's challenge: how to be oneself as an individual and simultaneously participate in another's creative process.

Lisa, a dancer in Amii's company, described intention as an "inner landscape." She echoed Crispin's description of intention as a representation that unites mind and body, and again, as something that is not necessarily known by the choreographer:

> I have my own inner landscape that's going on all the time, that's really often malleable and ever-changing. But some things are definite....[Like the phrase we made from the writing exercise], every time we do that particular section, it's mental, it's an idea, and it's also my body, it's all one 'cause it's not disconnected. So when I do that particular section, I know exactly where I am, what's going on, what I'm doing, how I feel about it. Now I don't know if that's what Amii [the choreographer] sees, but I know what I'm doing. I know my intention.

Lisa's last comment here emphasizes a point made by several participants in the study: that intentions behind movement do not necessarily need to be known by the choreographer. For Amii, the specific details of her dancers' inner representations matter less than the fact that they have them. To Amii, it's the clarity of intention that makes a compelling performance: "I think that not in a million years would you know that [they were dancing about grief], but the performers all know what they're doing, and so there's a clarity to their intention, and we notice that and it's so satisfying." George believes he is an interesting performer *because* of his abilities to create an "internal fiction:" "Part of [being an interesting performer] I think is creating an internal fiction or experience. Like I could look out at the audience and decide my focus is going to be ten rows back and up, or I can be in a car with my feet on the dashboard watching the landscape go by. And I really believe that matters."

It is interesting to note the language used by dancers when talking about personal intention: dancers perform on stage but they also perform in an imagined "environment" or "landscape," or in the "worlds" of *Caddyshack* and Shakespeare. These too may be features of the environment—here an *internal* environment—which dancers think with in

the act of composing. In this sense, cognition is situated not only in the interactions between dancers and the material world around them, but also in their interactions with an internal, fictive world. These kinds of mental images go beyond a blacksmith's image of what a snub-end scroll should look like, or the color of the iron when it is ready to be forged. The creation of and interaction with an internal world may be an important element of composing, particularly in the arts: Novelists describe getting to know their characters or waiting for their characters to speak through them; musical composers describe listening to the voices of instruments and trying to write and realize the musical dramas or landscapes they hear inside their heads (Swados, 1988). While the actual form of these "intentions" varies, their purpose is to embody or bring to life the work of art. In an ensemble, the final composition is a combination of socially and individually constructed worlds.

Learning through Performance

As a group, the dancers and choreographers who participated in this study discussed the relationship between the vocabulary of the dance and the experience of the audience. The actual "text" of a dance, they proposed, was the performance itself; the text lay in between the movement vocabulary and the experience of the audience. Vocabulary as discreet movements, George argued, did not have meaning, "But the fact that I do this series of things together, and I come downstage, and I'm left alone, and that is what the audience sees, that's what means something." Sarah, a dancer and group discussion participant, agreed, adding,

> Dancers believe, I know I believe, that if I can live out, recreate the living out of that movement experience, the phenomenon that we created in the studio and that we named, if I can live it out, even if they don't interpret it the same, it will be the same, it will have the same meaning.

She went on to explain how the whole rehearsal process informs the performance of a dancer on stage:

> [The audience sees] you the performer living in that experience and that's what they respond to, that's where they make meaning. The ways that dance groups create work, like discovering the vocabulary, the way they do that and the discourse that happens between everyone when that's going on, that creates the person, or the performer in a sense, or the future performer, that's where they're born. Because you're making meaning right there at the beginning. And so then that person goes on stage, [and the audience is] going to see not just the vocabulary that person's doing, but that person that was born in the studio.

In the end, dancers consolidate learning over a rehearsal process in their performance. In effect, the performance is a work of art *mediated* by dancers.

Considered this way, a performance itself is an example of distributed cognition, as an audience interacts with the dance/dancers as text. Many dancers in my study, as well as those choreographers who performed in their own dances, reported that they continued to learn about the dance through performing it. Sheri expressed that being live on stage had an intensity in and of itself:

> Having an audience changes everything...there is actually a relationship with the audience that is going on. You're actually expressing something to somebody, to many somebodies hopefully. And so the full dynamic of it as an art form, as a mode of expression is, it's the first time it's in full play really. And so it can happen that I'll be on stage, and I'll be like 'Oh, I've never realized—now I understand why I take so long here, I can even take longer. I can feel the audience's attention on it.'

Others agreed that with the addition of an audience, as well as lights, music, costumes, etc., they could finally see the piece in its full manifestation. Sheri explained,

> It's very rare for a choreographer to work with full technical support until dress rehearsal, the day before the performance. And so as you see the piece get formed, with light and with sound, you SEE it, it's there for you... Even when I'm

> establishing the light before I perform and I get somebody in the space and I see what that light is going to look like, I know something more about how the audience is going to see that movement... You can always visualize how you want things, but to actually see it, to have the feedback of the actual, visual information, sonic information coming back at you, it just lifts off, it takes things to another level.

Dancers and choreographers described a decisiveness to performance; they reported that once performed, they finally knew what the composition *was*.

Composing as transformation

A dance develops and takes shape over a course of rehearsals, finally coming into its own in performance as a distinct entity, a work of art. As I have shown over the last five chapters, choreographer and dancers are co-participants in this process, essential components in a system of activity engaged in creating a dance. While choreographer and dancers have different roles in this process, each undergoes within his or her role a gradual and necessary transformation. George in effect sums up the final shift in his comment, "There's a point when the dancers really take over—by the time it's on stage, what can the choreographer do, except have rehearsed people well and edited out any unwanted content generated by dancers."

Over the stages of composing, dancers move from being learners and recorders of movement, to interpreters of movement, and finally, to *performers* of a dance. Choreographers transform from designers of ideas and directors of a creative process to sculptors of material, and finally, beholders of a finished work. These changes—in the state of the system and in the composition of the dance—are effected through interactions. The joint tasks of composing—orienting dancers to the choreographer's

goals, generating material, developing sections, structuring the whole, polishing the performance—provide the context through which a dance gets made. Similar interactions between an artist and his or her medium may characterize the transformational nature of composing in general. In dance, however, composing between choreographer and dancers includes the conscious development of intersensitivity to the evolving dance. It is this intersensitivity that nurtures the creativity of the system as a whole and results, finally, in a fully realized performance.

In the last chapter, I discuss the implications of this study for how we conceive of cognition, learning, and creative work.

Chapter 8:
CONCLUSIONS

What we know about cognition is constantly being expanded by studies of thinking and knowing in new contexts. In this study, I was interested in learning about how choreographers and dancers compose a dance. Research on cognition has, for the most part, not paid much attention to the arts as a way of thinking and knowing. Yet choreography possesses multiple features that make it unique as a cognitive activity and therefore rich with potential for expanding understandings of cognition. Specifically, I sought to learn how choreographers and dancers working together and using their bodies to create art might contribute to a greater understanding of distributed cognition, creative work, and the role of sensory perceptions in thinking and knowing. To answer my research questions, I studied ten dancers and choreographers in rehearsal or teaching class. I videotaped participants at work in the studio, later interviewed them individually about what went on in that session, and finally had all participants together to talk as a group about making dances. In this chapter, I discuss the limitations of my study as well as the implications of my findings for how we understand cognition, learning, and creative thinking.

Limitations

In writing up the results of my study here, I chose to focus my analysis on data gathered from rehearsals only, and therefore narrowed my attention to the eight participants who were videotaped in this context (as opposed to teaching a class). While I purposely selected participants at different stages in the making of a piece in order to gain a broad understanding of the composing process, this decision also resulted in having a small sample of subjects to represent each stage. Participants provided additional information

about the full rehearsal process during individual interviews and the during the group discussion, where they created timelines to show the evolution of a specific dance from conception to performance. Nevertheless, it would be interesting to conduct one or more longitudinal studies of a dance-in-the-making to see if the processes and stages of composing I have described here hold true across a single extended case. Such a study might also yield more information about the iterative and evolutionary nature of composing in dance and capture a broader view of the influences/agents involved in its creation (i.e. composers, lighting and costume designers, etc.). I purposely focused my scope of distributed activity in this study to the interactions between choreographer and dancers, but the interactions between choreographer and other persons/elements of the "art world" (Becker, 1982) may also play an important role in how a dance is made.

Another potential limitation of this study is that I chose to investigate contemporary dance choreography. I made this choice with the belief that contemporary forms of dance (as opposed to folk dance or spectacle dance) would yield the greatest information about choreography as an art form. However, this means that the claims I have made here about how a dance is made may not hold up in studies of choreography in other forms of dance. It is also true that my participants represent a small sample of choreographers and dancers in the Seattle/northwest Washington dance community. Although almost all participants have toured nationally and internationally, they may have fairly similar approaches to and philosophies about choreography by virtue of their proximity and contact in practice. Seattle has a reputation as an up-and-coming city for dance, but this may mean that Seattle itself is different from other dance communities. Again, further studies on choreography in different contexts are warranted.

My study on composing in dance represents but one study in a field that is grossly under-researched. There is much to learn about dance, composing, and thinking in the arts. In

the paragraphs that follow, I try to sketch out the implications of my findings for how we understand cognitive activity and what these might mean for future research.

Distributed cognition: Choreography as a system of activity

Composing in dance, I have argued in earlier chapters, might best be conceived as a distributed system of activity. Through this activity, both the system and the individuals within the system learn. The specific roles of choreographer and dancer and the progressive nature of composing make choreography a good case for understanding the relationship of individual cognitions to "system thinking" and to the learning of the whole. One challenge for a theory of cognition based on a distributed system is to show 1) how the products of the system change from one occasion to another, and 2) how the relationships between the different "intellectual partners" in the system contribute to this change (Salomon, 1993). I have tried to summarize in Figure 8.1 the distributed system of both individual and joint activity in the making of a dance. The figure shows how the dance itself progresses from a few ideas to a polished performance and how the relationships between choreographer, dancer(s), and the tools they work with contribute to this change. Below I explain the figure in greater detail and attempt to highlight what choreography adds to an understanding of system learning.

In Figure 8.1, the three columns comprise the entire distributed system of activity in composing a dance. The central column depicts the evolution of the dance over time and the joint activities of choreographer and dancers that contribute to this change. I've listed in this column the general stages of rehearsal as described in previous chapters and the nature of activities at each stage. Because setting is more or less an infinite activity, encompassing the process of "settling on" decisions for the composition as well as setting movement in and on bodies, I have used it here as an umbrella process over the joint activity of choreographer and dancers as a whole. (To some extent, the activities that are

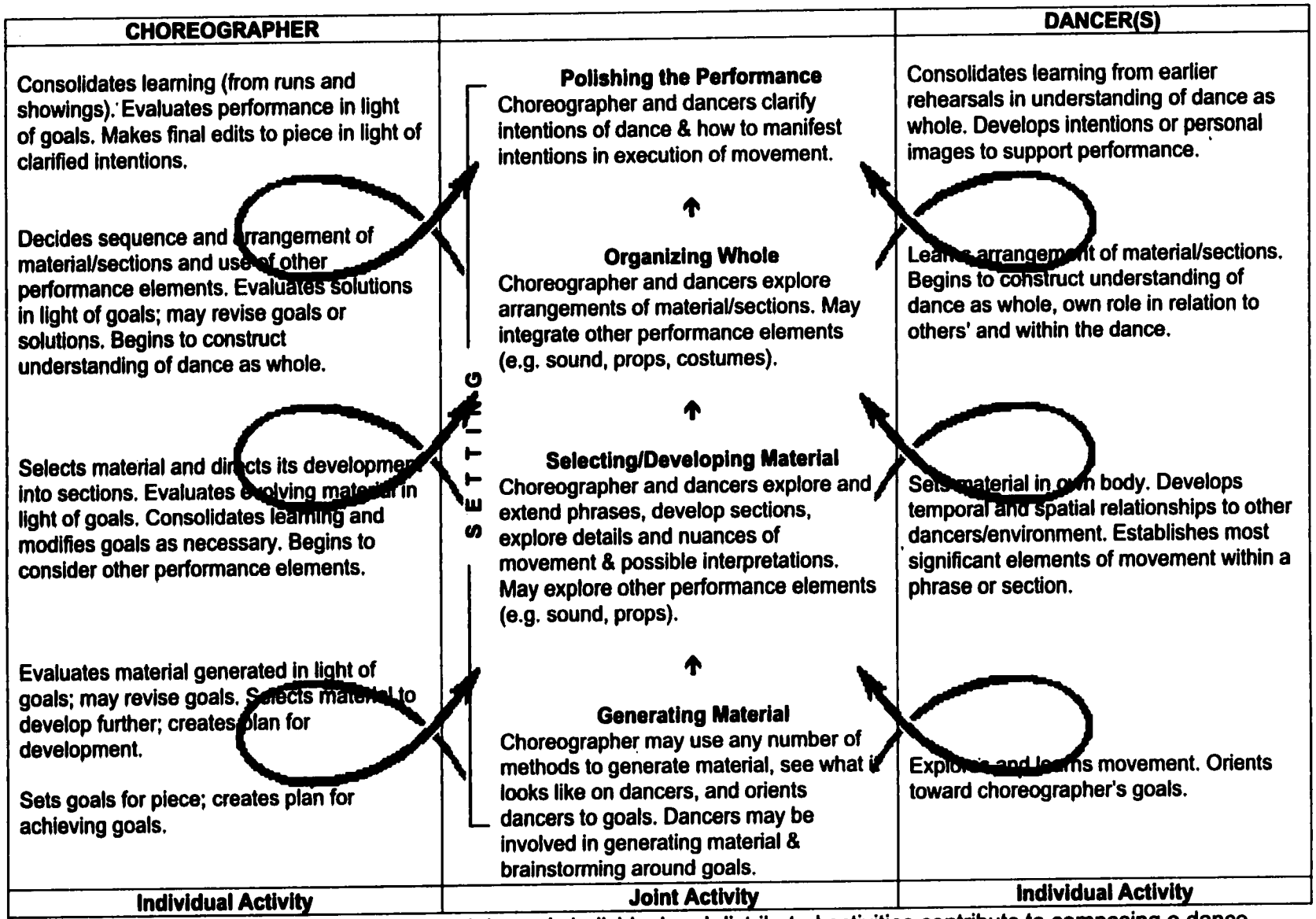


Figure 8.1 Diagram of how choreographer and dancer's individual and distributed activities contribute to composing a dance

joint depend on the style of choreographer, or ways in which the choreographer encourages or discourages participation by dancers in the composing process.)

The columns on the left and right describe, respectively, the individual cognitive activities of choreographer and dancer(s). These, too, change over time, and they have a reciprocal relationship with the central joint activities as indicated by the arrows. Salomon (1993) has represented this reciprocal relationship as a spiral of sorts, explaining that "individuals' cognitions engage in activities affording distributed cognitions, which in turn cultivate individual cognitions" and so forth (p. 119). In Salomon's diagram there is a single spiral; I have attempted to show here how two specific roles in this system contribute to the cognitive accomplishments of the system overall.

Although not described in the figure, choreographer and dancers may use tools to think with in the activities described in any one of these columns. When Crispin brought her notebook to rehearsal and shared with her dancers her tentative structure for the dance, for instance, the sketch/outline served as a mediating tool in a joint activity. Crispin not only read from her sketch, but also modified it (crossed out sections, drew arrows, wrote notes in the margins) in response to discussion with her dancers. Choreographers also may review videotapes of rehearsal alone and outside of the studio when they're evaluating a potential arrangement of material. And dancers may spontaneously use the studio mirrors to learn movement. In each of these instances, particular tools, representations, or features of the environment enable individual and joint cognition and contribute to the overall functioning of the system.

That the individual cognitive activity of both choreographer and dancers appear on either side of the joint activity is an important feature in Figure 8.1. I have argued in earlier chapters that choreographer and dancers play unique roles in composing a dance. These

roles can be described in terms of how they influence the operation of the distributed system as a whole. Hutchins (1995), for instance, distinguishes between *evolution* and *design* in describing how a system changes over time. Evolution, Hutchins argues, is adaptive change by a system in terms of itself. Such change can be characterized as "local adjustment" by members of a system in relation to situations and events happening within the system. In contrast, design is a process conducted by an "outsider" on representations of the system. Design in Hutchins' view includes a more global perspective on the system; design "precedes and guides an implementation of changes that are intended to be adaptive" (p. 349). Hutchins concluded that the changes he observed in the organization of the navigation team he studied were in part evolutionary and in part a process between evolution and pure design.

Such a combination of change processes can be seen in the functioning of a dance ensemble as well, yet these processes are more clearly divided between the roles of choreographer and dancer. As I have shown in earlier chapters, choreographers must keep in mind an executive view of the dance as a whole, projecting forward and casting back over rehearsals in order to shape and develop movement material into a unified composition. While not necessarily "outsiders" of the system, choreographers do (literally) step outside the constructions of the system in order to conduct design operations. The changes they implement in the system are intentional, the result of supervisory reflections on the whole. We can say that choreographers are primarily responsible for the design function within the system; as shown in Figure 8.1, they conduct executive activity: making choices about the options that will be explored, planning a path of action, evaluating the results. When KT engages her dancers in "round robin" watching, she does not forfeit the role of choreographer but rather engages her dancers *in the design function* of the system. This might also be said of choreographers who ask their dancers to generate material independently for the dance. Lisa, for instance,

must take the writing assignment she is given by Amii and turn it into a compositional problem for herself.

In contrast, the changes dancers implement in the system are primarily evolutionary. Dancers adapt locally to direction from outside. In learning movement, for instance, they learn how to execute it in their own bodies, and they learn to make the movement their own. They make adjustments to their local views of the dance, to their actions in relation to other dancers and to the environment as they rehearse. Through their suggestions for changes, their spontaneous improvisations and/or mistakes, even the "internal fictions" they may create to support the performance, dancers influence the composition of a dance within the terms of the system itself. One example of this local adjustment is the self-monitoring and correction that Crispin's dancers make as they receive direction from Crispin, and when they rehearse the quartet independently. Like the choreographer's actions, dancers' actions, too, further the process of composing (the task of the system) but in a way that is less intentional in terms of the overall design. In the joint activities of choreographer and dancers (the middle column in Figure 8.1), the evolutionary and design functions of the system are woven together. The interpersonal dependencies of the system in promoting change toward an end goal are most evident here. Choreographers stepping into the role of dancer in order to understand how to modify or develop a phrase may be one example here, as well as dancers' function as extended memory or record of the evolving text.

Choreography and learning

The relationship between choreographers and dancers that emerges from looking at choreography as a distributed system is unique. This relationship, I want to argue, represents a model of learning that has been little explored. What and how choreographer and dancers learn over the course of composing a dance is not easily categorized under current cognitive theory or understandings of how people learn. The relationship between

choreographer and dancers does not fit, for instance, the traditional didactic model present in many classrooms. Choreographers in this study rarely knew ahead of time the particular knowledge or skills they wanted their dancers to acquire. As a result, they were often inventing and solving problems alongside their dancers. While direct instruction *was* evident in rehearsals when specific movement was taught or corrected, it wasn't unique to the choreographer. As I noted in Chapter 4, Crispin's dancers readily moved to direct instruction when teaching one another their set phrases. Thus this type of instruction may be appropriate for accomplishing particular *tasks* in the making of a dance, but it does not describe the general relationship between choreographer and dancers and how the system learns.

As KT noted, the composing process in dance is also not a true collaboration between choreographer and dancers. Proposals offered by each member of an ensemble do not carry equal weight, and the group does not deliberate over creative decisions. While the dancers participate in the composing process to varying degrees, it is the choreographer as I have noted above who plays the executive role. He or she creates openings for dancers to participate in the composing process and decides exactly how their contributions will be used.

Apprenticeship is another model of how people learn from interactions with one another, but here, too, the model is not appropriate to describe the relationship between choreographer and dancers. While dancers may indeed learn something about choreography by participating in a dance, they are not apprenticing choreographers in this situation. Nor is the choreographer (necessarily) a master teacher teaching dancers how to improve their dancing. Lave and Wenger (1991) have expanded on the concept of apprenticeship by looking more broadly at how learning occurs within a community of practice, or group of practitioners in a field. They use the term "legitimate peripheral participation" to describe how a learner or "newcomer" to a community of practice

proceeds through various peripheral roles, increasing in responsibility and skill requirements, to the role of "expert". This description of communal learning may be partly true of the dance community generally (if one views a choreographer as the "expert"); novice choreographers often dance in other choreographers' work at the same time they are composing their own pieces. But the sets of skills choreographers and dancers practice in rehearsal are very different from one another, and many dancers never wish to chorcograph. Furthermore, the model of legitimate peripheral participation does not work to describe the learning that choreographer and dancers experience in the making of a single dance. The model of learning represented by choreographer and dancers as co-participants in a system of activity may be worth looking for in other contexts, as I will address further on.

Other researchers have tried to describe how learning takes place among members of a community of practice or system of activity. Hutchins (1995) for example, diagrams how an organization changes over time using the Navy ship as a case study. He demonstrates through his research how both the individuals and the practice change through the activity of the system. He uses the system itself as his unit of analysis, describing redundancies built into the system, how people learn various roles and move through roles of increasing responsibility, how the system functions to deal with turnover in personnel, with problems or breakdowns, and with innovations in practice or technology. His case, however, is a highly coordinated system; the problems it goes about solving are routine. The system he describes does not seek and solve creative problems nor does it attempt to articulate and realize an aesthetic intention using a metaphoric vocabulary.

Although the system Hutchins describes is unlike the system comprised of choreographer and dancers, his definition of learning is broadly applicable. He describes learning as "adaptive reorganization in a complex system" (1995, p. 270)—he argues that the definition works well for learning situated in the socio-material world and it works

equally well for private discoveries made in moments of reflective thought. What is it that one adapts to in each of these cases? In most of Hutchins' examples, Navy personnel are adapting to moment-to-moment changes in the environment; people are shifted around and new tools are engaged as the system adapts to problems presented by the environment itself, or by the task at hand. In reflective thought, it may be changes in representations that individuals adapt to, brought about by mental manipulations.

What is it that individuals or the system is adapting to in dance? The data presented here suggest that choreographers and dancers are continually adapting to changes in the state of the dance—changes they have *wrought themselves* in an effort to realize particular goals. The setting and revision of goals central to creative work may be thought of in itself as an adaptive reorganization in light of what the system has produced. This may be one way to think of composing generally: the system undergoing adaptive reorganization may be a choreographer and her dancers, or it may be a writer and his ideas on paper.

Learning has also been conceived of as conceptual change, especially by researchers interested in individual conceptual structures or cognitive strategies—learning has often been measured by the degree or quality of change in one's thinking or skills. Beyond before and after states, diSessa has raised the question of how concepts work and develop. DiSessa and Sherin (1998) argue that the core problem of conceptual change is "shifting the means of seeing" and that " 'seeing things' in the world—gaining information about them—is a complex cognitive accomplishment" (p. 1171). If, from actional or situated perspectives on learning, a concept is not a particular mental representation residing in the mind of an individual but abstractions over people acting in settings, then conceptual change is the change in this "pattern of people, things in the world, and neuronal activations" (diSessa & Sherin,1998, p. 1173). This may be the best way to describe how a group or system undergoes conceptual change: a group itself may "see things in the world" and as a group, shift the means of seeing or coordinating

information. This shifting may be another way to describe Hutchins' "adaptive reorganization in a complex system."

Learning through composing/creative work

What do the findings of this study add to an understanding of composition or how one learns through creative work? We don't know much about how or what people learn through the act of composing. The previous paragraphs represent my efforts to fit theories of learning to creative work: How do we explain the type of conceptual change an artist experiences in the making of a piece of art? How do we expand this to understand the conceptual change a *group* or *system* experiences in the making of a piece of art? How do we explain the role of perceptions in this type of learning?

Descriptions from research on writing of how one learns *through the act* of composing tell little; Flower and Hayes (1994) explain that a writer learns through using a goal to generate ideas, consolidating those ideas, and using them to generate new more complex goals; "It is through setting these new goals that the fruits of discovery come back to inform the continuing process of writing" (p. 948). Keller and Keller (1996a, 1996b) describe a similar dialogic and iterative process in their account of a blacksmith working with iron, and the data presented here show choreographer and dancers repeatedly refining their movement ideas and images at the same time they clarify meaning and intention. While clearly a generative, iterative process is central to composing in many art forms, we have no particular word(s) in education or cognitive research that identifies this process as a means of learning and knowing.

Previous research on written composition has focused on composing process but has not characterized the relationship between writer and text as a distributed system and in terms of organizational change—such a perspective would not have made sense in these studies. But unlike pen and paper or a computer program, or the iron a blacksmith forges,

dancers are not inert materials but true "intellectual partners" in composing. They are not merely tools to "think with" but *people* who "think back." They function like these other materials in the sense that they show back to the author/artist the various constructions and re-constructions of his or her design efforts, but they do so actively rather than passively. What does this added perspective on composing afford?

Many artists have written metaphorically about their material "speaking" to them. Painter Ben Shahn has written eloquently about this "conversation":

> From the moment at which a painter begins to strike figures of color upon a surface, he must become acutely sensitive to the feel, the textures, the light, the relationships which arise before him....[O]ne must say that painting is both creative and responsive...an intimately communicative affair between the painter and his painting, a conversation back and forth, the painting telling the painter even as it receives its shape and form" (1957, p. 57).

Because of the nature of dance as an art form cast on dancers, choreography affords a unique perspective on this exchange between artist and medium. As I have shown in the previous chapters, choreographer and dancers participate in literal conversations that shape the work. Although these conversations are often a combination of words and movement, they begin to suggest just what the internal dialogue of an artist might include. KT and her dancers publicly share, evaluate, and test their private perceptual experiences, externalizing the dialogue they carry on within their individual minds and bodies. Further research on the "dialogues" artists carry on with their work might tell us more about what happens in this exchange and how people might function constructively as co-participants in a creative process.

Shahn's description of the painter's sensitivity to "the feel, textures, light, the relationships which arise before him" may parallel in dance the *intersensivity* that is fostered between choreographer and dancers over the rehearsal process. In dance, this

creative reciprocity is highlighted as an essential component of composing; choreographers and dancers "develop, strengthen, and nurture their creative individuality via their mutual creativity" (Blom & Chaplin, 1982, p. 184). It is this reciprocity that is established in orienting activities, developed in the molding of movement on and to dancers, and demonstrated in dancers' suggestions for the composition and in their construction of "psychological supports" for the performance. What does learning the complementary skills of receptivity and responsiveness entail as a dancer? How, as George describes, does one learn to be part of another's creative vision *and* remain oneself in the process? And how do choreographers develop a sensitivity to the people their dancers are, and to the performers, as Sarah describes, that are created or "born" in the studio? This element of reciprocity does not show up in studies of composing in writing, music, or visual art. While it is obviously an important element of choreography, further studies are needed to understand if and in what other contexts this same type of intersensitivity might appear or prove valuable—in the arts or in other realms of experience.

Perceptual problem solving: Creating with mind and body

As I mentioned in Chapter 1, studies of cognition in music and visual art have suggested that artists coordinate a range of multi-modal images in the act of creating and interpreting art. "Images," for Keller & Keller (1996),

> may refer to a mental representation of a quality, an object, or a process. [Images] may be mentally manipulated, rotated, rearranged, revised or carried out. While some images are relatively simple, such as those of color or straightness, others are complex, multidimensional and multimodal entities that are not simply mental jigs but rather internal rehearsals of anticipated operations or forms. (p. 134)

I believe we have only just begun to understand how these images function in creative work and in learning. The data from this study suggest that dancers and choreographers, too, coordinate a range of multidimensional and multi-modal images, and that images

themselves or the ways they are coordinated may be unique to different arts. "Felt paths" (Bamberger, 1991) and perceptual understandings of weight, balance, rhythm, and space, for example, may differ greatly among dancers, musicians, and visual artists. Keller and Keller also suggest that these images are revised and expanded over time. If this is the case, do novice and expert artists in multiple art forms show similar patterns in how they store, organize, or utilize relevant images? How, if at all, do these images contribute to the development of creativity or to understandings of the power and potential of a particular medium? How do artists add to their repertoire of images, and how do these new images affect the next product and ultimately the practice of the art form itself?

I also introduced in Chapter 1 studies of embodied knowledge. Stevens and Hall (1998) used the term "disciplined perception" to describe how novice practitioners in a discipline learn ways of seeing with and through tools of the discipline in order to master ways of thinking and knowing. These studies—Stevens and Hall's study of coordinated understandings of graphs and charts in mathematical thinking; Goodwin's (1993) study of the apprenticing geochemist learning to recognize the color of a test fiber—are important to understanding the role of perceptions in cognition and how these might be shared among practitioners. The data from this study suggest that choreographers and dancers, too, use embodied knowledge, but they do so in service of creative work—a context, I want to argue, which makes this embodied knowing different from embodied knowledge used to solve routine problems.

The participants in my study displayed a tremendous knowledge of the body—a personal, experiential understanding of movement, of spatial and temporal relations, as well as an acute knowledge of actions, gestures and mannerisms exhibited in daily life. They knew how to exploit the power and meaning of these gestures, to abstract, combine, order, and dissect them. They reasoned with such images, using them to interpret movement, and to evaluate and justify aesthetic choices. Thus KT used a particular kind of perceptual

knowledge to identify the hands as "scary" in the women's trio, and to later reason that two high energy sections placed back to back might be more energy than an audience could tolerate. Rob followed a "kinesthetic logic" in developing his traveling phrase behind the table, and George was able to read the "logic" in Crispin's sequence for the dance. What exactly is such logic, and how is it learned? The embodied knowledge that Sheri employs in selecting one movement over another to convey "sharp" is not the embodied knowledge a geochemist employs to recognize when a test fiber has turned to "gorilla fur". Although both tasks require discrimination, the latter involves comparison to a known or existent standard (a particular color black); the former involves comparison to an intention that may or may not be fully known or articulated.

The generative and responsive nature of creative thinking in dance requires the ability to look forward and back, to notice patterns of relationships in space and time, to make sense of details remembered and to understand them anew as the work unfolds, consolidating experiences to make a whole. And it requires clarifying intention, finding "the simplest form compatible with the statement" (Arnheim, 1974), no more and no less. How do choreographers learn this type of thinking? How does Crispin get to the place, for instance, where she can arrange and rearrange whole sections of a dance in her mind or in shorthand? How does she know that a quartet is needed here that functions in this way between these two sections? How does she know when she's found the ending? How does KT know that the women's trio performed first at different times and later in unison is the right way to introduce this material to her audience? How does she learn how to pull from her dancers, her raw material? Or when and how to use sound? Are these decisions made with the mind or with the body? Obviously, I could go on and on with the questions this study raises for how we think and learn to use perceptions and embodied knowledge in creative work.

Implications for education & research

This study may not convince one that dance is a necessary subject to be learned, but it should point out the ways of knowing missed when dance and movement are not a part of education. We have narrowly defined what it means to compose by concentrating on writing and rhetorical problem solving—there are so many other elements to consider when composing is broadened to include dance and other art forms. "Partners" in creative work, for instance, may be tools and/or people, and composing with people requires skills not taught in writing. When cognitive researchers began to study written composition as problem solving, Hiebert and Raphael (1996) argue, writing was suddenly seen as a skill that could be learned and mastered rather than a talent possessed by a few. Similarly, additional studies on composing in the arts might eliminate some of the mystery surrounding artists and creative thinking, and encourage the teaching of composition in a range of symbol systems.

Bereiter and Scardamalia (1987) have written that the "monitor" function in written composition is an important component in distinguishing skill:

> Writing involves planning not only at the clause level, but also at the level of units too large to be mentally constructed verbatim. It also requires repeatedly viewing the text from the position of reader rather than writer. These operations all require a central executive system...which can switch attention back and forth between levels and modes without losing hold of the process as a whole. (p. 89)

As the results of this study have shown, it is primarily the choreographer who exercises this executive monitor function in composing a dance. In teaching dance composition, then, it may be important that students experience both the role of choreographer and dancer. Current dance education, where it is offered in schools, is primarily comprised of dance technique or movement exploration. Preliminary analysis of my data from participants who taught classes, however, suggests that dance technique classes and rehearsal for a performance offer very different learning opportunities. By participating in

others' compositions and by making their own dances, students learn about the meanings and relationships of figures in space and time, the necessity of motivation behind movement, how to make and evaluate aesthetic choices kinesthetically and visually, how to edit and hone a dance—skills they might never practice in technique class. What exactly students learn from the act of composing—and fail to learn if they do not have the opportunity to compose—may be important to consider in any arts education program.

Finally, I had earlier pointed out that the relationship between choreographer and dancers presents a unique model for learning. The roles of choreographer and dancers function differently to effect changes in both the design and evolution of a system. If the model of learning this system represent is not a didactic model, not a true collaboration, not apprenticeship or legitimate peripheral participation, just what kind of model is it? I want to argue that this model is best characterized as a *design group*; other contexts in which such a relationship might be found include an architecture studio or an advanced research laboratory. Although further study is needed, it may be that similar roles and dynamics exist within these systems, functioning to affect the design and evolution of creative work.

Are there other places where this model should be found, where this model of collective learning and creating would in fact be constructive? This model does not describe the typical classroom—such collective learning does not often happen here, nor design, nor the fostering of individual creativity through the creative work of the whole. Teachers are generally viewed as having the responsibility to impart to students specific knowledge and skills, and students generally learn from lessons designed *for* them. In contrast, dancers and choreographer join in a shared, creative enterprise; they are *in something together*, even if that "something" may not be fully formulated at the start. Choreographers, on some level, trust the particular expertise of their dancers, trust/expect that their dancers will bring new insights to the collective endeavor and that the work will

evolve in relation to what is produced. Although the system as a whole learns in this model, it is not the model of learning most teachers are encouraged to use as the basis for their lessons.

There are exceptions. The choreographer role may in fact aptly describe those teachers we have frequently referred to as "gifted" or "natural"—teachers such as Vivian Paley (1981, 1992), who take notes and carefully observe their students, using students' words and actions to design and facilitate the next educational experience. Perhaps too often teachers don't engage their students in orienting activities, don't ask students to generate their own material, or join them to "mess with it" and see what evolves. What would it mean for students to invent an intention—an image or "internal fiction"—to support their performance? If teaching is both science and art, it may be that choreography unveils the mystery of what that "art" entails.

Dance and cognitive science

Writing about this study has been hard. While all writers struggle to some extent to find the right words to express their ideas, I as a cognitive researcher have too often been at a loss for words to express what I wanted to say about dance. I hope I have described on these pages many intelligent activities in the making of a dance that would be worthwhile to name. And I do see this as the responsibility of cognitive scientists.

If indeed "language is power," the participants in my study have revealed what it means to not have language or to be recognized in language. I should have had a code to mark each time a participant prefaced or followed a remark with an apology, saying, "I know you can't put this in your study, but..." or "That probably sounds too 'woo-woo';" these comments appeared almost often enough to constitute a theme. And in fact I have failed to include some of the most interesting and apt descriptions of dance because they were

folded in with self-consciousness, my own as well as participants'. Thus there is probably more to say about Crispin's comment:

> I try to make all these comparisons to explain to people what dance is... I really think about dance as energy. But I can't talk about it that way because it's so dorky. But it's this painting and sculpting and manipulating of a chorus of energies, which includes the audience and the people on stage.

If I wrestle with being appropriately "scientific" and dancers wrestle with being "dorky," perhaps cognitive science is to blame. We can deny any number of intelligent activities by not giving it language; essential elements of dance and the arts in general may remain in the realm of the ineffable, mysterious, the misunderstood (or not worthy of understanding) if they are not articulated or validated in research. Given the present state of the field, I apologize to my participants if what I have written here is only an approximation of what they meant to tell me.

It's like [ ].

List of References

Arnheim, R. (1974). *Art and visual perception: A psychology of the creative eye.* Berkeley: University of California Press.

Arnheim, R. (1969). *Visual thinking.* Berkeley: University of California Press.

Bamberger, J. (1991). *The mind behind the musical ear: How children develop musical intelligence.* Cambridge, MA: Harvard University Press.

Becker, H. (1982). *Art worlds.* Berkeley: University of California Press.

Beek, P. J. (2000). Toward a theory of implicit learning in the perceptual motor domain. *International Journal of Sport Psychology, 31*, 547-554.

Bereiter, C. & Scardamalia, M. (1987). *The psychology of written composition.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Blom, L. A. & Chaplin, L. T. (1982). *The intimate act of choreography.* Pittsburgh, PA: University of Pittsburgh Press.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18* (1), 32-42.

Chaplin, L. T. (1976). Teaching dance improvisation creatively. *Journal of Physical Education and Recreation*, April, 1976.

Cuff, D. (1991). *Architecture: The story of practice.* Cambridge, MA: Massachusetts Institute of Technology.

Cratty, B. J. (1973). *Teaching motor skills.* Englewood Cliffs, NJ: Prentice-Hall.

Davidson, L., & Scripp, L. (1986). Young children's musical representations: Windows on music cognition. In J. Sloboda (Ed.), *Generative processes in music.* New York, NY: Oxford University Press.

Davidson, L., & Scripp, L. (1992). Surveying the coordinates of cognitive skills in music. In R. Colwell (Ed.), Handbook of research on music teaching and learning. New York: Schirmer Books, 392-413.

diSessa, A. A. & Sherin, B. L. (1998). What changes in conceptual change? *International Journal of Science Education, 20* (10), 1155-1191.

Ellfeldt, L. (1967). *A primer for choreographers*. Palo Alto, CA: Mayfield Publishing Co.

Feldman, D. H. (1980). *Beyond universals in cognitive development*. Norwood: Ablex.

Fitts, P. M. (1954). The information system of the human motor system in controlling the amplitude of movement. *Journal of Experimental Psychology, 47*, 381-391.

Flower, L. & Hayes, J. R. (1994). A cognitive process theory of writing. In R. B. Ruddell, M. R. Ruddell, and H. Singer (Eds.) *Theoretical models and processes of reading*, 4th edition. Newark, Delaware: International Reading Association, 928-950.

Fowler, C. E. (1977). *Dance as education*. Washington, DC: National Dance Association.

Forti, S. (1974). *Handbook in motion*. New York, NY: New York University Press.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.

Gardner, H. (1985a). *The mind's new science: A history of the cognitive revolution*. New York: Basic Books.

Gardner, H. (1985b). Towards a theory of dramatic intelligence. In J. Kase-Polisini (Ed.), *Creative drama in a developmental context*. Lanham, MD: University Press of America.

Gardner, H. (1990). *Art education and human development*. Los Angeles, CA: J. Paul Getty Trust.

Gardner, H., & Boix-Mansilla, V. (1994). Teaching for understanding in the disciplines--and beyond. *Teachers College Record, 96*, 2, 198-218.

Gardner, H., & Wolf, D. (1992). Waves and streams of symbolization: Notes on the development of symbolic capacities in young children. In D. Rogers and J. A. Sloboda (Eds.), *The acquisition of symbolic skills*. New York, NY: Plenum Press.

Goodwin, C. (November, 1993). The blackness of black: Color categories as situated practice. *Discourse tools and reasoning: Situated cognition and technologically supported environments*. Lucca, Italy.

Harper, D. (1987). *Working knowledge: Skill and community in a small shop.* Chicago: University of Chicago Press.

Hawkins, A. (1964). *Creating through dance.* Englewood Cliffs, NJ: Prentice-Hall.

Hawkins, A. M. (1991). *Moving from within: A new method for dance making.* Pennington, NJ: a capella books, Inc.

Hayes, E. R. (1993). *Dance composition and production.* Pennington, NJ: Princeton Book Co.

H'Doubler, M. N. (1962). *Dance: A creative art experience.* Madison, WI: University of Wisconsin Press.

Hiebert, E. H., & Raphael, T. E. (1996). Psychological perspectives on literacy and extensions to educational practice. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 550-602). New York: Simon & Schuster Macmillan.

Hull, G. (1989). Research on writing: Building a cognitive and social understanding of composing. In L. B. Resnick & L. E. Klopfer (Eds.), *Toward the thinking curriculum: Current cognitive research* (pp. 104-128). Washington, DC: Association for Supervision and Curriculum Development.

Hutchins, E. (1995). *Cognition in the wild.* Cambridge, MA: MIT Press.

Jordan, B. & Henderson, A. (1995). Interaction analysis: Foundations and practice. *The Journal of the Learning Sciences, 4,* 1, 39-103.

Keller, C. H. & Keller, J. D. (1996a). *Cognition and tool use: The blacksmith at work.* Cambridge: Cambridge University Press.

Keller, C. H. & Keller, J. D. (1996b). Thinking and acting with iron. In S. Chaiklin and J. Lave (Eds.), *Understanding practice: Perspectives on activity and context.* Cambridge: Cambridge University Press, pp. 125-143.

Langer, S. K. (1957). *Problems of art.* New York: Charles Scribners Sons.

Latour, J. (1995). The 'pedofil' of Boa Vista: A photo-philosophical montage. *Common Knowledge, 4* (1).

Lave, J. (1988). *Cognition in practice: Mind, mathematics, and culture in everyday life.* Cambridge: Cambridge University Press.

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

Lazaroff, E. M. (1998). *Thinking on their feet: A study of children's experiences in an elementary school dance course.* Unpublished doctoral dissertation, Stanford University.

Magill, R. A. (1998). Knowledge is more than we can talk about: Implicit learning in motor skill acquisition. *Research Quarterly for Exercise and Sport, 69*, (2), 104-111.

McCutchan, A. (1999). *The muse that sings: Composers speak about the creative process.* New York: Oxford University Press.

Miles, M. & Huberman, A. (1994). *Qualitative data analysis.* Thousand Oaks, CA: Sage.

Ochs, E., Gonzales, P., & Jacoby, S. A. (1996). 'When I come down, I'm in the domain state': Grammar and graphic representation in the interpretive activity of physicists. In E. Ochs, E. A. Schegloff, & S. A. Jacoby (Eds.), *Interaction and grammar.* Cambridge: Cambridge University Press.

Overby, L. Y. (1986). *A comparison of novice and experienced dancers' imagery ability with respect to their performance on two body awareness tasks.* Unpublished doctoral dissertation, University of Maryland.

Paley, V. G. (1981). *Wally's stories.* Cambridge, MA: Harvard University Press.

Paley, V. G. (1992). *You can't say you can't play.* Cambridge, MA: Harvard University Press.

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* Newbury Park, CA: Sage.

Paxton, S. (1982). "Chute" transcript. *Contact Quarterly, 3*(4), 16-17.

Perkins, D. N. (1993). Person-plus: A distributed view of thinking and learning. In G. Salomon (Ed.) *Distributed cognitions: Psychological and educational implications.* Cambridge: Cambridge University Press.

Piaget, J. (1970). Piaget's theory. In P. Mussen (Ed.), *Manual of child psychology.* Vol I, 703-730. New York: Wiley.

Piaget, J. & Inhelder, B. (1969). *The psychology of the child.* New York Basic Books.

Polanyi, M. (1962). *Personal knowledge.* Chicago: University of Chicago Press.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context.* New York: Oxford University Press.

Rogoff, B. & Lave, J. (1984). *Everyday cognition: Its development in social context.* Cambridge: Harvard University Press.

Salomon, G., Ed. (1993). *Distributed cognitions: Psychological and educational implications.* Cambridge: Cambridge University Press.

Saxton, R. (1998). The process of composition from detection to confection. In W. Thomas (Ed.) *Composition—performance—reception: Studies in the creative process in music.* Brookfield, VM: Ashgate Publishing, pp. 1-16.

Scardamalia, M. & Bereiter, C. (1982). Assimilative processes in composition planning. *Educational Psychologist, 17*(3), 165-171.

Scardamalia, M. & Bereiter, C. (19xx). Literate expertise. In

Schmidt, R. A. (1982). *Motor control and learning.* Chapman, IL: Human Kinetics.

Schwab, J. J. (1978). Education and the structure of the disciplines. From *Science, curriculum, and liberal education.* Chicago, IL: University of Chicago Press.

Scribner, S. (1997). Mind in action: A functional approach to thinking. In E. Tobach, R. J. Falmagne, M. B. Parlee, L.M. Martin, & A. S. Kapelman (Eds.), *Mind and social practice: Selected writings of Sylvia Scribner.* Cambridge: Cambridge University Press.

Shahn, B. (1957). *The shape of content.* New York: Vintage Books.

Smyth, M. M., & Haggard, P. (1999). Movement and action: Introduction to the special topic. *British Journal of Psychology, 90* (2), 243-248.

Steinman, L. (1986). *The knowing body: Elements of contemporary performance and dance.* Boston, MA: Shambhala.

Stevens, R. (1999). *Disciplined perception: Comparing the development of embodied mathematical practices at work and school.* Unpublished doctoral dissertation, University of California, Berkeley.

Stevens, R. & Hall, R. (1998). Disciplined perception: Learning to see in technoscience. In M. Lampert and M. L. Blunk, (Eds.) *Talking mathematics in school: Studies of teaching and learning.* Cambridge: Cambridge University Press, pp 107-149.

Strauss, A. & Corbin, J. (1998). *Basics of qualitative research.* Thousand Oaks, CA: Sage.

Suchman, L. A. & Trigg, R. H. (1996). Artificial intelligence as craftwork. In S. Chaiklin and J. Lave (Eds.) *Understanding practice: Perspectives on activity and context.* Cambridge: Cambridge University Press.

Swados, E. (1988). *Listening out loud: Becoming a composer.* New York: Harper & Row.

Tufnell, M., & Crickmay, C. (1990). *Body, space, image: Notes towards improvisation and performance.* London: Virago Press.

Van Meel, J., Verburgh, H., & DeMeijer, M. (1993). Children's interpretations of dance expressions. *Empirical Studies of the Arts, 11*, 2, 117-133.

Vygotsky, L. S. (1978). *Mind in society: The development of higher mental processes.* Cambridge, MA: Harvard University Press.

Welford, A. T. (1968). *Fundamentals of skill.* London: Methuen.

Wells, G. (2000). Dialogic inquiry in education. In C. D. Lee and P. Smagorinsky (Eds.) *Vygotskian perspectives on literacy research: Constructing meaning through collaborative inquiry.* Cambridge: Cambridge University Press.

Wineburg, S. (1991). Historical problem-solving: A study of the cognitive processes used in the evaluation of documentary and pictorial evidence. *Journal of Educational Psychology, 83 (*1), 73-87.

Wolf, D., & Gardner, H. (1980). Beyond playing or polishing: A developmental view of artistry. In Jerome J. Hausman (Ed.) *Arts and the schools.* New York: McGraw-Hill Book Co.

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Publications and Refereed Presentations

Stevens, R.. R., Cherry, G. & Fournier, J. E. (2002) "Video Traces: Rich media annotations for learning and teaching." Paper presented at annual Computer Supported Collaborative Learning conference, Boulder.

Fournier, J. E. (2001) "Composing in dance: Walking, talking drafts." Paper presented at the annual meeting of the American Educational Research Association, Seattle.

Fournier, J. E. (1998) "'Seeing past' each other: Teacher/student developmental differences in art & design." Paper presented for the Research & Inquiry series, College of Education, University of Washington.

Fournier, J. E., & Wineburg, S. S. (1997). Picturing the past: Gender differences in the depiction of historical figures. *American Journal of Education, 105,* 2, 160-185.

Wineburg, S. S., & Fournier, J. E. (1994) Contextualized thinking in history. In M. Carretero & J. F. Voss (Eds.), *Cognitive and instructional processes in history and social sciences* (pp. 285-308). Hillsdale, NJ: Lawrence Earlbaum Associates.

Thorkildsen, T. A., Nolen, S. B., & Fournier, J. E. (1994). What is fair? Children's critiques of practices that influence motivation. *Journal of Educational Psychology, 86,* 4, 475-486.

Fournier, J. E., & Wineburg, S. S. (1993). "Framing assumptions and the learning of history." Paper presented at the annual meeting of the American Educational Research Association, Atlanta.

Wineburg, S. S., & Fournier, J. E. (1992). Thinking in time. *Mosaic,* 2, 2-3.

Wineburg, S. S., & Fournier, J. E. (1992). "Thinking in Time: A study of anachronistic and contextualized thinking among preservice teachers." Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Thorkildsen, T. A., Nolen, S. B., & Fournier, J. E. (1992). "What motivates me to learn math: The student perspective." Paper presented at the annual meeting of the American Educational Research Association, San Francisco.