From Metaphor to Practice
In the Crafting of Strategy

Working Paper 9
November 2001

DR PETER BURGI*
Research Fellow

DR JOHAN ROOS*
Director

DR CLAUS JACOBS*
Research Fellow

*Imagination Lab Foundation - Rue Marterey 5 - 1005 Lausanne - Switzerland
Tel +41 21 321 55 44 - Fax +41 21 321 55 45 - www.imagilab.org

From Metaphor to Practice

In the Crafting of Strategy

ABSTRACT

This paper explores how the link between the hand and the mind might be exploited in the making of strategy. Using Mintzberg's image of a potter undergoing iterative and recursive learning and knowledge-building processes as a point of departure, we develop a 3-level theoretical schema, progressing from the physiological, to the psychological, to the social, to trace the consequences of the hand-mind link. To illustrate our theoretical schema, we present an illustration case of managers from a large telecommunications firm experimenting with a process for strategy-making in which they actively use their hands to construct representations of their organization and its environment. We conclude that new and potent forms of strategy-making might be attained if the fundamental human experience of using one's hands is put in the service of all kinds of organizational learning.

Key words: strategy, crafting, hand-mind link

Introduction

"The potter sits before a lump of clay on the wheel. … She has an intimate knowledge of her work, her capabilities, and her markets. As a craftsman, she senses rather than analyses … All these things are working in her mind as her hands are working the clay. … [M]anagers are craftsmen and strategy is their clay."[i]

In 1987, Henry Mintzberg employed this metaphor of the potter working the clay to illustrate the task and process of strategy-making as hands-on craftsmanship. He argued for fusing formulation and the implementation of strategy by describing the actions of a potter working her material, discovering new possibilities through the tactile manipulation of the clay, and constantly integrating the work of hands with the work of mind.[ii]While this metaphor directs attention to the intrinsically enactive nature of strategy-making at both the social and psychological levels, it also bears the seed of an important unexploited human factor in organizations – namely, the connection between hand and mind in the construction of strategy.

Compelled by the conceptual power of the crafting trope, we intend to develop a theoretical basis for the practical extension of Mintzberg's metaphor of the strategist as a hands-on craftsman. In this context, we argue for consideration of the effects of manual activities on processes of strategy-making. i.e. how the link between the hand and the mind might be exploited in the making of strategy. We ground our argument in three theoretical bodies of literature. We start off with the body of theory conceptually closest to the potter metaphor, namely theories emphasizing the physiological significance of the hand-mind connection. A further level of theory discusses, from a psychological angle, how human psychological development and learning are associated with the concrete activity of constructing objects. Finally, we use social constructionism to extend this argument to a more abstract level by pointing to the discursively enacted nature of meaning in social interactions.

We supplement our theory-focused discussion with an illustrative case study of a strategy workshop among senior managers at a large telecommunications firm. This particular type of workshop intentionally involved manual activities, psychological effects, and collective meaning-making processes in the formulation of strategy – and therefore

illustrates the key elements in our theoretical discussion. The paper concludes with a discussion of implications for further research.

The physiological dimension: Hand-Mind Interaction

Crafting activities such as pottering can be considered to be a very basic form of activity in human experience. In an industrialized, knowledge driven economy however, much of the high value-adding work of corporations is typically characterized as "white collar work," in contradistinction to "blue collar" or "manual" work. This simplified dichotomous typology is steeped in a broad underlying value system which presumes that the "cognitive" is more important than, and intrinsically superior to, the "manual." It also presumes that the cognitive, being superior, is also necessarily "prior" to the manual. This has led many people to presume that activities which involve the hand (other than the longhand writing or computer screen-focused typing activities common to most organizations) tend to add less value to organizations than ostensibly cognitive activities do. However, rather than conceiving crafting as a "low productive, physical activity", we see, with Mintzberg, its formative, developmental potential. Therefore, we focus on the connection between cognitive and manual activity, and explore the idea that there is actually a deeply important link between the hand and the brain, with important implications for organizational practice.

The intimate link between the hand and the brain is a primal component in human physiology, and a very significant milestone in the development of human beings. A fundamental fact of the human organism is that the hand is important not only as an instrument for manipulating the physical world, but also as a very large source of feedback and data for the brain. The Canadian neurosurgeon Wilder Penfield developed a "map" of the brain (known as the "motor homunculus") that shows the proportions of it dedicated to controlling different parts of the body.[iii] In the often-reproduced image with which he illustrated his theoretical findings, what immediately strikes one is the enormous size of the part of the brain devoted to processing input from and providing instruction to the hand. This graphical representation points to the profound interconnection between the hand and the brain on a physiological basis.

However, a still broader background of scientific research into human origins documents the profound interdependence of the hand and mind in the evolution of human beings. In the documentary fossil record, the development of the primate forms which begin to carry the genus "homo" (i.e., "homo habilis"), are dated to a time when several physiological elements begin to appear and co-develop in the anatomy of human ancestors. These include: the development of the five-fingered precision grip with the opposable thumb, the enlargement of the brain, and the elaboration of the speech centers of the brain.[iv] The appearance of the first uses of tools – hence the species name "habilis," or "handy" – is contemporary with these other developments. The apparent convergence of these elements in the human evolutionary record is evidence of a multifactorial series of feedback loops in the development of human beings, with the hand in many ways at the center of the action. Wilson, the leading researcher of the hand, claims that "any theory of human intelligence which ignores the interdependence of hand and brain function … is grossly misleading."[v]

This strongly suggests that the hand is not simply an evolutionary curiosity, nor only a practical advantage to the species, but an important part of the developing powers of human cognition. To some degree, this is implied in effects associated with the domain of speech and verbal communication, which many have argued to be the distinctive gift of the human species. Research on the link between speech and gesture[vi] has illuminated a clear instrumental link between speaking and use of the hand. One of the leading researchers on the topic of gestural communication, Robert Krauss, has stated flatly: "We make movements with our hands to help us think."[vii] Interestingly moreover, we observe that in some modern Western languages, the origins of the words for the English verbs "to understand, to make sense" have a strong metaphorical link to the hand, e.g. German "*begreifen*," French "*comprendre*," and Swedish "*fatta*." In both cases the literal translation would be "to grasp" – which also in English has a literal link to the hand.

Thus, among our human forebears as among modern humans, the hand is what we manipulate the world with, and what we construct an interior world with. Considering the physiology of the hand/mind-connection we gain an important means of theoretically extending Mintzberg's crafting metaphor toward a practice of strategy-making. The

neuro-physiological, evolutionary, and cognitive lines of research we have aligned here suggest that using the hand is a charged activity not only symbolically, but also because it is how most human beings literally enact their world – by manipulating it. This line of reasoning, leads us to a further level of theory, in which cognition and action are linked at the psychological level.

The psychological dimension: Bridging Cognition and Action

Moving from the physiological to a more conceptual consideration, we turn from anatomy to psychology, and in particular to the theories of Piaget, thereby exploring the relationship of action and cognition in more detail. Piaget's fundamental interest was epistemology, and, based in the belief that childhood provided an ontogenetic view of how human cognition had evolved, he focused his research on the psychology of children. He developed the concept of "genetic epistemology" via experiments on and extensive observation of children, yielding a typology for the stages of development of the mind of the child – the sensori-motor stage, the preoperational stage, the concrete operations stage, and the formal operations stage. The net result of his research was a theory of human psychological development and individual epistemology called "constructivism," which states that human intelligence grows from the interaction of the mind with the world. [viii]

For example, he observed that young children often associate tall glasses with larger amounts of water, and wider glasses with smaller amounts: if the same amount of water is poured from one shape to another, these children will often assert that the amount of water has changed. Their "theory" of the relationships of shape and amount would not change, Piaget found, until the children "constructed" it for themselves out of their own practical activities. Based on this research, Piaget argued that even complex, abstract ideas such as time, causality, space, etc., are not necessarily "innate" categories as philosophers had proposed. Instead, these complex abstractions seem to grow from the feedback processes between the living mind and the encompassing world. More directly still, he claimed that concrete acts of constructing things in the world, like manipulating objects, constructs knowledge in the mind. He proposed, therefore, that knowledge was

psychologically constructed in the mind concomitantly with the action of physically engaging with the world: "[e]very act of knowing includes a mixture of elements furnished by the object and by the action. These elements are intrinsically united and linked to each other."[ix] In other words, what we call "knowledge" is best seen as an active operation of human's engagement with the world.

Piaget's "constructivist" theory of knowledge was applied in the area of education and schooling by a student of his, Seymour Papert, who advocates a "constructionist" approach to learning.[x] A constructionist approach is highly distinct from the more traditional "classroom"-based approach to learning, where information is imparted by a teacher, retained by students, and then regurgitated for tests. In contrast to this approach, constructionism uses Piaget's idea that the physical construction of things in the world simultaneously constructs knowledge of the world in the mind. Simply put, a constructionist approach to teaching ensures that learners are put together with appropriate materials, in relevant contexts, and are set tasks directly related to the learning outcomes sought. This sets in motion a 'virtuous circle' of growth and development since, as new knowledge is built, the supply of means by which to interact with the world is increased, and new approaches can then be undertaken for building still more things[xi,xii] . The constructionist theory very strongly emphasizes the active process of literally manipulating materials in an appropriate context in order to discover new ways or interacting with the world.

Piaget's theories as well as Papert's approach to learning exemplify the concept of a close, recursive cycle between action and cognition. Action and cognition are inseparable, so that new knowledge and new insights into how one might act are achievable only through action itself.

However, since learning is more than an individual process, there are some questions begged by Piaget's work. For instance, how is meaning actually created among and by people in social settings? What are the social interactions that mediate meaning creation? We believe it is just as important, therefore, to address how cognition and action converge in processes at the social level.

The social dimension: Social Construction of Meaning

Conceiving of strategy as a discursively enacted phenomenon,[xiii] we now turn to social constructionism, which is concerned with processes of intersubjective meaning generation. The thesis here is straightforward: organizations, and the many activities and processes they subsume, are examples of socially constructed reality[xiv]. At the basis of social constructionism[xv] lies the idea that knowledge and action are socially constituted; i.e. meaning is discursively enacted through social interaction.[xvi] Thus, the social constructionist perspective proposes that as a construct, reality is always an interpreted, perceived and negotiated reality -- or, as Gioia puts it, "the reality people confront is the reality they construe".[xvii] To a large degree social constructionism has focused on meaning created through linguistically mediated social interaction. This has drawn attention, on the one hand, to the importance of language in general and speech-acts in particular, and how these are used when one is studying people and their systems of meaning: "It is human interchange that gives language its capacity to mean, and it must stand as the critical locus of concern."[xviii] However, language is not the only dimension in which meaning is enacted, as a wide range of human behavior contributes to the constitution of sense and value in society.[xix] Giddens, for example, has argued for the importance of understanding human bodily experience not simply as system of time-space constraints, but as one of many constituents in "the essentially transformative character of all human action."[xx] Building on such foundational assumptions, therefore, a social constructionist approach examines those actions and interactions, which mediate how realities are interpreted and negotiated.

While acknowledging how interaction creates meaning, social constructionism does not subscribe to any specific level of truth to be discovered by objective interpretation. Hence, in social constructionism, the understanding of a phenomenon is always deemed to occur within an interpretive framework – a proposition congruent with the constructionist line of theory development we have traced so far in this paper[xxi]. In this respect, Gergen asserts that "the terms and forms by which we achieve understanding of the world and ourselves are social artefacts, products of historically and culturally situated interchanges among people".[xxii]

Such situatedness highlights knowledge in organizations as highly context-dependent and as arising from and circulating in social networks characterized by intensive interaction among members.[xxiii] Thus, strategy-making as a form of knowledge development might involve Nonaka and Takeuchi's 4 major processes for knowledge creation in organizations: socialization, externalization, combination, and internalization.[xxiv] But while Nonaka and Takeuchi's underlying model drawn from Polanyi brilliantly illustrates that knowledge is both personal and social, these assertions do not specify how the individual and social levels are bridged. Their model rightly draws attention to context as a crucial dimension of knowledge, but it is not context alone that yields knowledge – but action in context. In order to address this conceptual challenge, Crossan et al. (1999) provide us with a model that describes such transitional processes. Their "4I framework" consists of a theoretical structure that bridges the individual and the social. [xxv] In their model, they propose three learning levels (individual, group, organization) of learning. Through the four generic stages of intuiting, interpreting, integrating and institutionalizing, knowledge is constructed and integrated for subsequent courses of action. While intuiting and interpreting supposedly take place at the individual level, interpreting and integrating might occur at the group level and finally, institutionalizing at the level of the organization.[xxvi]

Thus, we conclude that strategy – howsoever conceived and presented – will always be a theory that is socially constructed: i.e., "the objectives and practices of strategy depend on the particular social system in which strategy-making takes place".[xxvii] Similarly – and echoing Piaget in this respect – Weick (1987) posits that the knowledge being created in organizational strategy implementation combines the situation with *action in the situation*[xxviii] : namely, the idea that "execution is analysis and implementation is formulation."[xxix] Such a concept of strategy-making, therefore, implies that strategy is structured by the meanings and interactions among those making strategy: it is their discursive interaction that constructs and reifies strategy in a particular context.

Crafting Strategy as Embodied Recursive Enactment

We began with a discussion of three areas of theory related to the "strategy-as-crafting" metaphor, all of them linked thematically and substantively by the ideas of recursivity and enactment. The physiological one focuses on the hand as the primary tool for manipulating the world, and also as an often-overlooked means of stimulating cognition. The psychological one deals with the role of practical activity as a means of shaping understanding. The third uses social constructionism, which emphasizes that what we know of reality is constructed through discursive interactions of meaning making. Together, three bodies of literature help us extend Mintzberg's metaphor of 'crafting strategy' as "embodied recursive enactment" – involving the psychological, social as well as the physiological domain of hand-mind connection.

In developing his argument about the need to "craft strategy," Mintzberg returns frequently to the immediacy of the image of the potter, undergoing iterative and recursive learning and knowledge-building processes, via the tactile immediacy of manipulating the clay. It is this feedback relationship[xxx] between thought and action – recursive enactment – we seek to base in the three-part theoretical schema that bridges the individual and the social. Together, our schema suggests that a vital dimension of knowledge becomes available through the mind-body link, making it available at the individual level, and accessible as a social meaning for processes of organizational learning. Thus, Mintzberg's call to "craft strategy" could therefore be enhanced by moving beyond what Lakoff and Johnson might call the "shaping metaphor"[xxxi] of craftsmanship, and into the realm of actual manual practice.

There is a structural similarity shared by Mintzberg's crafting metaphor and the three literature streams we have discussed: namely, that the construction of physical or abstract objects occurs in a recursive process of enactment. We therefore conceptualize the interrelationship between activity and thought which characterizes all three levels of theory presented as *recursive enactment*. This phrase refers to the feedback relationship between thought and action in which each mutually structures the other. We propose, therefore, that the process that Mintzberg describes can be reframed as a process of recursive craftsmanship.

Enactment denotes the cognitive and communicative processes of sense-making and interpretation in organizations[xxxii],[xxxiii]. The concept of recursive enactment has been mainly associated with Giddens' structuration theory, i.e. the recursive relationship between agency and structure in the constitution of society,[xxxiv] which has recently received wide attention in the organization, strategy and management field.[xxxv] However, we employ the term enactment in a broader conceptual sense to describe mutually-influencing, reflexive dynamics of elements such as hand/mind, action/cognition, speech acts/meaning that bring forth a physical or social construct.

Theoretical concepts	Physiological; Hand/Mind	Psychological; Action/Cognition	Social Construction/ Meaning
Form of Recursive enactment	Experience built through manipulation	Learning built through construction	Meaning built through discursive interaction
Level of Experience	Embodying	Knowing	Enacting

**Crafting strategy
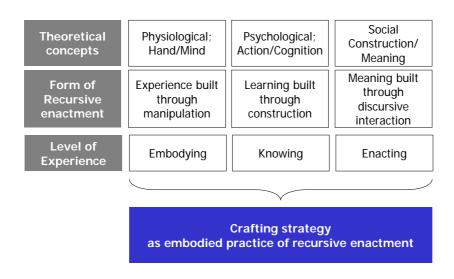as embodied practice of recursive enactment**

Figure 1: The concept of crafting as strategic practice

On the basis of these considerations, we offer recursive enactment as the conceptual frame for a theory of the practice of crafting strategy. It allows us to integrate the different theories that we consider relevant for such a theory development. Theories of the hand and the hand-mind connection have reminded us of the relevance and recursive dynamic of "tactile intelligence" in physiological terms. Furthermore, psychological theories of learning emphasize the relevance of such tactile intelligence for any ontogenetic epistemology, i.e. how, literally, construction impacts on the development of the human

11

mind. Finally, the social constructionist point of view of strategy-making indicates how strategy is socially constituted through discursive interactions of meaning-making. Crafting strategy in practice, therefore, should not only imply psychological and social elements of recursive enactment of cognitive and social constructs but also acknowledge the relevance of the tactile dimension for these processes.

Illustrative Case Study

Background

      Orange, a large international telecommunications company, had been a remarkable success story in its home market, arising as an upstart in a competitive environment dominated by British Telecom (a public telecomm utility company) and Vodafone (a privately owned company). A series of innovative tactics, including unit pricing approaches, billing options, non-traditional advertising, highly responsive customer service, and avant-garde lifestyle appeals, Orange had rocketed into the marketplace during the 1990s. However, Orange then went through a phase where it was acquired and sold by a variety of larger corporations, and was ultimately acquired by a very large national telecommunications utility from another country. As part of this latter transition, a key founder figure of Orange decided to leave the CEO position to an appointee from the new holding company. Also, the company's board of directors was rebuilt, and the new set of board members wrestled with the question of how to respond to the sharpening strategic difficulties facing a more mature Orange in an increasingly competitive market place.

With Orange's moves into and out of the corporate structure of several larger holding companies, though, some employees in the strategy-making department began to worry about dilution of elements they regarded as the core of Orange's success: e.g., a non corporate mindset, close attention to customer service, an entrepreneurial level of commitment to the organization, and a set of internally- and externally-directed brand

values. The strategic problem they perceived, thus, was decay of the organizational attributes they felt to be at the core of its successful growth. As part of their efforts to counteract these tendencies, they contacted one of the authors in late 2000, having been intrigued by news of recent experiments in dealing with questions of strategy using a process that includes LEGO materials (see "Workshop Activities and Flow" below for further description).

In the ensuing months, the authors had repeated contact with Orange's strategy planning department and the planning/strategy staff from various businesses. There were several meetings and small-scale experiments with the company's strategy team using the experimental techniques. In an internal email, a key member of this team narrated the development of this relationship in the following way:

The Group Strategy and Futurology team at Orange SA have been experimenting with new methods to create, communicate, interpret and implement strategy since the group's foundation four years ago. … A key focus over the past 18 months has been our experiments with LSP [sic] which have revealed very promising insights in this neglected area.

It was decided that a workshop using these techniques should be conducted for a group of senior managers. The group consisted of strategists, senior contributors to the brand team, and senior human resource managers. In preparation for the workshop, the first author conducted hour-long, individual interviews with 8 of the 9 individuals who participated in the workshop. The semi-structured interviews covered individual current position and job history, perceptions of organizational morale, culture, and the company's brand. By means of these interviews we were able to identify more precisely what some of the organization's strategic needs were, identifying four key themes pertaining to the question of the Orange "brand":

Interviewees emphasized Orange's history of succeeding despite adverse circumstances with a considerable amount of pride, lending the entire discussion a palpable sense of nostalgia.

Orange's essential distinctiveness as an organizational culture was found to be practically impossible to articulate, although many references to a "moral" or "ethical" way of operating were made.

The ability of Orange to be both ethical and successful in the past was felt to be under threat, and a choice now loomed between "being ethical" or "being successful."

The challenges of globalization were felt intensely as a need to balance the essence of 'what Orange is' with the need to adapt to local cultures and contexts.

This suggested to us the enormous significance to employees of Orange's growth story, coupled with its strong sense of itself as being both a high performing organization and a force for moral improvement in society in general. Orange's 'brand' was constantly referred to in terms suggesting an icon that fused aspects of history, mission, performance, and morality for the organization. Two excerpts from the interviews make this point particularly well. One participant said: "It was a bad year, and I did think about leaving. But it's such a fantastic brand – and some of the stuff we come up with here for promoting it – you just couldn't do it anywhere else! Christ, I've been here 11 years now…." And another offered: "The heart of this company is emotional and passionate. It's a very emotive organization, especially because of where it came from, that powerful brand – it relates to a feeling."

With this information, we were able to frame a specific objective for the workshop: namely, to generate content for organizational strategy grounded in the power of the brand, but which acknowledged that the organization was experiencing challenges that were fundamentally different from those it had faced during its explosive growth phase.

Workshop Activities and Flow

This group of individuals then participated in a 2-day strategy workshop in which individuals use their hands collectively to build complex models of elements of their work situation.[xxxvi] During the two-day retreat participants co-construct, de-construct, and re-construct their view of the organization and its business landscape under the guidance of a facilitator.

Approaching the strategy workshop, participants seemed interested but guarded about what they were to undertake, and some skepticism was voiced. In the warm-up exercises, the senior brand manager seemed to become upset by a comment one of the other participants made about what she was doing, and she may have become more tentative in her contributions to the group work for the next several hours. After these warm-up activities, the first phase of the workshop involved building a model representing what participants could agree on as a common identity for the many-sided and diverse Orange organization. It had become much more international since its incorporation into the larger foreign national holding company, and was characterized by a great number of different groups and entities – not all of which seemed to be acting in concert with one another (recall that Orange had suddenly grown, non-organically, through takeover). The group voiced frustration with their ability to arrive at a representation they all felt was accurate but comprehensive enough, and considerable time passed with different ways of representing it offered and then rejected. They seemed to be relieved when several different views of the identity of the organization were combined to show a flotilla of ships of different sizes, shapes, capabilities, etc., scattered over the sea, straggling forwards. Relief then gave way to some excitement, and participants' behavior began to be more positive, instead of the almost moody and pensive demeanor they had shown an hour previously.

As the end of the first day of the workshop drew near, participants' engagement remained quite intense – there was a constant degree of low-grade "building" activity around the table, and participants would frequently lean in and adjust or add to the now quite complex model on the table in front of them. In the morning of the second day, there were a number of comments about the intensity of the experience they were having. Several individuals complained of feeling "knackered" by the intensity of the session so far. It was unclear to the researchers if this sense of being emotionally drained was viewed positively (exhaustion with a sense of accomplishment) or negatively (exhaustion without a sense of accomplishment) at this point. When one of them stated quite seriously that she had "dreamed of LEGO last night," and another quickly added that he

had as well, it seemed to the researchers that the activities were having an especially strong psychological impact on the participants.

In the next phase of the workshop, participants began to populate the area around their flotilla model with different constructions representing aspects of their social, economic, and competitive context. One participant, for example, sought to illustrate how a very large competitor with its power base in another part of the world was likely to enter into direct competition with Orange, and she placed the large, blocky figure representing this competitor on a bookshelf on the wall behind the table. The competitor was, as she put it, "coming in from left field," an assertion made patent in the physical location of the figure at the edge of the space where the group was working. Two of the other participants eagerly began to question the individual who had arrived at this particular contribution – Did she really think this competitor was interested? Yes, she responded, that's why I've placed them coming right over at the table. Do they have the resources to really come in and shake things up? Absolutely, she continued – look at how big and threatening I've built this model of them. This very resourceful way of introducing and representing a competitor, said a participant in the subsequent interviews, 'hit them in the gut.' Cumulatively, this and several other surprises made for a particularly strong impression on participants about their competitive position. One participant commented: "I used to think we had maybe 3 or 4 competitors. But now the table just isn't big enough to hold all of them!"

The concluding phases of the workshop seemed to be characterized by a shared group perception that the holistic panorama they had built was a novel and important experience for them all. One participant stated, "It's like, once you get all the problems on the table, you can deal with them. And that's what we've done -- we've got them all on the table!" This point crystallized for participants in one key event. Up to the morning of the second day, the group had placed an icon of their brand in the front of the "flotilla," as if that was what drew them further. In a moment of experimentation, one participant placed the icon of the brand at the rear of the flotilla. After a moment's hesitation, participants nodded in acceptance of this radical statement of the importance of the

16

brand to their present situation, even though the notion that the brand was somehow "behind" them clearly struck several people as an almost "taboo" thought.

Near the end of the second day the group was engaged in a discussion about the interactions of many of the elements they had build and represented on the table. There had been a running commentary among the group throughout the workshop about a surge of emphasis on EBITDA growing among senior management. While many among the group recognized the importance of financial issues, they also seemed to think that a focus on EBITDA alone couldn't take precedence over the more fundamental issue of attention to customers and to the brand. There were several cynical references to the concept, suggesting that it was perhaps not to be taken too seriously. But in ensuing discussions an awareness seemed to dawn on all that a great number of fundamental strategic decisions and opportunities were going to hinge on available cash. One participant muttered "EBITDA" in a tone that suggested that he had suddenly had an epiphany about the importance of this measurement to organizational success. From that point on, the group discussed the importance of EBITDA in a much less cynical way.

Aftermath

Approximately 3 weeks after the workshop, two of the researchers debriefed the senior strategy member of the participant group about continuing discussions among the group who had participated in the workshop. Subsequently, follow-up interviews were conducted with these participants, in which they evaluated the influence that this workshop had on their own activities inside the organization. Some email exchanges among Orange staff were also made available to the researchers, helping to shed light on the effects of this handcrafted approach to strategy inside the organization.

A high degree of exchange continued among the members of the group who had undergone this workshop. Many noted in the follow-up interviews several weeks afterwards how they had continued to make references to one another to the workshop and the ideas, vocabulary, and insights they had collectively had. One example of the long-term influence of this workshop is seen in the retention of the language that was used in it. Thus, a "brand futurist" sends an email and cc's approximately 25 other senior managers, in which he argues with a colleague, saying: "S-, including the reality of one of

17

our principles following our lego [sic] days – understand (y)our own skeletons," making explicit reference to one of the group's insights during the workshop. Another member of the workshop forwards this email, taking specific note that the insight stemmed from the strategy workshop that took place 9 months previously. Still another internal email from one participant to another claimed that "the vocabulary of strategy-making [is] changing within the business" as a result of the workshop. There were certainly some critical comments -- the brand manager who had been upset by a comment in the warm-up exercises noted that she did not think the workshop had produced what she deemed "professional" output. Another individual, while acknowledging the freshness of insight he had experienced in the workshop, wondered how he was to apply it in his work.

In general, one of the effects most participants remembered even several weeks afterwards was the high level of involvement and energy in the workshop. One said: "Many of us were surprised at the level of *presence* we felt." An intense degree of psychological energy was reported by all participants, and, at the end of the second day, several of the participants reported having headaches from the concentration of the two-day session. Said one of the group in a later interview: "Most of us talked about having a "big, vivid memory" of the proceedings during the two days, with everyone being able to recall in detail each stage of the process and the point at which specific pieces of content emerged."

There was an implicit sense that the activity had penetrated the shell of objectivity most people have towards their work, and created an unusual subjective state. The reports of "dreaming of building with LEGO" indicate that a uniquely emotional depth was attained in this workshop. This is supported by the lasting feeling of fatigue – "feeling knackered"– that many reported having had throughout the week, as if some great accomplishment had drained them. One individual had a particularly strong statement about an emotional epiphany he'd had: "I remember reflecting on the [workshop content] and reaching a moment of clarity that helped develop a framework for looking at the future".

Discussion

18

The case of this group of senior individuals at a large organization developing strategy using a manually-demanding technique illustrates the concept of "strategy crafting as embodied recursive enactment" in both literal and figurative ways. In this respect we stress the hand's role in manipulating physical objects; the constructivist and constructionist elements of learning and knowledge creation; and the construction of meaning based on discursive interaction. Below we will explicitly link our observations from the case to individual elements of the theoretical framework.

The physiological dimension: Embodying and using the hand

Drawing on neuro-physiological, evolutionary and cognitive lines of research, we emphasized earlier the close link between hand and brain. Manipulation of the physical world with the hands, we suggest, constructs understanding of the world as an interior experience.

The workshop we have discussed at length in the above case study calls for extensive manipulation of materials and deft use of the hand as an instrument for creating knowledge in a visual form. In the workshop described in the illustrative case study each participant assembled more than 15 models, every one representing some element of the overall strategic situation of Orange. Some of these models were repeatedly modified during the course of the two days, while some were ultimately discarded. The models are assembled by picking up pieces, locating them relative to one another so that they fit together in the intended way, and then pressed together – again and again throughout the workshop. Smaller constructions are often turned this way and that, their different sides explored for additional building possibilities, they are linked together, perched on top of or near one another, etc. Overall, therefore, to a much more intense degree than in their other work-related activities, participants in this workshop were called to use fine motor manual skills. Thus, their hands were far more involved in the creation and exchange of information in this workshop than it is in other, more traditional types of strategy-making activities.

A closer look at three strategic issues that were explored through the workshop indicates the importance and impact of this manual activity. By building different models of ships and then repeatedly refining their arrangement relative to one another, participants

generated physical representations of the organization's identity both cognitively and manually. By constructing a hitherto neglected competitor as a large, bulky figure and situating it on a shelf, spatial information was deployed to make Orange's relationship to this entity obvious. Finally, when experimenting with the relative position of the brand icon to the ship arrangement, participants experienced what was often an important but abstract concept – "the brand" – in a physical dimension.

The experience of the participants, in terms both of how they were observed to behave and what they said, suggests that the act of *manipulating* material was mentally stimulating (and potentially transformative). While the level of physical exertion was low during the two days, participants did report feeling that they had exerted themselves mentally, and some felt a form of mental exhaustion. This illustrates the physiological level of our theoretical model: namely, how the intensive manipulation of materials stimulated cognition, and created a physiological experience of strategy-making. Furthermore, the concerted use of the hands in this illustrative case can be seen not only as demanding additional attention and stimulating cognitive activity, it can also be seen as a form of embodying knowledge.

Not that our hands are ever inconsequential to our behavior as humans: speech researcher Robert Krauss' observations about hand movements occurring involuntarily during speech as a mechanism to "help us think" emphasizes their importance in any case. In the case of the strategy workshop described below, people are working with the fine motor skills of their hands in ways that rarely occur in managerial settings. Thus, while one can certainly assert that writing text on a keyboard (or with a pen), or creating images on a screen by manipulating a computer mouse, is just as much a "manual" activity, one must also draw a distinction between these activities and the far different, more constructionist activity involved in building a series of 3-dimension models, and then grouping them in meaningful configurations in the space atop a table. The latter activity is a more demanding type of manipulation, and thus closer to a primal human activity such as tool-making and tool-using.

In sum, the experience reported in the case study illustrates how the physical manipulation of previously abstract concepts helps to make them accessible as embodied experience.

The psychological dimension: Learning and 'Building Thoughts'

Constructionism theory suggests that the act of building objects helps to constitute knowledge in the mind. In this connection, it appears that new knowledge about what the organization is, about what its competitive position is, and about what sorts of behavior might be useful for it in an uncertain, emergent future was created for participants in the workshop. Significantly, the knowledge that was constructed and acquired by participants was immediate and vivid in ways not often seen. This is explicitly seen in the statement of one of the participants in the workshop: "Strategy," they reported, had suddenly become "more relevant for real people like us. The whole organization came alive on the table for our group."

This case study, therefore, illuminates the theoretical ideas of Piaget, and – further still – provides a glimpse of how a "crafting strategy" approach looks like when applied in practice. Providing a highly open-ended construction medium like LEGO bricks, in the setting of a group workshop dedicated to the representation of the organization and its landscape, meets the conditions of the "constructionist" ideal – putting together appropriate materials and appropriate context. In the case of the strategy workshop discussed in this case study, the entire group of 9 individuals used in excess of 6,000 bricks and other LEGO construction elements to build nearly 80 different models representing parts of the organization, competitors, specific organizational functions, etc. The technique took the often abstract conceptualizations of strategy, competitive position, threats, opportunities, etc., and made them vivid and immediate as a body of self-constructed knowledge. "It was the actual building of things that was so powerful," reported a participant. "To get what we had in that room you have got to build. It makes strategy compelling," he elaborated later.

The case study illustrates the psychological level of our theoretical framework since, at the most basic level, the model-constructing activity is both a form of accumulating visual and interpretative knowledge, as wells as a form of creating knowledge. Each new built

part becomes an element in a universe of objects which can be further manipulated to generate knowledge. The action of building and creating elements of knowledge in the models implies a change not only in the overall knowledge available, but also in the relationships among the constituent elements. A recursive cycle of enacting and generating knowledge is set in motion that can be called, quite simply 'learning.' In a sense, then, crafting strategy also means crafting what Piaget would call "the object of knowledge."

These assertions are illustrated by the way that the three strategic issues discussed above were experienced by participants in the workshop. In terms of Orange's identity, the cognitive exploration of the arrangement of ships while manipulating the arrangement manually contributed to shaping a picture of an organization with independent, yet related entities. Investigating and manipulating the underestimated competitor allowed for a more close exploration of his position – both figuratively and physically. Finally, manipulating the brand icon helped participants inquiring into the nature and role of the brand in the organization's crucial transition phase.

The typical approach to addressing strategy-related problems involves posing a question, reflecting, and then verbally articulating some answer or solution. In contrast to this essentially mental method, the workshop actually has people thinking with their hands. The activity of building models is the method by which participants simultaneously develop and represent solutions to the key questions being posed. This process therefore shrinks the gap between thought and activity, and makes the processes focused on strategy issues much more akin to the activity of the potter at her wheel that Mintzberg discussed. And, just as in the case of Mintzberg's potter, the strategy issues dealt with by the Orange group were experienced in a manner very real, vivid, and immediate, so that <u>thought</u> and <u>action</u> converged.

If we take the implications of Piaget's and Papert's work seriously, we are led to the inference that to know the organization one must, in some sense, do the work of building up some representation of it. It follows, then, that through the work of building the representation of Orange, in the form of the "flotilla" model, the participants are building simultaneously their own knowledge of this complex, multinational entity. And it

may be by such means, therefore, that a "crafting strategy" approach can be made more of a form of practice than just an evocative metaphor.

In sum, then, the abstract insight that action and cognition are inseparable – as Piaget suggested – became evident for participants through their experiences in the workshop.

The Social Dimension: Enacting and 'Socially Constructing Strategy'

In the workshop, the physical construction of conceptual representations was complemented by a process of social construction of meaning through discursive interaction. The meaning negotiation – triggered and informed by the physical constructions – resulted in the participants' consensual verbal acknowledgement of the flotilla as an accurate, integrative model of Orange. They also heard, discussed, and ultimately accepted the idea of a previously underestimated competitor as an element in the three-dimensional landscape they built. Finally, they critically reviewed and then revised the unquestioned assumption that the brand drew the organization forward, and placing it finally "somehow behind" – both figuratively and literally.

In a more fine-grained analysis, the workshop illustrates the social constructionism level of the theoretical framework we have elaborated at two different levels. At one level, the aggregate of the several participants' building activities can be seen as a schematization of social construction, with the assembly and placing of each model contributing a piece of knowledge about the organization to the group's understanding. The positioning, re-positioning, and sometimes even removal of elements of the model, thus, diagrams the way that meaning is being negotiated, created, and even rejected in the interaction of the participants. The resulting composite of individual contributions, therefore, can be seen as a dynamic architecture in miniature – a living maquette – of the group's resulting sense-making of its strategic situation.

At another level, it is the discursive social interaction of the group of participants in their collective work of building a coherent construction of their work environment that creates new knowledge for them of their situation. The explicit observations that support this include the statements about being surprised at the number of "competitors," about having a totalized vision of the strategic challenge confronting an organization, and about discovering the importance of EBITDA as a factor in the organization's future self-

determination. Arguably, the participants were able to construct a more complete and overall view of the organization and its context than almost anyone else had. Even more importantly, their knowledge was not the abstract grasp of a concept; it was the animated knowledge of a complex thing invested with emotional energy and group involvement. Exploring the three elements of our conceptual framework in view of the case data, therefore, highlights the analytical potential of each element. Beyond these individual elements though, the conceptual framework locates these three elements of recursive enactment as intertwined parts of an integral process. In this respect, Figure 2 synopsizes how our framework sheds light on specific elements of the crafting process discussed in the case data.

Strategic issue	Crafting strategy as embodied recursive enactment		
	Physiological: Experience built through manipulation	Psychological: Learning built through construction	Social: Meaning built through discursive interaction
Identity	Building & arranging different models of ships	Exploring the arrangement in terms of independent, yet related entities	Flotilla metaphor emerged as an accurate, integrative model of Orange's identity
Competition	Constructing a large, bulky figure situated on the shelf behind	Investigating this competitor's size, position and relevance	Relevance of previously underestimated competitor was acknowledged
Brand	Experimenting with the relative position of the brand icon vis-à-vis the flotilla	Inquiring the nature and role of the brand in this transition phase	Rather than drawing the organization, the brand was considered « somehow behind »

Figure 2: Crafting strategy in Orange – Synopsis of case episodes

Contributions to Theory and Practice from our Theoretical Framework

While Mintzberg's emphasis on strategy-making as a form of active exploration that leads to serendipitous insights is supported by the experience of this group, Weick's notion of strategy substitutes also finds some support. Like Mintzberg, Weick proposes that

strategy is neither a retrospective rationalization of success, nor a cognitive forecasting activity, but a form of discovery of meaning that arises from actions that have been taken. "Because situations can support a variety of meanings," he proposes, "their actual content and meaning is dependent on the degree to which they are arranged into sensible, coherent configurations."[xxxvii] Paraphrasing Weick's famous phrase on the essence of sensemaking,[xxxviii] we could frame the overall implication of hand-mind-interaction in the context of strategy-making as "How can we know what we mean until we see what we build?"

Similarly, and with a specific focus on meaning negotiation through discursive interaction, we pointed earlier to Crossan et al.'s (1999) argument, which relates to our model in two ways. First, their argument strongly supports a social constructionist framework: they state that ideas are often intuited via images and metaphors and then interpreted through conversations and dialogue, and are ultimately integrated through these conversations in shared understandings of a certain state of affairs. This sequence of individual actions aggregating to the level of a social reality, which affects other individual actions is, in a sense, a detailed anatomy of social constructionist process. Second, their reasoning is explicitly concerned with bridging the conceptual gap between the individual and the social: the individual levels of intuition on images and metaphors, and collective processes of dialogue that leads to shared understanding and thereby the development of a shared language.

While their work builds a theory in which the effects of individual psychological processes are traced through levels of integration to the highest and most aggregative level: from individual intuition, to individual-group interpreting, to group-organizational integrating, to organizational institutionalization. In our work we are also tracing a theoretical spiral upwards through levels of integration: from the physical, to the psychological, to the sociological. Our three-level model seems complementary, seeing direct individual physical activity as generative of certain types of cognitive states, which become filtered through group interaction processes – both verbal and physiological – and ultimately integrated in terms of new group understandings. We extend their argument, however, in terms of the importance we assign to the use of the hand and to the physical

constructions it allows us to undertake in terms of strategy-making. This theoretical contribution suggests that the notion of crafting as embodied recursive enactment *bridges* intuiting, interpreting and integrating – the three core elements of their approach.

The theoretical framework we have developed also extends the universe of behavior typically addressed by social constructionist theory to include the overtly physiological. In this context, Giddens has been at pains to emphasize the need to "confront – in a concrete rather than an abstractly philosophical way – the 'situatedness' of interaction in time and space" in the development of social theory. This is a challenge we have taken on in developing our framework: by integrating the hand-mind dynamic into our theoretical framework, we are adding to the ways in which all of human action – not linguistic alone – enables and enacts meaning. However, we have not simply added one more dimension of action, but integrated it into a integral framework unified by the ideas of enactment and construction: the hand constructs experience, individual action constructs knowledge, and social interaction constructs meaning – a series of levels integrated by a constructionist ontology.

Theories of strategy formation inside of organizations, therefore, are also impacted by our framework, but at a very practical level. The "crafting strategy" falls broadly within what Whittington calls the "processual approach" to strategy formation, created on the basis of two fundamental notions: that rational action is cognitively bounded, and that strategy formation is strongly affected by organizational micro-politics.[xxxix] The core challenge to traditional strategy- making that processualism affords, however, has been at the level of theoretical critique, i.e., focusing essentially on the notion of satisficing.[xl] But recognizing the cognitive limits on rational action does not imply the alternatives to the classical or traditional strategy-making behaviors: in pursuing the metaphor of "crafting strategy" to its logical endpoint in a form of behavior for strategy-makers, therefore, we can add a positively practical edge to the processualist critique. Using techniques that are recursively enactive at different levels of scale in human experience (physiological, psychological, and social) allows strategy-makers to take practical action in pursuit of the successive approximations called 'strategies.'

Implications

Along with the theoretical framework we have offered in this paper, the illustrative case study of the workshop bears implications for research into strategy-making generally, and the more unconventional techniques used in this process more specifically.

Visualization:

Visualization of strategy has been an important dimension of strategy-making, and a corresponding stream of organizational research addresses this theme.[xli] Mapping has been regarded as a particularly important activity in this connection, although a dominant emphasis in such activity has been the attempt to translate cognitive information into graphic form, e.g. via cognitive mapping.[xlii] There have been attempts to develop such mapping activity into more innovative directions, such a cognitive sculpting.[xliii] This technique consists of arranging objects that have direct associations (e.g., lightbulbs + "ideas") and more neutral objects (e.g., driftwood) in order to help represent strategic thinking in three-dimensional and associative terms.

The process described in the illustrative case is an example of a visualization process in some ways akin to cognitive sculpting. It adds, therefore, to a line of thinking about strategy as a set of particularly implicit and highly contextualized activities[xliv] which are especially dependent on both the mode and medium in which they are made explicit. Cognitive sculpting does spatialize and visualize important organizational issues, but the techniques used in the illustrative case study differs in making particularly strong demands on the use of the hands for connecting and arranging the building set pieces. Furthermore, the building set pieces are highly modular, and therefore lend themselves to more elaborate and potentially more evocative constructions than does the simple arrangement of "found objects."

Both cognitive sculpting and the strategy workshop technique reinforce the idea that the visualization and imagery of strategy may be a crucial factor in its development.[xlv] Furthermore, the workshop technique suggests how a highly social activity like strategy-making activity can be embedded in both individual (constructionist) learning processes and an ineluctably physiological practice (manipulation) we use to construct the world. It

also provides an example of how highly abstract theoretical constructs like "social constructionism" can be traced via a specific class of activity in the behavior of organizational members. Thus, the theory development we have offered in this paper takes what appears to be an evocative turn of phrase ("crafting strategy") and grounds it in practice.

Dramatization

The use of drama as a means of addressing organizational issues has grown in recent years[xlvi], especially as a tool for organizational change management.[xlvii] Consisting largely of customized dramas written on subjects like culture clash during an M&A, communication difficulties among organizational levels, drama derives its efficacy from the establishment of a second reality (that represented in the drama) which throws the contingency of the first reality (of the organizational members) into relief. While it is known from a variety of informal settings like holiday parties as a means of surfacing and addressing these challenges[xlviii], formal use of drama serves explicitly as a classic "unfreezing" mechanism during a time of organizational difficulty. However, it must necessarily be supplemented with follow-up techniques, and be embedded in an overarching change management process

 Like the technique described above, drama is an unconventional means of addressing organizational challenges. Since drama-based interventions rely on follow-up techniques, such as debriefs, or formal and informal discussions among the audience about the issues dramatized, though, it does not go as far in helping sense-making as the technique in the workshop did. Furthermore, while many drama-based interventions can bring a power of visualization and emotional projection to organizational issues relevant to strategy, the fact that these dramas are often written as set pieces makes them less flexible as means for creating inputs to the strategy-making process. The use of human actors animates situations in a more realistic fashion than techniques which employ objects to represent reality. At the same time, though, drama-based techniques may not convey information about as wide a set of variables, since object-based techniques can implicate and reference a wider set of people, issues, trends, forces, agencies, etc., simultaneously and panoptically.

Nonetheless, dramatization shares with the object-based techniques the potential for visualization of strategic issues. As the first two authors of this paper have argued elsewhere[xlix], the imagery conventionally associated with strategy and strategy-making not only carries with it assumptions about rational 'economic man,'[l] but also fails to capitalize on the potential for multimodal sensory inputs as a means of making sense of highly complex situations. We believe strongly that the physiological, psychological, and social dimensions of strategy-making processes need to be researched more closely, especially in ways which strive to see beyond the limits of organizational conventionality. The "images of strategy" that strategy-makers experience – both as makers and as consumers of this imagery – is a vast reservoir of understanding that visualization approaches like cognitive sculpting and dramatization are beginning to tap.

Caveats

The illustrative case we present here, while part of a complex and long-term relationship with a very large organization, focuses on the before, during and after of a single workshop involving senior members of a large telecommunications organization. It remains, therefore, only a provisional and largely suggestive illustration rather than conclusive data. It is only reasonable to assert that additional information is needed to be able to flesh out more fully our theoretical schema of new extensions for strategy development using techniques that link the mind and the hand.

While any additional data sources on mind-hand interaction would be valuable, it would be particularly useful if these data were gathered in a similar organizational setting, using a technique similar to the workshop described above, in order to control variability better. Certainly, other techniques that leverage the potential of the hand-mind dynamic can be used in organizational settings, using materials other than the LEGO bricks. These too should be explored, especially in juxtaposition to the workshop described herein, so that the effects of different types of material (construction potential, evocative effects of color, shape, etc.) can be assessed. Such controlled experimentation would, more importantly, provide a control for questions about potential differences in output from verbal vs. haptic techniques.

Moreover, data need to be gathered from organizations with differing types of internal norms, to check against the possibility that Orange's internal "culture" was responsible for reactions noted. Also, the fact that the group participating in this workshop consisted of a mixture of different functional backgrounds may have been in part responsible for the dynamics, so heterogeneity-homogeneity factors will also have to be controlled for in the future. Additional factors which should probably be controlled for include the role of gender and national culture, neither of which has been factored into the present data set. In sum, the illustrative case we offer here is necessarily provisional and subject to several limitations on generalizability and interpretation, however suggestive it may be. We fully expect that a critical examination of a variety of these additional factors will contextualize the data we have presented here, for better or for worse.

Conclusion

Since 1987 the idea that strategy should be crafted has remained a provocative metaphor for ways of collapsing the artificial distinction between knowledge and action in the strategy development process in organizations. As persuasive as Mintzberg has been on the need to understand that "we act in order to think," the logical next step in approaching strategy as something to be "crafted" has not been taken. This article develops and illustrates an integrative framework to move Mintzberg's idea from metaphor to practice: crafting strategy is a process of embodied, recursive enactment. The implication of our thesis is that crafting strategy could one day no longer be simply a compelling image of an organization uncovering new opportunities through trial and error, but a technique through which individuals collectively use their hands to develop a different type of strategy content. Instead of a detached, analytical, and cerebral activity inside organizations, therefore, the process of developing strategy can offer passion, involvement and discovery in employees' work.

ENDNOTES

[i] Mintzberg, Henry, Crafting Strategy. *Harvard Business Revie*w, **65(4)**, 66-75 (1987).

[ii] The potter, says Mintzberg, "…sits before a lump of clay on the wheel. … She has an intimate knowledge of her work, her capabilities, and her markets. As a craftsman, she senses rather than analyses these things; her knowledge is 'tacit.' All these things are working in her mind as her hands are working the clay." *Harvard Business Revie*w, 65(4)**, 66-75 (1987).**

[iii] Penfield, Wilder, and T. Rasmussen, *The Cerebral Cortex of Man: A Clinical Study of Localization of Function.* New York: Macmillan (1957).

[iv] Gibson, Kathleen, and T. Ingold, *Tools, Language, and Cognition in Human Evolution*, New York; Cambridge University Press (1993). Tattersall, Ian, *Becoming Human: Evolution and human uniqueness*, New York; Harcourt Brace & Co. (1998). Wilson, Frank, *The Hand: How its use shapes the brain, language, and human culture*, New York; Pantheon Books (1998).

[v] Wilson, Frank. The Hand : How its use shapes the brain, language, and human culture. New York: Pantheon Books. 1998, p. 7

[vi] Hadar, U., D., Wenkert-Olenik, R. Krauss, and N. Soroker, Gesture and the processing of speech: Neuropsychological evidence. *Brain and Language* , 62, 107-126. (1998). Krauss, R. M., Y. Chen, and R. F. Gottesman, Lexical gestures and lexical access: A process model. In D. McNeill (Ed.), *Language and gesture* (261-283). New York: Cambridge University Press (2000). Krauss, R.M., Why do we gesture when we speak? *Current Directions in Psychological Science* , 7, 54-59 (1998).

[vii] Quoted in McGinnis, Mara, How the Gesture Summons the Word, *Columbia Magazine*, Spring Issue, 60-63 (2002).

[viii] Piaget, Jean, *Biology and Knowledge* Chicago; University of Chicago Press (1971). Piaget, Jean, B. Inhelder, and H. Sinclair, *Memoire et Intelligence* Paris; Presses Universitaires de France (1968). Furth, Hans, *Piaget and Knowledge: Theoretical Foundations* (2nd edition) Chicago; University of Chicago Press (1981). Harel, I., and S. Papert, eds., *Constructionism* Norwood, NJ; Ablex Publishing Corporation (1991).

[ix] Piaget, Jean, Assimilation et Connaissance, In: *Etudes d'epistemologie genetique* V, 49-108, Paris; Presses Universitaires de France (1958).

[x] Harel, I., and S. Papert, eds., *Constructionism* Norwood, NJ; Ablex Publishing Corporation (1991). We acknowledge the subtle distinction between constructivism and constructionism. It might be more relevant to the ongoing debate in educational psychology than for our argument however.

[xi] This 'cyclical' aspect of learning is exemplified in the work of David Kolb on the experiential learning cycle (ELC), which, like Piaget's work, similarly emphasizes the incremental and developmental aspects of knowledge growth. In the ELC, the four-fold process of experience, reflection, abstraction, and deployment (testing) emphasizes that action always yields some type of experience, which, when reflected upon, and abstracted, can then shape new actions. On the one hand, then, learning is a continuous process involving the integration of new experience into the ways that one interacts with the world – it too is a form or recursive enactment. See Kolb, D. and R. Fry, Toward an applied theory of experiential learning, In: *Theories of Group Process*, C. Cooper, ed., London; John Wiley (1975). Also: Jarvis, P., *Adult and Continuing Education: Theory and Practice*, 2nd ed. London; Routledge Kegan (1995). On the other, the actions one

takes as a result of learning are necessarily 'improvisational,' because of the additive and transformational nature of the ELC.

xii Reaching further, still, an even deeper sourcing of the idea of cyclical learning arrives at Kurt Lewin's work in social psychology. See Lewin, Kurt, *A Dynamic Theory of Personality* New York: McGraw-Hill (1935). Also Lewin, Kurt, *Resolving Social Conflicts: Selected papers on group dynamics* G. Lewin, (ed.) New York: Harper & Row (1948).

xiii Smircich, Linda and Charles Stubbart, Strategic Management in an Enacted World, *Academy of Management Review* 10(4): 724-736. (1985)

xiv Weick, Karl, *The Social Psychology of Organizing* (2nd ed.). New York: McGraw-Hill. (1979) Weick, Karl, *Sensemaking in organizations*. Newbury Park, CA: Sage. (1995)

xv Gergen points out, in fact, that Piagetian "genetic epistemology" is one of the intellectual traditions to which social constructionism bears a special relationship. Gergen, Kenneth. *Reality and relationships, Soundings in social construction*. Cambridge, Harvard University Press (1994): 67

xvi Berger, Peter L., and Thomas Luckman. *The Social Construction of Everyday Life*. New York: Anchor (1966). von Glasersfeld, Ernst. *Radical constructivism: A way of knowing and learning*. London/ Washington, DC.: Falmer Press, (1995). Gergen, Kenneth. *An invitation to social construction*. London: Sage. (1999); Gergen 1994.

xvii Gioia, Dennis. Give it Up! Reflections on an Interpreted World (A commentary on Meckler and Baillie). *Journal of Management Inquiry* 12(3): 287

xviii Gergen 1994: 264

xix Giddens, Anthony, *The Constitution of Society*. Berkeley: Univ. of California Press (1984).; see also Gergen 1994:67

xx Giddens 1984: 117; and see all of Giddens 1984: Chap. 3.
xxi With regard to the case study we present in this paper, there are important methodological ramifications of the concept of social constructionism as well. As Gergen et al. note (1996: 34), the selection of a theory, i.e. language game, determines what phenomenon is to be examined, how it is to be examined, and what outcomes can be expected in that regard. Research as a human activity, therefore, is beholden to the same observation that the meaning of human action is constituted through social interaction and can therefore only be accessed by social interaction. Researchers then not only observe the behavior of human beings, but also participate in the meaning creation of certain contexts of study. The researcher then is not only 'reading' a certain social phenomenon as text, but 'writing' it at the same time. Such alternative perspectives to research, Gergen et al. posit, "sensitize us to our participation in constituting our world, thus emphasizing our potential for communally organized change in understanding – and thus action" (Gergen et al. 1996: 364). Such a theoretical stance, therefore, recognizes and reinforces the value of a case study approach (Stake 2000).

xxii Gergen 1994: 49.

xxiii Nonaka, Ikujiro and Takeuchi, Hirotaka. The Knowledge-Creating Company. Oxford University Press. (1995).

xxiv Nonaka and Takeuchi, ibid.

xxv Crossan, Mary, Henry Lane, and Roderick White, An Organizational Learning Framework: From intuition to institution, *Academy of Management Review* **24(3)**, 522-537 (1999).

xxvi Crossan et al. p. 524

xxvii Whittington, Richard. *What is Strategy? – and does it matter*? Oxford: International Thompson. (2001): 4

xxviii The idea that action increases understanding which we have focused on in the work of Weick and Mintzberg has had wider discussion outside the strategy field, in, for example, Blackler, F. Knowledge, knowledge work, and organizations: An overview and interpretation, *Organization Studies* 16: 1021-1046, (1995); Cook, S., and J. Brown, Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing, *Organization Science*, 10: 381-400 (1999), Nicolini, D., and M. Meznar, The social construction of organizational learning: Conceptual and practical issues in the field, *Human Relations* 48: 727-740. A touchstone for much of this scholarship is Polanyi, M., *The tacit dimension*, London: Routledge (1967).

xxix Weick, 1987: 231

xxx In the area of strategy, these same recursive processes are deftly evaluated by Weick, for instance, in his discussion of "substitutes for strategy (Weick, Karl, Substitutes for Strategy. In: D. J. Teece (ed.), *The Competitive Challenge*. Cambridge, MA: Ballinger (1987). Hamel, too, has made a case for activity as a necessary stimulus for strategy formation in calling attention to what he calls "expeditionary marketing".

xxxi E.g., Lakoff, George, and Mark Johnson, *Metaphors We Live By*, Chicago; University of Chicago Press (1980).

xxxii Weick, Karl, *The Social Psychology of Organizing* (2nd ed.). New York: McGraw-Hill. (1979) Weick, Karl, *Sensemaking in organizations*. Newbury Park, CA: Sage. (1995)

xxxiii Smircich, Linda and Charles Stubbart, Strategic Management in an Enacted World, *Academy of Management Review* 10(4): 724-736. (1985)

xxxiv Giddens 1984.

xxxv xxxv Heracleous, Loizos, and Michael Barrett. Organizational Change as Discourse: Communicative Actions and Deep Structures in the Context of Information Technology Implementation. *Academy of Management Journal*, 44 (4): 755-79 (2001). Orlikowski, Wanda, Knowing in Practice: Enacting a Collective Capability in Distributed Organizing. *Organization Science* 13(3): 249-273. (2002)

xxxvi This technique is called "LEGO Seriuos Play," and is an adult learning tool grounded in theories of play, imagination and complexity. The purpose of this technique is to uncover and create new insights by using LEGO materials as a medium for visualizing, communicating, and understanding business and managerial challenges. The conceptual foundation of this technique is reported in Roos and Victor (1999) and in various working papers of Imagination Lab Foundation, Switzerland.

xxxvii Weick, Karl. Substitutes for Strategy. In: *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*, D. J. Teece, ed. Cambridge, MA: Ballinger Publishing Co., pp. 221-233. (1987), p. 231.

xxxviii Weick, 1995

xxxix Whittington 2001: 21
xl Whittington 2001: 26
xli Huff, Anne, (ed.). *Mapping Strategic Thought*. London: John Wiley & Sons. (1990). Huff, Anne, and Mark Jenkins, (eds.). *Mapping Strategic Knowledge*. Sage Press. (2002).

xlii Huff 1990

[xliii] Doyle, J.R. and D. Sims. Enabling strategic metaphor in conversation: A technique of cognitive sculpting. In: Huff, Anne, and Mark Jenkins, (eds.). *Mapping Strategic Knowledge*. Sage Press. (2002).

[xliv] Whittington, 2001

[xlv] Bürgi, Peter, and Johan Roos. Images of Strategy. *European Management Journal*, Vol. 21, No. 1: 69-78. (2003).

[xlvi] Schreyogg, G., and R. Dabitz, (eds). *Unternehmenstheater: Formen – Erfahrungen – Erfolgreicher Einsatz*. Wiesbaden: Gabler. (1999)

[xlvii] Schreyogg, G. Organizational Theatre and Organizational Change. *Presentation to Academy of Management Conference*, Washington D.C. (2001)

[xlviii] E.g. Rosen, M. You Asked for It: Christmas at the bosses' expense. *Journal of Management Studies*, Vol. 25, No. 5: 463-480.

[xlix] Bürgi and Roos 2003

[l] Rumelt, R.P. D. Schendel, and D.J. Teece. Strategic Management and Economics. *Strategic Management Journal* 12 (Special Issue): 5-29. (1991). Whittington, (2001. Mintzberg, H. The Design School: reconsidering the basic premises of strategic management. *Strategic Management Journal*, 11: 176-95 (1990).