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# ORGANIZATIONAL DECISION MECHANISMS IN AN ARCHITECTURAL COMPETITION

Kristian Kreiner

## ABSTRACT

*Competitions celebrate meritocratic values. Letting the best man or woman win leaves little room for human choice, since presumably the result follows from ascertaining the fact that someone did better than the rest. But in architectural competitions, appointing a winner involves human choice. An in-depth empirical investigation demonstrates that such human choice has the character of intuition and judgment. The choice of the winner preceded the process by which the winning design proposal was established as being better than the other proposals. We discuss the role of intuitive choices in architectural competitions and claim that they reflect necessity more than vice. They are ways around the fundamental incommensurability of the alternative design proposals. The garbage can model is used as a framework for making sense of the observed counterintuitive ways of decision making. Its attempt to theorize alternative forms of orderliness proves helpful, but on certain points our observations also suggest modifications to the model.*

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## INTRODUCTION

Ideally speaking, competition is a substitute for choice. If properly designed and implemented, the competition will let the best man (or woman) win whatever preferences and qualifications the referees and bystanders may have. The merits of the contestants and their performances will decide. When performances are composite and qualitative, competitions entail a certain amount of human judgment. The careful staging of these competitions may be understood as a strategy for curtailing the subjectivity of such judgments, that is, to limit (ideally, to eliminate) the risk that decision makers' biases will influence the outcome. The staging will normally prescribe that committees, not individuals, exercise judgment. When committees consist of members with different backgrounds and accountabilities, the common task may easily tame the pursuit of individual agendas, and the collectiveness of the choice will even out idiosyncrasies. Of course, the staging also involves an *a priori* definition of assessment criteria to which all committee members are accountable. In spite of all the real-world complexity and ambiguity, the outcome of a competition, if legitimate, is still meant – and believed – to reflect the qualities of the performances, not of the committee members and their judgments. The mere suspicion that decision making processes are important in understanding competitive outcomes might easily distort the trust in the fairness of competitions and the integrity of meritocratic principles.

In this chapter, we will open the black box of staged competitions and expose the central role that collective choices play in appointing the winner. We do so not with the intention to discredit or delegitimize competitions as an institution, but to legitimize the role of decision makers as a constitutive and inescapable aspect of competitions. There is no reason to assume that human choices *per se* will produce unfair competitions and illegitimate outcomes; such choices may instead help competitions to “find” the right winners. The denial that competitions necessitate processes of decision making paves the way for subjective human choice and judgment to masquerade as objectivity. Since such choice and judgment may strengthen or undermine the institution of competitions, we feel encouraged to examine how such decisions are made, under which conditions and with what effects. If we can answer these questions in specific cases, we may have a better basis for understanding the nature and significance of choice and judgment in staged competitions in general.

The test case for our reflections is an *architectural* competition, and we will focus especially on the work of the assessment committee with respect to

appointing the winner. The institutional framework for such architectural competitions requires certain procedures to be observed in order to balance concerns for the mobilization of creative ideas, the efficiency of the competition, and the fairness of the outcome (Kreiner, 2010a, 2010b). An elaborated Competition Brief outlines the design task in great detail, which supposedly equips the assessment committee with multiple criteria for evaluating the received design proposals. The winner is supposedly found as the result of such evaluations. Yet, in the studied competition, it is fair to claim that the winning design determined the evaluation criteria more than the other way around. Apparently, this way of making a choice in the assessment committee did not bring the legitimacy of the competition into question, but it will question our common understanding of staged competitions.

In this article, we assume the task of understanding how choices happened in this particular architectural competition – and, equally important, why it could not have happened in any other way. Obviously, we do not claim that the outcome could not have been different. We think it could. What could not have been different is the fact that the outcome, whichever outcome was reached, could not have been reached without an active choice of the winner before the criteria were defined.

Architectural competitions have been studied from a number of perspectives (Rönn, Kazemian, & Andersson, 2010). Most relevant for the present discussion are the sense-making perspective (Volker, 2012), the design perspective (Kreiner, 2010a, 2010b), and the rhetorical perspective (Tostrup, 1999). However, to our knowledge, architectural competitions have not previously been studied from a decision making perspective. By adopting such a perspective, the assumption is that the observed choice processes are more than an unfortunate deviance from the norm, and more than an epiphenomenon to ordinary competitions. Our perspective implies that choice is constitutive of staged competitions, and that we need to understand such choices theoretically even if they are not supposed to occur.

### *The Scope of the Argument*

In demonstrating the role of choice in competitions, and in claiming the potential legitimacy of such choices, we will build on a detailed empirical case study of a small and mundane architectural competition in Denmark. Such an empirical focus raises issues of scope. Why would we take interest in such an isolated and particular case? What could we possibly learn that

would be relevant in other contexts? In response to such questions, we – like all others conducting case studies – carry the burden of proof that findings and insights can be generalized (Flyvbjerg, 2011; Siggelkow, 2007). We claim that the studied architectural competition is *an example* of other design competitions which, in turn, are examples of other organized competitions in which competing performances are more or less incommensurable. *Incommensurability* forces the assessors to make a choice in order to conclude the competition by appointing the winner. The content, but not the nature of these choices, varies according to context and circumstance. The detailed empirical focus allows us to appreciate the necessity of choice, and the findings can be generalized through the garbage can model. First, the case study fills in the model with empirical illustrations, understanding the observations as specific instantiations of the more general processes and patterns of the model. Second, the specific observations suggest modifications and amendments to the model, such as new sorting mechanisms and different forms of resolution.

The argument of this chapter is driven by inductive reasoning. We observe a localized and time-specific practice and aspire to see it as part of – and as an illustration of – a more general pattern of practice. The ambition is, in William Blake’s poetic formulation, “to see a world in a grain of sand.”<sup>1</sup> The choice of architectural competitions as illustration of staged competitions is insignificant, since, in principle, paraphrasing Weick and Teece (1987), any grain of sand would do.

If the choice of case matters little for the knowledge gained, it matters much for the knowledge producer. We have previously studied – and participated in – other architectural competitions. Klein (1998), among others, argues that such prior experience enables observers intuitively to recognize patterns when less trained eyes would only see randomness and happenstance. Some, like Kahneman (2011), would question the validity of such intuition, because such patterns may also reflect cognitive biases. Experienced members of assessment committees, however, develop an intuitive appreciation of, and even respect for, the challenges inherent in the complexity and incommensurability of multiple design proposals, which may occasionally be met by rather bold choices.

### *The Plan of the Chapter*

In the next section, a case study of an architectural competition is described and analyzed. We focus particularly on the work of the assessment

committee. We strive to account for the fact that an immediate, intuitive judgment on the future winner of the competition enabled a fairly straightforward decision making process and an unsurprising appointment of the winner of the competition. Next, we analyze the case study in the language of the garbage can model. We discuss what can be learned from case studies from a garbage can perspective, and we analyze the retrospective sense making that characterizes the decision making process. We conclude by discussing what sense the garbage can model makes of the counterintuitive ways of making decisions in architectural competitions, and we suggest a few modifications to the model when it fails to make sense of our observations.

## ARCHITECTURAL COMPETITIONS IN PRACTICE

For centuries, competitions have been staged when private or public clients commissioned works of art and architecture. The first documented competition took place in 448 B.C. in Athens (King, 2000), but the ways in which we stage and justify such competitions have changed fundamentally, reflecting concomitant changes in the social and societal contexts (Lipstadt, 1989). The elaborateness of competition briefs may serve as an example. The famous Brunelleschi's Dome in Florence was commissioned in 1418 after a competition with the following brief:

Whoever desires to make any model or design for the vaulting of the main Dome of the Cathedral under construction by the Opera del Duomo ... shall do so before the end of the month of September. If the model is used he shall be entitled to a payment of 200 gold Florins. (King, 2000, p. 11)

Compare this with a competition brief of hundreds of pages for the commissioning of a small primary school in 2008. While the mobilizing of effort and creativity is still an aim, concerns for transparency and the fear of favoritism require much more careful staging. Kreiner, Jacobsen, and Jensen (2011) have argued that organizational forms oscillate due to the constant interplay between concerns for the stimulation of creativity, concerns for efficiency in terms of individual and collective investments, and concerns for the fairness of the outcome of the competition. "The competition process is as frequently derided as it is praised – even beyond the claims that occasionally arise of favoritism, dishonesty, and the like," observes Lipstadt (1989, p. 9). She goes on to quote William Robert Ware, who in 1899 moaned over inefficiency when every "competition ... costs the profession hundreds of thousands of dollars ... and all but one ... have

labored in vain ...” (Lipstadt, 1989, p. 15). A more and more careful design of architectural competitions is the response to such concerns, and the elaboration of the Competition Brief signals an increased effort to define the parameters of the competition to direct the participants and to facilitate fairness and transparency.

Still, modern architectural competition comes in great variety.<sup>2</sup> Probably the predominant form in Denmark is a single, sealed bid, invited tender competition. A building owner seeks architectural service for one particular design task, and a few architects are (after application) admitted to the competition. At a particular date, each architect submits a design proposal anonymously. An assessment committee, typically including both professional architects (appointed by the Architects’ Association) and lay representatives of the building owner and users, will evaluate the design proposals and award prizes to the best ones. Only then are the identities behind each proposal revealed. The winning architect will normally also be in charge of the detailing and physical implementation of the project, a prospect which significantly increases the stakes for the participants in the competition.

### *The Case Study*

The architectural competition studied here took place between end of October 2008 and early March 2009. The task was to design a building for a public school and library in the suburbs of Copenhagen. The construction costs were estimated at DKK 290 million (\$50 million), not including the design fee which the architectural teams would bid on as part of the competition. Prior to the competition, the three competing architectural teams had been selected after an elaborate prequalification process. The teams were interdisciplinary and interorganizational, but were all headed by an architectural firm.

The competition process was designed in an unconventional manner. On two occasions during the competition process, all teams met with representatives of the assessment committee and the building owner. A large number of experts were also assigned to these workshops. Most controversially, all teams were represented at all meetings. In front of their competitors, the teams were required to openly present their current work and ideas for the final design, and to receive open feedback from all the experts present. Teams were explicitly encouraged to learn from each other and from the feedback to the other teams. To counteract temptations to keep ideas and intentions secret, all teams were promised the first prize (a

substantial sum of money) irrespectively of the outcome of the competition. However, the first prize would only be paid if the team participated fully and loyally in the dialogues at the workshops. In this manner, the teams were given pecuniary incentives to share ideas and intentions with each other. After the last workshop, the teams worked individually toward an early February deadline for submitting their final design proposals. The proposals consisted of a physical model, a small number of posters, and a written presentation. Unconventionally also, the teams were required to present their proposals at a seminar, allowing each of the teams half an hour to explain and elaborate their design to the assessment committee, the assigned experts, and the representatives of the building owner.

#### *The Assessment Committee's Work*

The assessment committee met three times during a two-week period (February 18 to March 2, 2009). They produced assessments of each of the three design proposals which were documented in a 21-page assessment report. The report concluded by ranking the entries and appointing the winner of the competition. The assessments and the results were presented to the teams and the public by the committee at an event marking the opening of an exhibition of the three design proposals.

The two weeks of the committee's work will be the empirical focus here. The work was part-time work for everyone involved. We do not know how much time each participant spent on the task, but we do know that the committee met three times during the two-week period, and that all but one lay member participated in practically all the discussions. In the [Appendix](#), we have listed all members of the assessment committee. Here, it suffices to observe that the committee had eleven members, six members within areas of expertise, such as architecture, engineering, library science, and pedagogics, and five lay members, all political and administrative leaders representing the building owner, that is, the municipality. The mayor was the chairman. In addition to the committee members, the committee drew on the expertise of a number of assigned consultants. In that sense, the decision structure was somewhat fuzzy. On several occasions, the consultants were given more space to voice their opinions about the proposals than ordinary members were. The starting date of the committee's work was also fuzzy. Many of the expert members had participated actively in the workshops and thus had prior knowledge of the teams and their design intentions. All members of the committee were also present at the seminar when the architectural teams gave



a verbal presentation of their proposals. In this sense, the committee did not start its work from scratch.

The committee's task was simple, in principle at least. Based on an assessment of the merits of the three design proposals, the committee had to appoint the winner. Presumably, the Competition Brief is the primary basis for evaluating the merits of the designs. At great length, it described the envisioned school and library, and embedded this description in extensive reflections on the state of the art in school architecture and on the current urban, pedagogical and environmental policies of the municipality. The building should not only house a school and a library but should also promote political agendas on a variety of issues, such as sustainability, soft traffic, healthy food, and communal meals. The summary extract of the Competition Brief was almost 70 pages long. We counted more than 500 specific requirements in the text that the design could be evaluated against. On top of all this, economic, technical, and numerous other parameters (such as building and zoning codes) were mandated.

The rank ordering of the design proposals was supposed to be based on a quantitative assessment, with each proposal receiving between 1 and 10 points on three predefined and weighted dimensions:

- the overall architectural quality (50%),
- the fee asked for detailing the design and overseeing the implementation (30%), and
- the quality of the staff assigned to implement the project (20%).

The design proposal with the highest total score would be declared the winner.

We will here give a short account of the three formal meetings that the committee held.

The first meeting was devoted to an extensive review of each of the design proposals. As is the convention, the initial reviews were given by the expert members, especially the architects. Issues covered included the overall architectural design, the organization of the school, the library function, the feasibility of the construction, sustainability, accessibility, acoustics, pedagogics, and playgrounds. The tone of voice was objective, to some extent pedagogical. The experts interpreted the proposals for the lay members and animated the design verbally to produce an experience of the ways the buildings would feel and function. But explicit assessments were also frequent. For example, an expert might simply ascertain that "the library is located in the wrong end of the building, but it is well connected to the school's center for pedagogics" (field notes). A fairly direct and

consistent distribution of praise and disdain for the three proposals left little doubt about the experts' preferences. To the concern of some of the lay members, after the very first review one proposal stood out as a clear winner in the views of the expert members.

During the reviews and in the subsequent deliberations, the lay members of the committee would occasionally ask questions or underscore points and aspects that they found especially important. Thus, on hearing that the issues of acoustics were not really addressed in one of the proposals, the chairman would reiterate that acoustics is an important concern in schools. They also requested more explicit comparisons between the projects. A lay member requested additional arguments for why the expert members' favorite project was better than the others, and another lay member asked openly if the expert members could find anything negative to say about their preferred proposal (field notes). An architect responded by pointing to the façade which was acclaimed for its architectural qualities, but which also needed simplification for technical and economic reasons (field notes).

The meeting ended with the chair concluding that the experts agreed on one proposal as the winner, implying that the lay members were still uncommitted. One of the experts made a point of the fact that the experts' conclusion was unanimous.

The second meeting began with the review of the design proposals by three external experts. One reviewed the proposal from the viewpoint of a child, a parent, and a teacher. Another evaluated the proposals as an urban planner, while the third expert focused on the outdoor facilities. Noticeably, but without substantial impact, the third expert pointed to the expert members' least preferred project as having the best and most imaginative design for playgrounds, sports facilities, and other outdoor areas.

Since none of the lay members had challenged the evaluation of the expert members, the chairman observed that a consensus decision seemed possible. With various justifications, everybody around the table confirmed that they agreed with the emerging collective decision. The formal decision was postponed to the third meeting, but the expert members of the committee were given the task of drafting the report concluding that the consensus choice was the winner.

Only then, after the consensus had been reached, did the committee attend to the formal criteria. The architectural quality, the quality of the project team, and the quoted fee were all quantified. While the outcome was never in question, the relative scores were. The variance in the total scores should convey that the winning design proposal was better than the runner-up proposal, which again was much better than the third proposal. Because

the losing team asked a very low fee, the total scores showed less variation than the scores on the architectural quality, but the calculation still produced a comfortable margin and an indisputable outcome.

The third meeting reviewed a few technical reports which were requested at the previous meetings. These reports addressed issues and concerns such as the playgrounds' exposure to the wind, the exact calculation of the square footage, and compliance with zoning restrictions. The reports were meant to ensure the legality and feasibility of the design proposal, but they reiterated concerns more than resolved them. "Safe" wording of the reports on these points was encouraged to avoid subsequent legal problems.

### *Decisive Moments and the Explication of Preferences*

It will appear from the description of the process that the outcome of the assessment committee's deliberations was neither surprising nor contested. Probably, to talk about it as an outcome reflects convention more than reality. It indicates wrongly that the committee process had a significant influence on its determination. Perhaps, it is closer to reality to claim that the "outcome" served as a premise for the process that supposedly preceded it. At least some of the committee members, in particular the architectural experts, seemed to have made up their minds from the very beginning. Having been participants in the preceding workshops, they might even have formed opinions prior to the work on the committee. However, at the second workshop, the subsequent winner received probably the harshest criticism from the experts. Had a winner *de facto* been chosen then, the winner would most probably have been somebody else. In the minds of the experts, the winner of the competition was apparently not a pre-established fact from the interaction at the workshops, but on the other hand their judgment appeared to predate the deliberations of the assessment committees. When exactly did the expert members make up their mind, individually and collectively? The following episode will indicate that a decisive moment for picking the winner occurred at a very early stage of the committee's work.

As a part of their deliverables, the architectural teams had produced a physical model of their design proposal. These models were revealed at the seminar when the architectural teams presented their final design proposals. The last architectural team to arrive was the subsequent winner. By chance, the author happened to stand next to the leader of one of the other teams. Catching a first sight of the model being carried into the room, the leader whispered to the author, "Now, I feel my stomach aching!" Probably, such a feeling indicated recognition of some fundamental quality of the model of

the school building – maybe even a recognition of defeat in the competition. In subsequent interviews, she and other members of her team rationalized their failure to win by admitting to having spent too little time on the façade – the façade being the immediately visible part of the models.

Not everyone in the room formed opinions on the spot. But it is not unrealistic to assume that almost all the professional architects involved, inside as well as outside of the committee, actually did. Maybe that is the way experts make decisions, as Klein (1998) describes it in his “recognition-primed decision model.” Experts may make choices by intuitively recognizing the character of a situation. Similarly, it is possible that the architects recognized a winner on the basis of few and weak empirical clues. If even a competing architect had similar intuitions, as the reported episode indicates, the unanimity among the architects on the committee may more likely reflect trained expertise than bias and complicity.

Of course, intuition is not the end of the story, not even for the expert. It is the beginning of a story of mental simulation and action (Klein, 1998). The intuitive recognition of the winner gave these subsequent processes a kick start and a direction. They knew, so to speak, where to look for explanations and justifications for their choice. Their role on the committee was to form a common course of action (Ryle, 2000), to define a “project” that enabled future-perfect thinking (Schutz, 1973), that is, constructing in a backward manner the arguments and judgments necessary for achieving such an already conceived outcome. Knowing the winner gave all their subsequent reflections, and their subsequent interaction with other committee members, both meaning and direction. It made their specialized knowledge resourceful and powerful for sense giving (Gioia & Chittipeddi, 1991). The task was one of finding the reasons and justifications for the winner being the winner, and to explain this relationship to the other members of the assessment committee. It is of course conceivable that they might fail to achieve this task, either because they could not find justification for their initial intuition, or because they could not convince the rest of the committee. Obviously, such complications did not arise in our case study.

Lay members on the committee had no intuition to rely on and therefore needed other ways of developing preferences and forming opinions concerning the three alternative design proposals. From all we have seen and experienced, the problem for the lay members is the lack of such prerequisites for choice. They may very likely be struggling even to read and make sense of the proposals, and since they lack knowledge and training they must rely on the experts to animate the designs into a simulated lived experience. In the first meeting, the expert members took upon themselves to educate the lay members about the qualities of the proposals and how they

compared to each other. While occasionally expressing concerns about the process, the lay members had limited resources for challenging the experts' interpretations and judgments. They let themselves be convinced, and the benefit of doubt, if such doubt remained, was given to the consensus choice.

## OBLIGATORY JUDGMENTS IN ARCHITECTURAL COMPETITIONS

We have described how an initial, intuitive choice of the winner in an architectural competition preceded the process that legitimately appointed a winner based on the assessment of the qualities of the competing design proposals. Now we want to argue that this is not particular to the competition studied, but that it may characterize any architectural competition. The point is not that every competition will end as the studied one, but rather that they will *start* with a choice preceding the process of choosing. The reason for this general claim is the nature of the task of the committee, which is the seemingly impossible task of choosing between incommensurable alternatives.

The task of designing a school constitutes an ill-structured problem (Simon, 1977) or a wicked problem (Christenen, 2009; Rittel & Webber, 1973). Such problems have no analytical solution; the multiple aspects of the task, and the interaction between them, are discovered and addressed sequentially. The unique historical process is an important determinant of the proposed solution. We learn about the nature of the problems while working on solving them. And because the learning process is situated and subjective, the learning will be unique. Thus, in principle, each architectural team learns its own things about the design task, a learning which will be reflected in the design proposals. By discovering interdependencies between the different aspects of the task – and discovering them at different points in the process – the implications for the emergent designs of the building will be different too. In a very concrete sense, such creative processes produce proposals that are incommensurable because they constitute unique answers to uniquely defined and interpreted design tasks. What the assessment committee is asked to rank order are singularities (Karpik, 2010). It is not by mistake that we place a committee in front of incommensurable alternatives because soliciting the ideas and visions of artistic and idiosyncratic architects is a central rationale for organizing architectural competitions in the first place (Kreiner et al., 2011).

Thus, because the design task is – by nature – ill structured, the process of accomplishing it must be truly creative, leading to the production of singularities which are inherently incommensurable. They are design proposals produced from a personal point of view, a unique interpretation of the design task developed over time in a sequence of judgments that form the attention and understanding of the salient dimensions of the task and their interrelationships. Design proposals produced in such a manner cannot be evaluated and compared analytically and objectively, since the worth and attractiveness of a particular reading for the task must involve judgment. “Judgments ground the comparison of incommensurabilities,” says Karpik (2010, p. 41).

In principle, the assessment committee may evaluate and assess the design proposals individually, their own premises constituted by unique readings of the design task. But the task of the committee includes more than such individual assessments. The architectural competition is also a competition for primacy (March, 1999), which means that the assessments of the individual design proposals must somehow be given a common foundation. As we have described, in our case this common ground is found in the winning proposal, through the committee’s interpretations of the task and the design solutions chosen. It is because the winning proposal had spent much time on the façade that others teams could be claimed to have spent too little time – and by implication too much time on other aspects which came to matter less (but which might have weighted more, had the standpoint shifted). It is because the winning proposal had found the optimal location for the library that the other proposals were criticized for giving it a nonoptimal location. The relativity of these assessments is in conflict with the ill-structured nature of design tasks, since the library could have many optimal locations depending on the interpretation of its role and integration with other functions of the school. By adopting the winning proposal as the standard, the singularities suddenly become comparable.

We have described how the choice of a winner preceded the assessment process by which it was supposed to be an outcome, and also how such a choice was instrumental for making the design proposals commensurable. This effect does not depend on the choice of any particular winner, only on a winner being chosen. However, it is easily conceivable that some winners will be easier to maintain as standard for comparison than others. The experts’ initial choice of a winner is not arbitrary, but also not predictable, being – as we described – based more likely on intuition than reasoning. The eventual outcome of the competition is heavily primed by, but far from determined by, this initial choice.

What is completely predictable, however, is the form in which the choice of a winner is presented to the public. In that script, there is no role for intuition and judgment, no acknowledgement of incommensurability, and no trace of the processes of the assessment committee and the individuals on it. The script requires the winner to be determined from a process of simple calculation based on assessments of the quality of the design proposals. In the assessment report, the winner is presented as the inevitable outcome of the evaluation process, reflecting the qualities of the submitted proposals. We consider it an important role of the committee to construct and establish the foundation for such calculation and assessment. Others might question such an interpretation, pointing to the existence of the Competition Brief, constituting the legal foundation, and also the foundation for professional judgment on the qualities of the various design proposals. To argue our case, let us analyze the role of the Competition Brief in the architectural competition.

### *Engaging the Competition Brief*

While much of the text in the Competition Brief was meant to give an image of the school and library to be, there were also multiple specific requirements and instructions that the design proposals should reflect. The requirements and instructions varied in degree of specificity and focus. For example, instructions were given concerning the ways in which musical instruments should be stored. Also it was specified that the building design should help transform society and develop the new suburb. The Competition Brief openly acknowledged this complexity:

Central aspects of the task include: to interpret the complex requirements of the competition brief for the internal lay-out, inter alia the organization of age-integration and age-differentiation; to position the building distinctly in the condensed urban context; to give nuanced and differentiated suggestions for the shaping and use of outdoor space in and on the building, on the block, around the building and in the nearby city parks; and to address the traffic to and from the school concerning pedestrians, cyclists, motorists, trucks, and busses. (Competition Brief, p. 3).

First, consider the problems of translating such images, requirements, and instructions into specific architectural designs. Everybody would agree – as also the Competition Brief indicates – that such a translation is more art than science. It is a highly creative process, one that is unique and personal. If the encoding of the Competition Brief's many requirements and instructions into a specific architectural design is fundamentally a process

of interpretation, judgment and expression, decoding the design proposals to determine their compliance with the formal requirements and instructions must be a process based on interpretations, impressions, and judgments.

Second, the number of requirements, and the number of aspects and details, that go into designing a building, is exorbitant and no one can take note of all of them within any reasonable timeframe. Many things, including the interests of the individual architects and pure coincidence, will determine which requirements end up in focus, and the order in which they are attended to is unpredictable. As quoted above, one architect regretted having spent too little time on designing the façade because the time had been spent on other aspects. In any case, only a portion of things and requirements that could have been reflected in the design will actually be reflected. Since the design task is ill structured and interdependencies between various design aspects are discovered sequentially, the design process has a “muddling through” character (Lindblom, 1959).

### *The Competition Brief as a Loose Foundation Stone*

The Competition Brief can be thought of as a “constitution” to which all parties refer and to which everybody, participants as well as committee members, could be held accountable. However, competition briefs are often ambiguous. As indicated above, they contain a long list of unprioritized wishes and requirements. And even when aspects are given high priority, it is not always clear what they mean and imply. The following illustration will show that this is true even on the most central design premises.

In the studied competition, the school was envisioned with a particular *virtual-aesthetic* profile. This profile was meant to be a foundation stone for the architects when designing the building and it was described at length in the Competition Brief.

The current epoch is characterized by a strong emphasis on the visual, so that we become influenced by personal and artistic expressions in the public. Through the media, the ‘traditional’ ones (such as newspapers, magazines, television, radio, film etc.) as well as the newer, virtual media (like computers, the Internet, pod-casting, DVD, games etc.), all members of society, and children and the youth in particular, are exposed to massive amounts of impression and information.

A goal for the new school ... is to be a school where pupils and teachers become familiar with concepts and tools for decoding, analyzing and actively engaging in the present and the future with the ever increasing role of the visual media. Through an aesthetic approach in all parts of the curriculum of a public school, and with a special emphasis on



the practical-aesthetic and musical domains, the school should train pupils to develop an individual expression and impression on the times we are living in.

The virtual-aesthetic profile should be understood as a coloring of educational subjects, functions, and facilities, and it should have a guiding impact on the layout, the interior design and the shaping of the school. The virtual dimension will be the center of gravity for the school's daily life and learning which all subjects of the curriculum will exploit to a maximum. (Competition Brief, p. 4).<sup>3</sup>

This excerpt will suffice to illustrate the way in which the future school and its daily routines were conceived by the client and the various experts who participated in writing the Competition Brief. It is a conception which should be translated into specific architectural designs and drawings. It asks the architects to envision the school in the context of the virtual and aesthetic aspects of society. It also asks the committee to assess the architectural design proposals with respect to this profile.

As will be readily understood and appreciated, enacting vague and ambiguous visions imagined by others is no trivial task, even if you are an expert and get paid for it. The participating architects were somewhat confounded and kept asking for clarification of what the profile really meant and what it was meant to imply for the design of the school. Since the *virtual-aesthetic* profile was reiterated as being essential for the work of the architects (minutes from Workshop 1, p. 1),<sup>4</sup> a task force was formed to explicate the descriptions in the Competition Brief on this count. Two weeks later, the task force submitted its clarifying text. Among other things, this text tried to clarify basic concepts like "aesthetic forms of learning," which was defined by its focus on "... a product which is presented to others: a performance, a poem, a lecture, a picture, a composition, music, TV, radio, Internet media production." (p. 1). It further exemplified the effects of such a *virtual-aesthetic* profile on, for example, the attractiveness of the school to children in the region. On the implications of the profile for the architectural design, it was made clear that "the style, the expression and the physical layout of the building should support aesthetic learning processes and the use of virtual media" (p. 2). The vision is to encourage the pupils to take the role of producer rather than consumer, and therefore "the class room should have an expressiveness that enhances the learning experience from the added meaning of artistic production" (p. 2).

Even with this clarification from the task force, the architects felt disorientated. While the explication was meant to stop further discussion, it made the architects repeat their concerns about the ambiguity of a very central design premise. However, the competition had to move forward

without any common and shared understanding of the virtual-aesthetic profile. In an interview after the completion, a professional member of the committee recounted the situation in the following way: “The discussion never really began because basically nobody knew what to make of [the profile]. I have read it ten times and am still unclear what to make of it, like everybody else.”

It is fairly obvious that the image of the future school with a virtual-aesthetic profile is not concrete and vivid enough to serve as a basis for the deduction of architectural solutions. As an architect from the winning team noted, “Our house is not created by asking: ‘What is the virtual-aesthetic profile? How can we build a house for that?’” But he makes a further comment which may signal a significant reversal of the logic in thinking about the design choices and their premises: “I would say that the virtual-aesthetic profile grew out of the way we thought about the building. And in this way it became woven into the solution. ...It grew out of the process.”

The profile was not precise enough to serve as premise, yet expressive enough to inspire an interpretation of the result. There is no claim that the profile was translated into design choices, but somehow it inspired the creative process of looking for the profile in the design proposal – and looking for it, it was also recognized as a quality of the design. This claim is confirmed by the committee. In its report, the winning design is characterized in the following manner: “The design proposal provides a good interpretation of the profile for [all parts of the building].” This conclusion was rehearsed already in one of the meetings of the committee when one of the professional committee members asserted: “Here we have a proposal that fulfills the Competition Brief. Aesthetic-virtual: In this case, they made it!”

The retrospective nature of the sense making is rather explicit. Nobody was able to explicate what it would take to design a school with a virtual-aesthetic profile, but when they saw it they were able and willing to point it out. In the process of designing the proposal, the profile probably took shape indirectly and incidentally. But more importantly, it was by recognizing certain qualities of the design proposals that the profile became filled with substance and started to make sense – at least to some!

It is the multiple design choices of the winning team that enabled us and the committee to imagine a meaning of the school’s virtual-aesthetic profile. The profile in itself remained ambiguous and loose, but its concrete signifier helped everybody to imagine the existence, meaning, and significance of such a profile.

### *Conclusion*

We have argued that the ordinary way of making decision by comparing alternatives on some common scale will not work in the case of architectural competitions because the design proposals are singularities and therefore incommensurable. We have further argued that the Competition Brief hardly serves the purpose of providing a framework for reading and assessing the design proposals individually. The point is that even on a very central aspect of the design task, the Competition Brief is highly ambiguous, not by neglect and ignorance, but almost by the nature of things. Requirements, intentions, and visions become meaningful only when interpreted in the context of a specific design choice, and since the task is ill structured, new aspects and concerns are discovered continuously while their interdependencies are handled in an ad hoc manner. The meaning of the requirements and ambitions of the client, as described in the Competition Brief, and the relevance of concerns and interdependencies were only visible when the solution was recognized, that is, when the winner had been chosen. It was the winning proposal that served as a key for interpreting the Competition Brief and for evaluating the alternative proposals. It was the choice of a winner that cleared the “fog of reality,” not the elimination of ambiguity that enabled the committee to see the solution.

## **THE GARBAGE CAN MODEL**

After having described in detail the ways in which the assessment committee in an architectural competition came to appoint a winner, we will now try to abstract and generalize our findings. The garbage can model (Cohen, March, & Olsen, 1972) will serve as a framework for this effort. We will make sense of what we have found from the perspective of the model, and we will suggest modifications to the model when it seems to fail to make sense of our observations.

A model (a theory) is a language for talking about reality. Languages do not differ because they limit what the speakers can express and what realities they can address. Languages differ because they oblige the speakers to address and think different things:

The crucial differences between languages ... are ... in what information each language obliges its speakers to express ... If different languages influence their speakers' minds in

varying ways, this is not because of what each language allows people to think but rather because of the kinds of information each language habitually obliges people to think about. When a language forces its speakers to pay attention to certain aspects of the world each time they open their mouths or prick up their ears, such habits of speech can eventually settle into habits of mind with consequences for memory, or perception, or associations, or even practical skills. (Deutscher, 2010, pp. 151–152)

The garbage can model could be interpreted as an attempt to challenge the dominance of the language of rationality and our habitual manners of thinking about decision making. Involved in such thinking is the answering of four basic questions: questions about alternatives, expectations, preferences, and decision rules (March, 1994). When rationality is considered bounded, for example, due to limited mental capacity (March, 1988), the answers to these questions become varied, but the questions remain the same. The garbage can language obliges us to ask new questions. For people habitually thinking within the terms of rationality, the model may seem to express and celebrate a story of randomness and disorderliness, but the intention is to search for alternative forms of orderliness.

[Authors in the garbage can tradition have] portrayed human behavior not as random but as organized by logics different from the conventional ones. They emphasized that what appears to be disorder from one point of view is orderly from another. ... [The] apparent disorderliness of organizations [arises] less from any inherent randomness in the behavior than as the result of inadequate theorizing about complex interactive systems. (March, 1996, pp. 201–202)

The garbage can model is an attempt to theorize about complex interactive systems. It obliges us to take seriously the fundamental *ambiguity of reality* (Cohen et al., 1972; March & Olsen, 1986). It draws attention to the critical role of sorting and timing in organizational decision making. It requires us to think of organizational processes as being embedded in wider ecologies of processes, the interactional outcomes of which remain matters of unpredictability and surprise. It challenges us to presume that what happens in organizations may be vaguely related to intentions, and that the notions of causal links between problems and solutions are outcomes of, as much as premises for, the process of choice. It forces us to recognize that choices do not necessarily solve problems, that sometimes choices can be made only when people have lost interest in them, and that choices may be enabled when decision makers succeed in ignoring a multitude of concerns and issues which have travelled elsewhere.

The fundamental challenge that the garbage can model gives us is to search for the logic, reason, and orderliness in a decision making process that in central aspects violates the standard template of rationality. Is it

possible to make sense of the observations, for example, choosing the outcome, as a premise for the decision making process? It challenges us to ask questions about how things become what they are rather than simply assuming that they are what they have become: “Do we treat such things as preferences, norms, rules, and resources as ‘given,’ or do we treat them as central phenomena to be understood?” (March, 1996, p. 202). We have selected two such phenomena that we will try to understand. The two phenomena are the primacy of professional judgment and the character of the decision making process enabling the justification of the winner. Several other phenomena will be touched upon in the context of discussing the two main phenomena.

*The Primacy of Professional Judgment (and the Limits of  
Experiential Learning)*

We have described the ways in which an early intuitive recognition of the winner by the architects had a profound impact on the formal appointment of the winner of the architectural competition. We have already indicated, and it is easily imaginable, that the professional architects might have been overruled by the lay members, or that the architects might have changed their opinions along the way. Realizing the contingency of the specific outcome, we feel compelled to answer the following question: If the outcome might have been different, what explains in the current case that the original professional judgment gained primacy over competing opinions, preferences, or learning opportunities? Habitually, we would look for essential aspects of this particular competition to find answers. Is the explanation to be found in the quality of the experts, the variation in quality of the design proposal, the composition of the assessment committee, or the organization of the proceedings? Propositions could likely be deduced suggesting, for example, that good architects are better at spotting quality, or better at sense giving, and therefore it is more likely that their initial judgment will prevail. Similarly, it could probably be shown that unequally matched architectural teams will make the professional intuition more sound, which will in turn increase its determining effect on the outcome of the competition.

But the garbage can model obliges us to look elsewhere. The central premise of the model is that single decision making processes should not be understood in isolation, and that the outcome reflects many other, technically irrelevant, but concurrent processes: “What happens is often

the almost fortuitous result of the intermeshing of loosely-coupled processes” (Cohen, March, & Olsen, 1976, p. 26). We would have to look around in the “complex interactive systems” (March, 1996) in which this particular choice opportunity is embedded. We have a few observations of conflicting commitments to other competitions that determined the amount of time architectural teams could devote to this competition. However, we have not studied this contextual fluidity systematically and would be satisfied to posit that the primacy of the observed initial professional judgment was a fortuitous result! We know that we cannot learn general lessons from fortuitous results, and unless we take a particular interest in the case study for its own sake, there would be little reason to pursue such a line of investigation. The garbage can model is a reminder to us of the limits to experiential learning. Were we to conduct the same architectural competition again, with the same brief, contestants, and committee, there is no guarantee that the outcome would be the same, because the context, the complex interactive system, would likely behave differently.

It is for the same reason that we cannot determine whether the observed intuitive judgments by the professional architects reflect expertise or bias. The debate between students of naturalistic decision making (Gigerenzer, 2007; Gigerenzer & Gray, 2011; Klein, 1998, 2007) and cognitive psychologists (Kahneman, 2011) has found a limited zone of agreement when intuitive judgments can be exercised in repeated situation and be developed and calibrated in response to experienced outcomes. Some areas of practice will provide such repeated “experiments,” but the architectural competition – especially when seen from the perspective of the garbage can model – is not such an area.

Our study cannot evaluate the soundness of the professional judgment, the degree of expertise behind the intuitive recognition of the winner among the submitted design proposals. We can observe that it did in fact gain primacy over potential, conflicting judgments, and that the outcome was generally accepted as legitimate and fair. However, while not necessarily sound, we will argue that professional judgment was highly functional, if not necessary, as a starting point for decision making processes.

### *The Retrospective Character of Decision Making Processes*

The garbage can model describes and simulates the independent flows of problems, solutions, decision makers, and choice opportunities. Specific decision making processes reflect these flows and their more or less

structured interaction. What will concern us next is when and how decisions are reached.

“Decision outcomes are sensitive to the precise mix of problems and solutions present in a choice opportunity (garbage can) at the moment of decision,” say Cohen, March, and Olsen (2008, p. 535). The moment of decision occurs as soon as a decision is possible, and a decision is possible when there is sufficient decision maker “energy to meet the requirements of the problems attached to that choice” (Cohen et al., 2008, p. 535). In the language of the garbage can model, these requirements amount to building an argument for why the present solutions will actually be a solution to those problems. Remember that the co-presence of problems and solutions is purely coincidental, and therefore the energy of the decision makers is devoted to the construction of a causal relation between elements that are merely related in terms of time and space. One can easily imagine that such a task becomes impossible when the number of coincidentally present elements is large. In that case, no decision is taken until problems and solutions take flight to other decisions and therefore leave a choice with the available energy possible.

But our observations suggest a more complex picture. We suggest that the presence of problems and solutions are not independent in our case; that the process is not one of enabling choice by reducing complexity; and that choice is an assembling process, not an ejection process.

We are not the first scholars to suggest that the flows of problems and solutions may not be independent, and that they may be packaged in some aggregate form and travel together. In practice, a choice presupposes some modular unit of these ingredients, what Heimer and Stinchcombe (1999, p. 54) call “packages” or “items” that are “‘ready to go,’ ready to be implemented.” We realize that the choice set had been organized into three distinct “ready to go” items. But while the choice is simplified by dealing only with three design proposals, each representing a unique aggregate of problems and solutions, a choice is not enabled at all. Like Trojan horses, the proposals appeared orderly and coherent on the outside, and for that reason they were allowed to bring the sources of ambiguity and disarray with them to the decision setting. The “ready to go” entailed a unique combination of a subset of problems and solutions, and by doing so it offered elements to a causal argument. But it did not contribute to a reason for choosing one causal argument over the alternative causal arguments. When put beside each other for comparison and ranking, the proposals reveal themselves as “singularities” (Karpik, 2010) and as such, unfit for direct comparison. If deconstructed into their constitutive multiple small design choices, comparison might

have become possible, but then the ambiguity would be related to the overwhelming number of concerns and dimensions on which the proposals could be compared.

The image we draw from our study is almost the opposite of that otherwise observed. "Garbage ejection" (Weiner, 1976) was not a very significant characteristic of the decision making process. More characteristically of the process, the encoding of all the concerns and requirements into specific design proposals functioned to preserve and keep alive this multitude of concerns and requirements. With the confusion intact, the decision making process needed some sort of enabler. The enabler came in the form of the intuitive choice of the winner which transformed the task of the committee. To reach an outcome was no longer the task; that outcome had been achieved by intuition and judgment. The task remained, however, to equip that outcome with an acceptable justification. In rationalizing the outcome, the committee selectively mobilized issues and design elements from the immense array of problems and solutions still present. The process had the character of assembling (or reassembling) multiple ingredients into a package "ready to go." But it was also a highly selective process, simply ignoring most of the problems and solutions still active only in encoded form in the three design proposals.

If the assessment report represents the causal argument for the appointment of the winner, the elements of the argument are to some extent sampled from the design proposals themselves. They were selected and assembled in a way that was determined by the already chosen outcome. The winning proposal became the frame for the argumentation and the key for interpreting and evaluating the alternative proposals. The profile of the school became meaningful because it was identified with the winning proposal. The location of the library became nonoptimal because the winning proposal had found the optimal location. The winning team was given the chance to simplify the façade for technical and economic reasons, while the losing teams were not similarly given the chance to improve on the architectural quality of their façades. Clearly, such retrospective sense making and rationalization indicates an unclear technology, which is one of the fundamental elements of the organized anarchy. There is no way of knowing where one should put time and effort, because only the choice of a winner will settle the issue. To see the committee work on developing, rehearsing, and validating such arguments, that is, to draw the logical implications from having chosen the winner, is close to the description of the work of decision makers in the garbage can model. Here, the work consists of developing the causal links between the remaining problems and



solutions, and the choice is made when the number of remaining problems and solutions has been reduced sufficiently, due to the ordinary shifting of problems, solutions, and decision makers (Cohen et al., 1972) or due to ejection processes (Weiner, 1976). Since problems and solutions arrive and stay for independent reasons (and specifically not because they are causally linked), the task of the decision makers is to *construct* the causal relationship between a coincidental array of problems and solutions. But the construction did not have to utilize every problem and solution, only what was pragmatically necessary to keep the construction intact. It is fair to say that the site of the decision making process was littered with unused ideas, forgotten concerns, and severed arguments and logics.

The extremely tight deadline for the committee's work, and the understandable perplexity from facing a very heavy, complicated, and ill-structured task, probably produced a somewhat pragmatic attitude. The common discussion had the aim of validating the arguments, ensuring that the legitimacy and the realism of the choice could not be questioned subsequently. However, it did not seriously challenge the outcome, which was prefigured in the intuitive recognition of the winner by the professional members of the committee.

The immediate recognition of the decision outcome gave the sense-making process direction and guidance. Unclear and confused aspects – such as the virtual-aesthetic profile of the school – suddenly gained substance by being recognizable in the winning design proposal. The selectivity in picking aspects and dimensions on which to characterize the design proposals became less significant, because any aspects and dimensions chosen could either be turned into arguments for the outcome or neutralized as potential arguments for another outcome. For example, when the winning proposal contained a very vague and unsubstantiated plan for energy conservation, the committee's report viewed this plan as creative and a promise of good solutions to be developed during the detailing phase.

In short, we propose that the choice of the winner in an architectural competition is based much on professional intuition, by which a commitment to a specific outcome is generated from the beginning. With a commitment to the eventual outcome of the decision making process, the process can now be directed and dedicated toward building causal links between a select number of problems and specific design solutions. The design proposals, representing singularities, are made comparable by the commitment to read the other proposals with the winning proposal as the interpretive key. The explicit grounds for justifying the choice of the winner are to a large extent an outcome of, rather than an a priori premise for, the committee's work.

## CONCLUSIONS

We have analyzed a decision making process in which the outcome seemed to be the starting point and the premise for the process rather than its culmination. The winner of an architectural competition was chosen initially based on the professional committee members' judgment and intuition. We have tried to make sense of the process by discussing it in the language of the garbage can model. And in the process, we have come to see how certain aspects of the model may be modified with inspiration from our case study.

First, consider the role of the decision makers. There is a clear correspondence between the model and our observations in the sense that decision makers construct causal relationships where no such relationships exist. The task is clearly to produce meaningful and legitimate explanations for why a coincidental collection of problems and solutions constitute a meaningful whole, that is, a set of solutions that actually solve the current set of problems. There is a strong sense of *ex post* rationalization, of social construction, both in the model's language and in the case study. We have choices looking for meaning and justification, not choices guided by meaning and justification. It is the task of the decision makers to construct such meaning and to develop the causal arguments for why the solutions solve the problems.

Second, the model suggests that the decision making process is completed when a choice is possible. A choice is possible when the task of constructing a causal argument for the outcome can be accomplished given the complexity of the array of problems and solutions relative to the available time and energy of decision makers. The moment of choice will be postponed until a sufficient number of problems and solutions have left the choice, or until a sufficient amount of decision making energy has been accumulated. However, the case study reveals a different mechanism. It showed that "garbage ejection" did not take place to enable a choice, because it was a choice that started the process in the first place. The intuitive choice initiated a process of assembling a selective collection of the concerns, evaluations, viewpoints, and claims sufficient to construct the justification for the appointment of the winner. The original choice guided the selection of concerns and aspects to be addressed, and further provided the key for understanding the brief and evaluating the competing design proposals. It seems that decision making may well be conceived of as a *framing* (Goffman, 1974) of essentially a bricolage of diverse and incommensurable elements.

Finally, consider the diversity of roles of decision makers. In the garbage can model, they provided time and energy to the construction of a causal account that explains the outcome of the decision making process. They may be differentiated on grounds of their access to various choices, but not in the contribution they make to the process. In the case study, we observed participants with very different capacities and responsibilities. The professional members of the assessment committee were requested to present and evaluate the design proposals to the lay members, and subsequently they were charged with writing the assessment report. Clearly, they had skills that differentiated them from the other committee members and which gave them a natural platform for framing the choice. They exploited this platform by immediately identifying the eventual winner and spending their energy on rehearsing their arguments and teaching or convincing the committee about the soundness of their judgments. Lay members could not have assumed such a role, but on the other hand they could have chosen not to grant the professionals their observed role. Had this happened, the outcome might have been different and the legitimacy of the decision might have been questioned. In this particular case, the very tight deadline for a decision probably discouraged the lay members from challenging the professionals' judgment, because the early identification of the winner was an important enabler for making a decision in time. Thus, the role of the professional members is to some extent endogenously determined, and therefore one of the many phenomena that needs to be understood and accounted for in the language of the garbage can model.

As a general conclusion, the role of intuitive choice is probably underexplored as a prerequisite for decision making processes. When alternatives are incommensurable, some kind of judgment will be called for. Judgment devices and trust devices (Karpik, 2010) may make such dependence on intuition more acceptable, but the alternative to judgment and intuition is not some rational form of reaching a conclusion, but other judgments and intuitions. Maybe an important key to understanding decision making is to realize that outcomes depend more on *commitments* than on *calculations*.

## NOTES

1. William Blake, "Auguries of Innocence."
2. The Danish Architects' Association recognizes approximately 20 different forms, but practice evinces even more variations.
3. All quotes and interviews are translated from Danish by the author.

4. Other parts of the assignment were taken out as a result of the teams' request for clarification. For example, while the transportation to and from the school was an important issue, a definition of the solution space could not be given because it would require negotiation with various ministries and road authorities which was not feasible within the overall timeframe of the competition. Clarification became necessary when the indication in the Competition Brief of a "kiss-n-ride" zone was questioned for its compliance with the municipality's policies.

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## APPENDIX

### Methodology

This paper rests on a close observational study of the last part of a dialogue-based architectural competition – for details, see Kreiner et al. (2011) and Jacobsen, Kreiner, and Jensen (2010).

The overall timeline of the competition is depicted in Fig. A1.

Our data collection started with the second workshop and was continued long after the completion of the competition itself. Three researchers were involved in the data collection, and most of the time they were all actively involved in observing the proceedings and interviewing the participants. Here are examples of the data we collected:

- We collected all available documentation on the planning and preparation of the competition. This written material allowed us to reconstruct the historical background and the rationale behind the unique design of the competition. Besides legal documents, the most central piece of documentation – for us and for the participants – was the Competition

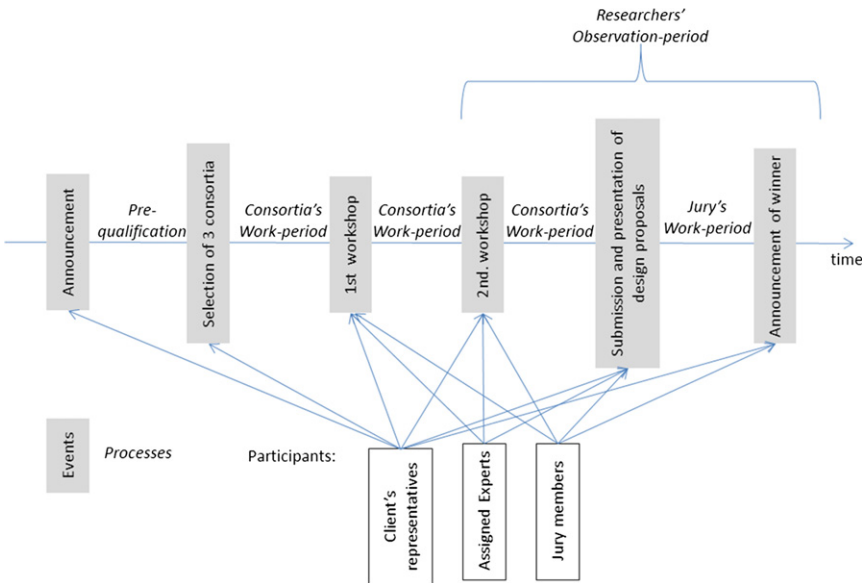


Fig. A1. The Timeline.

Brief which was an extended enumeration of the expectations of the client for the design proposals of the architectural teams. During our participation, we received all written communication between the teams and the organizers of the competition.

- We observed and videotaped all the sessions of the two-day second workshop.
- We observed and videotaped all three teams working in their respective studios on the feedback they had received at the second workshop.
- We observed and videotaped the seminar at which the teams' final design proposals were presented. This seminar included an extended verbal presentation of the designs by the leader of each team. It also gave occasion for an informal exchange of first impressions among the committee members and the assigned experts and representatives of the client organization.
- We observed all proceedings of the committee. All three researchers took extensive notes which were subsequently collated and shared.
- We observed and videotaped the public seminar at which the three design proposals were put on exhibition, the winner publicly announced, and the committee's written report released. One member of the committee publicly reviewed the proposals and summarized the committee's evaluations.
- Subsequent to the competition, we did semi-structured interviews with the leaders of all three teams, with representatives of the client organization, and with all professional members of the committee. All these interviews were audiotaped.
- During our observations, we had many occasions to informally interview the participants. Notes from such interviews were taken as soon as possible after they had occurred. The notes were then shared and discussed within the research team.
- All interviews, as well as substantial parts of the sound track of the videotapes, were transcribed.

The fact that in most cases three researchers were observing and taking notes enabled an extensive verification and calibration of the data to filter out subjective views and idiosyncratic interpretations.

Two potential biases should be noted. We did not observe the prequalification process, that is, the selection of participating teams and the first workshop. Our knowledge about these phases rests on our desk research and the participants' recollection when interviewed. However, we had occasions to collect multiple accounts of these early phases. Across

interviewees, little disagreement was noticeable concerning what had happened and what it all meant. Thus, we feel confident that the accounts of the early phases give a valid picture of history.

The fact that many interviews were conducted after the competition had been completed is another source of potential bias. Thus, the experience and views that we collected could not be uninfluenced by the interviewee's knowledge of the outcome of the competition. Some retrospective sense making is bound to have taken place. In our case, however, such biases from retrospection are easily taken care of – and easily challenged during the interviews – because we had so many recordings of their views and understandings during the competition process.

The assessment committee had the following composition:

- The political chief and the administrative chief of the Municipality's Authority for Children and the Youth (the branch with responsibilities for primary schools);
- The political chief and the administrative chief of the Municipality's Authority for Culture and Leisure (responsible for the public library);
- An elected member of the municipality board;
- One professional assessor on pedagogical issues;
- Two professional assessors on architectural issues;
- Two professional assessors on engineering issues;
- One professional assessor on library issues;
- A secretary for the assessment committee, appointed by the Danish Architects' Association.

The assessment committee relied on a consultative group of 13 persons, representing a variety of areas of expertise.

The assessment committee worked intermittently within the period of February 18 to March 2, 2009. The committee held all collective meetings in one big room which was sealed off from others and which had the three design entries on permanent display. Much of the work was done standing in front of the displays, listening to the various professional assessors and the consultative experts as they relayed and interpreted the proposals.