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EXPECTATIONS TO ACADEMIC CRITIQUE IN INDUSTRIAL ARCHITECTURAL RESEARCH

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MARIUS MARTENS GUDMAND-HØYER

This article discusses the practice of academic critique in industrial architectural research. Based on examples from a PhD project conducted in collaboration between an architecture school and two different industrial partners, it shows the significance of the expectations we hold to critique. Often these expectations prove quite different for one who engages in critique in order to give an account of a broader issue in an academic context, and for the one who becomes involved in this critique in the role of an informant or as representing the studied practice. Focusing on notions of negative and affirmative critique, the article argues that, in addition to the alignment of expectations of interests and aims of the research between the collaborating parties (e.g., PhD candidate, academic institution and industrial participants), there is another kind of ongoing alignment that needs attention in the research process. This alignment concerns the cultivation of an ability to explain and redefine the purpose of academic critique and a readiness to acknowledge that industrial partners often have very legitimate reasons to question the ramifications that the critique may have for their professional practice.

Keywords:
Industrial architectural research, academic critique, critical expectations

Introduction

Recent years have witnessed a growing number of industrial architectural PhD projects across the Nordic countries (examples are Manelius, 2012; Schipull Kauschen, 2014; Schlegel, 2015; Meldgaard, 2018; Corlin, 2019; Munch-Petersen, 2020), realized in collaboration between architectural schools and private or public companies and organizations, and partly funded by governmental research and educational programmes. These projects share features with the usual industrial research conducted as PhD or postdoc projects, and also aim to arch over academic research and professional practice in order to generate innovative knowledge, methods, tools and products that could not be realized without this type of collaboration.

This article will showcase ways in which industrial architectural research projects become a matter of balancing the ambition of distanced, critical analysis and academic research contributions with the competing ambition of improving current practice in a quick and instrumental manner, which can accommodate business almost immediately. Embedded in this challenge are the questions of the researcher's possible biases, ethical dilemmas and responsibility due to the closeness of the industrial partner as well as issues regarding, for example, aligning expectations to research output and timeframes. It is a hallmark and generally acknowledged requirement of academic work – as to which the industrial PhD candidates are expected to excel at the same level as the traditional PhD student – to be able to engage in critique without any other boundaries than the scholarly ones set by peer researchers. It is understood that the industrial research partnerships introduce new lines and positions within this otherwise autonomous field and that this, in turn, affects the conditions of possibility for the practice of critique and the expectations we can have to critical engagement.

The aim of this article is to emphasize the importance of reflecting upon the purpose of academic critique and the various expectations to this critique. In the first section, we present the issue of academic critique in industrial architectural research as a question informed by the common aspiration to bridge a gap between academic research and professional practice. The second section gives a short overview of the notion of critique in general, but with a special focus on critique as a social practice and on how the understanding of critique and its function is highly determined by what we expect from critique. In the centre is the notion of negative as opposed to affirmative critique. The third section presents three examples from an industrial architectural PhD project in order to pinpoint how different expectations to critique among the involved industrial partners and informants directly affected the research design, process and the methods applied. The final section concludes by discussing the more general implications of the illustrated situations and argues that increased attention to the expectations of academic critique may prove instrumental for bridging research and professional practice.

Bridging the gap between academic research and professional practice

Common amongst the tropes used in recent discussions concerning industrial PhD programmes and projects is the notion of 'bridging the gap' between academic research and professional practice (Guide & Van Wassenhove, 2007; Kihlander et al., 2011; Thune et al., 2012; Schlegel & Keitsch, 2016). Indeed, this trope presupposes the existence of a gap, the prospect of bridging it and the challenges in doing so; otherwise, it would probably not be in use. These features are clearly present even when demand-oriented tools of governmental education and research policy, such as the Danish Industrial PhD Programme (since 1988) or the Norwegian Industrial PhD Scheme (since 2007), voice the positive expectations they associate with their purpose. The Danish programme "aims at increasing knowledge between universities and private sector companies, promoting research with commercial perspectives, taking advantage of competences and research facilities in private business to increase the number of PhDs" (DASTI, 2011, p. 9). Likewise, the Norwegian scheme hopes to endow the companies with tailored research expertise, improved competitiveness, innovativeness and attractiveness; moreover, provide the PhD candidates with advanced career opportunities due to new academic horizons and networks; and finally, provide the universities with better collaborative relationships with industry, entrance to external funding and, not least, access to unique research data not otherwise attainable (see Schlegel & Keitsch, 2016). These issues, all of them referring to the possibility of a bridge, are often evaluated by the literature in well-known terms: *Addition* – do the programmes add something that would not be carried out by usual industrial Research & Development (Piro et al., 2013)? *Productivity* – do the PhD projects associate with growth and value creation for the companies (DASTI, 2011)? *Recruitment* – do the companies prefer PhD candidates that do not only possess research skills but also industry-relevant competencies (Cruz-Castro & Sanz-Menedez, 2005)? *Applicability* – are the results more readily implementable into the industrial partners' practice than standard research (Thune et al., 2012) and do the projects, for example, result in a greater number of patents (DASTI, 2011)?

Finally, and importantly, the bridging of the gap between academic knowledge production and industrial knowledge mediation and innovation has also been discussed in terms of how the PhD projects may involve new challenges for the university institutions and the research practices as we know them. Without any definitive answers, studies have raised a number of issues implicating both biases, aim and independence – for example, whether the industrial PhD format begets a shift from education and learning to job-like training, so that industry may begin to determine the scope and shape of research projects (Frick et al., 2017); or, more generally, if cooperative research between university and industry may involve unintended costs with respect to the "climate

for academic freedom" (Behrens & Gray, 2001). Other studies emphasize the ambiguities that meet the PhD student when having to work within 'two cultures' with different demands and often with limited experience in cooperation and exchange. For instance, the PhD supervisor may ask for further theoretical elaboration and rigor while the industrial partner rather pushes for added practical applicability and immediate results of the research (Schlegel & Keitsch, 2016); or the long-term research horizons of academia may conflict with the short-term project work with tight deadlines of the companies (Kihlander et al., 2011). Relating directly to experiences with industrial architectural research, Schlegel and Keitsch (2016, p. 3-4) raise several issues concerning the questions of bias and ethical responsibility experienced by the PhD scholar. According to them, the industrial researcher is for several reasons met with the challenge of bias to a higher degree than other researchers. First, the affiliation with the industrial partner may cause issues of bias in relation to business considerations. Second, there may be a bias issue due to the researcher's increased sensibility as well as ethical responsibility towards the research subject. Third, there may be a more pressing challenge related to the balance of winning the trust of co-workers or research subjects and the responsibility of having to adequately present findings based on these data without betraying that trust.

In this context, Schlegel and Keitsch (2016, p. 4) address also the question of critique and the need of still being able to establish a distance: "While the candidate was grateful to be given the opportunity to study the subject matter in great detail, it was important to retain a critical attitude toward the cases in order to create a relevant review of the cases". In relating the questions of bias and distance to the critical attitude, Schlegel and Keitsch point out something of importance: that we expect researchers to possess a certain kind of 'distance' in order to be critical in their academic practice. This kind of distance is typically reflected in the notion of methodology. In scientific and academic work, research methodology is a use of the critical distance to enable a systematic account of the specific procedures or techniques used to identify, select, process and analyse data and information about a given research topic. This explanation should allow the recipient to critically evaluate a given study's overall validity (e.g., is it a true account of the examined case) and reliability (e.g., would others arrive at the same account), but it should also allow the researcher to reflect on to what extent and by what means the distance to the object necessary for a critique came to pass satisfactorily. This question of methodological distance is obviously of great importance for scientific and academic work to function.

However, the methodological question also relates to the expectations we hold to what has been designated "institutional imperatives" comprising "the ethos of modern science" (Merton, 1942, p. 270), also known as the so-called C.U.D.O.S. norms. Indeed, we may expect that industrial

research would imply conflict with the distances built into all four norms. First, 'Communism' – the norm that research results should be the common property of the whole scientific community, so that the researcher's claim to "intellectual 'property' is limited to that of recognition and esteem" (p. 273), and that full communication of findings in the public domain is imperative to the conception of science, secrecy being "the antithesis of this norm" (p. 274). Second, 'Universalism' – the norm that judging claims of validity of truth should rest upon "preestablished impersonal criteria" (p. 270), and that the acceptance or rejection of knowledge claims "is not to depend on the personal or social attributes of their protagonist" (p. 270). Third, 'Disinterestedness' – that researchers should have no emotional or financial attachments to their work, that they are to be motivated and rewarded through recognition rather than monetary gain and that their interest in finding out the truth may even work against their own interest when the truth proves them wrong. And finally, challenges may rise with the distance pertaining to 'Organized Scepticism' – the norm that scientific claims should be exposed to critical scrutiny before being accepted, but also that the "temporary suspension of judgment and the detached scrutiny of beliefs" may often "come into conflict with other attitudes toward these same data, which have been crystallized and often ritualized by other institutions" (Merton, 1942, p. 277). This potential conflict between an academic, disinterested approach to a given problem and a professional, interested approach to the same issue could make it especially difficult to bridge the gap. In the case of industrial research, it is unlikely that the professional partner would want to suspend judgement concerning knowledge claims ready to be converted into practical use for the same amount of time as expected by academic mores. One potential conflict here is that the suspended application of research results would come too late to be of real value for practice, while the alternative, early application would instead risk distorting the academic value of data still not attained or in need of further analysis. At this point, the attempt to put the research results at a distance may very well generate another and unproductive kind of distance between the researcher and the professional partner that would, because of the unlikeliness of any final solution to this matter, need to be continuously negotiated.

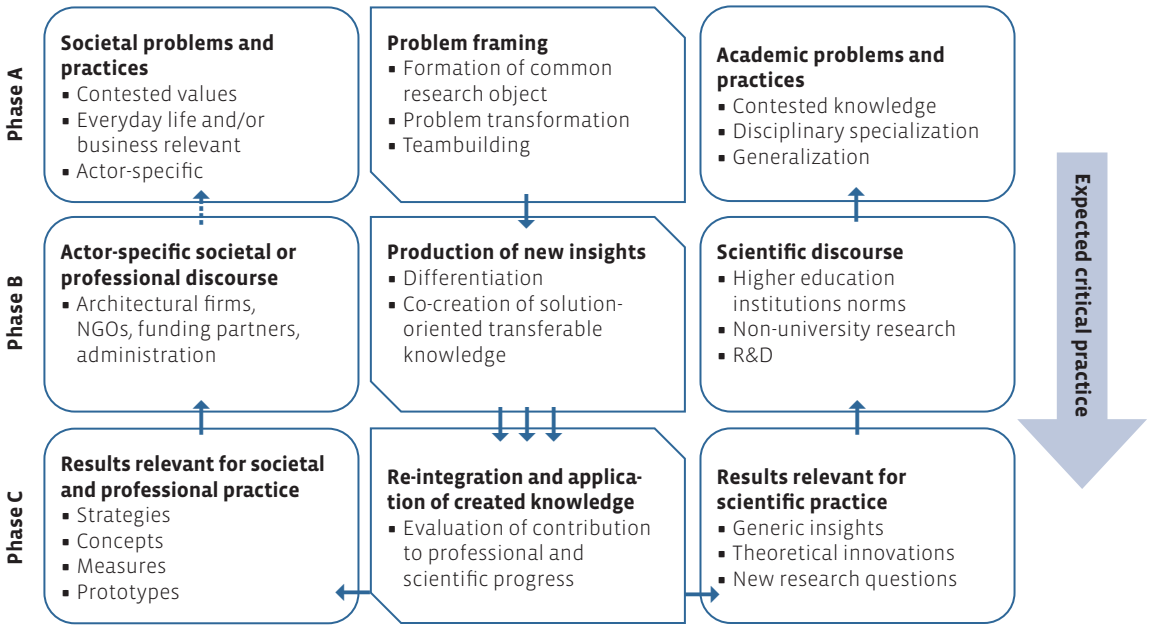
At the same time, the researcher would also have to navigate the circumstance that the institutional imperatives are already undergoing transformation within the academic institutions themselves, even if many academics still identify with them. Thus, Macfarlane and Cheng (2008) suggest that the academic norm of 'Communism' is partly substituted for that of 'Capitalism', by which maximizing financial return on academic work in a market economy has become commonplace, reinterpreting the role of research as "an income generation activity" (p. 77), often assessed in audits in terms of 'performativity' and 'efficiency'. Equally, the university institutions experience a development

towards an ethos of 'Interestedness', not only apparent in researchers' eagerness for outreach and participation in public debate in areas falling outside their expertise, but markedly in their readiness to re-direct efforts toward available funding opportunities, often shaped by contemporary concerns as experienced by public or private policymakers. Such grant-chasing behaviour, Macfarlane and Cheng argue, risks prioritizing "short-term benefits of their research rather than focus on longer-term, theoretically driven work, sometimes referred to as 'blue skies thinking'" (2008, p. 76). In this way, some of the issues associated with industrial research are arguably already burgeoning within a changing academic environment.

Issues of this kind have already been discussed, not least in context of transdisciplinary research, aiming to find solutions to complex contemporary challenges such as sustainability "by differentiating and integrating knowledge from various scientific and societal bodies of knowledge" (Lang et al., 2012, p. 27). The model for transdisciplinarity developed by Jahn et al. (2012) may therefore also provide a framework for understanding the critical knowledge ecology of industrial research treated here (see Figure 1).

As we will argue below, however, it is important to note that the question concerning critique and expectations to this practice is difficult to deliberate in the initial phase of common problem framing and team building, which also represents time and space for the typical alignment of interests, simply because none of the partners know what to expect beforehand. Instead, the question of critical expectations seems to emerge in the process and perhaps mostly towards the end of the second phase

Figure 1
The place of critical practice in the industrial reseach process, based on the models for transdisciplicarity in Jahn et al. (2012) and Lang et al. (2012)



of co-creating transferable knowledge. In short, the stages of a research project in which academic and professional partners are most closely tied in the common work is also where the distance both presupposed and generated by critical practice becomes the most pertinent. At the same time, critique concurrently extends the bridge and offers ways to cross it.

On the notion of critique as a social practice

But what is critique? The following answer to this question is neither exhaustive nor does it aim to account for the many normative expectations to critical practice, which have been formulated since the Enlightenment (Koselleck, 1973). From that time on, the notion has played a central role for how Western societies understand themselves and their basic institutions (for accounts of the history of critique as well as the critique of critique, see Raffnsøe, 2017; Rebughini, 2018; Latour, 2004). Instead of the normative expectations we hold *to* critique, culturally and societally, the focus in this section is rather what we come to expect *from* critique when we engage in it as a social practice. These critical expectations that we hold are important to take account of, because they are not only miscellaneous and often only implicitly present, but at times they are also mutually exclusive or conflicting to the extent that they may lead to misunderstandings. For example, one might expect that critique is meant to expose our flaws or discredit what we do, when it could just as well be a matter of pointing out that we were on the verge of realizing something original and promising, which, however, we were not yet fully aware of ourselves. In short, critique always comes with expectations dispositioning how we respond to it. A critical discourse is never an innocent discourse, but that does not imply it always has to be a mortifying one.

Etymologically and perhaps ideally, critique concerns judgement (cf. Dewey, 2005). Referring to the Classical Greek verb *krinein*, 'to separate, decide, distinguish', and mediated by the Middle French *critique*, 'the art of appraising artistic or literary works', to criticize is to pass judgement and to be skilled in judging the merit in some particular class of things. In this account, critique refers to the ability to discern what is at stake, both in the usual course of things and especially at points of crisis, in order to evaluate and pass judgement on what is most important to address in a given case. Critique is both an ability and the exercise of that ability, it is the deliberative assessment of something as well as the outcome of the assessment; but critique also entails the representation of this something in the light of the judgement. To criticize is not only to establish a set of judgements for everyone to ponder and make use of but also to reintroduce something to someone who is most often already involved in the class of things being criticized. Therefore, critique is, first of all, a social practice that concurrently presupposes and enables a potential response to its appraising activity. This critical practice impli-

cates a sender and receiver, a message in the form of a judgement concerning something at stake, a particular situation in which this type of communication takes place and, finally, the anticipation that something new might come out of it. While this is the formal structure of critical practice, it does not itself convey what we anticipate being the purpose of involvement in critique.

However, a second aspect of critique is its historical indebtedness to the Enlightenment project and the notion that critical practice is fundamentally also a critique of prejudice and established authority, and thus an emancipatory display of self-thinking and autonomy (Gasché, 2007). Historically, critique is thus given an antagonistic purpose that has become difficult not to associate with the notion. When something is subjected to critique, it often has to justify itself anew in a confrontation with the supposedly true authority of vindicated knowledge, or it has to explain why it should not be different or it simply has to adjust itself. Critique involves a commitment to potential change or improvement as well as the concomitant production of useful knowledge that is often confrontational or even revolutionary.

A third aspect of critique is the valence of this confrontation. At present, it is commonplace to associate critical practice mostly with 'negative critique' – that is, the passing of unfavourable judgements and the finding of weaknesses and faults with something. This critique is an effort to identify mistakes and limitations, to object to something with the purpose of showing that it is nonsensical, false, mistaken, in the wrong, while it usually also reproves someone who is held responsible for the thing criticized. However, history tells us that critique can just as well be understood as an 'affirmative practice' (Rebughini, 2018; Sonderegger, 2012) – that is, an effort of re-creating or re-working that which the critique takes account of, in the light of what this thing may already be on the verge of realizing (Raffnsøe, 2017). Beyond the notion of 'positive critique', a critical practice that simply substitutes the disapproval of downsides ('getting a bad review') for the praise of upsides ('receiving good critique'), the affirmative critique rather prompts a thrust to improve and cultivate a momentum that is already present in the thing under evaluation. It evaluates 'what is' in the productive light of 'what could be' (Rebughini, 2018), it analyses tendencies with the purpose of reconfiguring the total circumstances (Staunæs, 2016), but it does so without having a pre-given norm or ideal to set up against. Thus, the affirmative resembles the kind of constructive critique that does not debunk and undermine the given, but rather assembles and offers new places to interact for the practices it investigates and engages with (Latour, 2004). However, this kinship does not imply that the affirmative critique is without its negative or even destructive elements. To re-affirm and rework that which is already present as a tendency in the thing or work under evaluation will always necessitate a distinction or separation from

something that is then left behind (Raffnsøe, 2017). While it may not disapprove or reproach mistakes, the affirmative practice still puts a distance to some aspects of what is criticized, which may then prove mistaken in the different sense of being forgotten. When, for example, a critical evaluation encourages someone to continue her work in a particular, new-fangled direction, which may have been underdeveloped or only hinted at so far, other aspects of the work in question may now seem irrelevant, or even appear flawed as if they have been the subject of an unspoken negative critique. To be affirmed is also to be changed, and often to be forced to leave something behind, perhaps something precious.

A fourth aspect of critique concerns the question of distance – a question also broached above in the previous section on the dilemmas of collaborations with industry in architectural research. Although in different modes, both affirmative and negative critical practice involves a distance and a detachment established between, on the one hand, the agent and the content of critique and, on the other hand, the critical object and the one held responsible for this object. Critique ensues in this distance, it establishes this distance by its practice, but critique also requires this distance in order to be critical. Here, critique is always more than just a depiction or representation of something. It has to be a description *plus* a judgement, which can only be made because the critical agency has separated itself from the object in itself. Subjected to critique, a work is disconnected from its immediate reality, from what it is, and re-connected to its possibility, to what it could have been or ought to be. Equally, critical practice entails that the recipient of critique is both able and willing to offer his work for someone else to appraise, so that the question of distance not only pertains to the critical agent or the judgement but also to the one held responsible for the criticized object. This partial separation on the part of the receiver – which is often hard work in itself – is integral to critical practice because this initial step is a prerequisite for a later, fuller step of separation that would make someone able and willing to alter a work guided by the critique or to give it up altogether. Such reciprocal expectations between the sender and receiver of critique are integral to the concept of critique, but they are, we suggest, also deeply practical questions for research practices, alike to the kind found within industrial architectural research.

Three examples of critical expectations within industrial architectural research

The following three examples are chosen to illustrate empirically how the organizational framework of industrial architectural PhDs can prove critical for both the research process, the research design and the research focus, particularly on account of expectations to the practice of critique. Although other challenges pertaining to industrial architectural

research are of great importance – for example, the alignment of expectations between the research partners, the application of the research results or dissemination of the knowledge produced – the question of performing and receiving academic critique stands out in regard to industrial architectural research and for the aim of bridging the gap between academia and practice. The chosen examples will show how differences in expectations to critique can implicate consequences for the conducted research not only in the long-term academic sense but also in the short term and highly business-relevant sense of importance to the industrial partners. The examples originate from the same industrial architectural PhD project studying the renovation of preservation-worthy public housing. Even if case-specific to only one research project, they still showcase questions of general concern, which are important to address not only in order to qualify the exchange of knowledge between academia and practice but also to fully reap the benefits of industrial architectural research.

It should be noted that the PhD project was distinctive since there were not one but two industrial partners. The PhD student was enrolled at an architectural school, employed by one industrial partner, an architectural firm, while the main funding came from the other industrial partner, a public funding organization, which meant that the researcher had to navigate a total of three workplaces. Moreover, the main funding partner of the research project also partly funded the studied architectural projects, of which some were conducted by the architectural firm employing the PhD candidate. The examples described have been chosen as they were all critical to the research process. In addition, the situations presented are all illustrative in character and likely to emerge in other industrial architectural research projects presenting the same type of potential conflict, albeit in different set-ups. Lastly, all the examples described did impact on the research project and prompted alterations to the research design as well as to the methods applied in ways that were almost impossible to predict but shared the common feature of being directly related to the expectations to and function of critique.

Example A: Expectations to critique impedes access to data

The PhD project was planned as a series of case-studies of recent and ongoing renovation projects conducted by Danish architectural offices. This design, however, was challenged early in the research process as soon as a number of different architectural offices were contacted for access to case-specific data documenting the development of their projects. Because one of the industrial partners collaborating on the research project was itself an architectural office, working on projects of the same type and scope as the firms contacted for the purpose of empirical material, a mistrust was soon expressed regarding how the data to which access would be given would be used. On the one hand, the offices voiced concern for the possibility that the industrial partner

to whom the researcher was directly connected would be able to copy and thereby illegitimately appropriate potentially clever solutions for its own benefit and enrichment. On the other hand, in keeping with the image of negative critique, submitting to academic critique could also potentially expose possible deficiencies or other problems in the cases studied. While the latter concern was not directly formulated when initially meeting the practitioners, mistrust and concern for how negative critique could affect current practice soon became an issue, as will be further described in example B and C below. In addition, the fact that the researcher was connected to the industrial partner, which also funded the projects serving as the cases studied, was clearly a matter of concern for the practitioners agreeing to participate in the research project. Almost all the practitioners who were contacted agreed to participate in interviews, but access was denied to data such as earlier sketches and proposed designs, notes, minutes or similar material, which would have enabled a proper documentation of the decision-making processes and the projects' development. Instead, the interviewees presented their own experience and personal understanding of the results and development process of the studied cases, whereas the researcher's independent analysis and comparative interpretation with direct reference to case-related documents became limited.

One immediate consequence of this was a modification of the original research design. While the case-study format was maintained, it became necessary to distinguish between categories of case-projects, in respect not primarily to their overall relevance or whether data existed or not, but now to the degree of data accessibility, which was itself contingent upon the practitioners' perfectly relatable concern for becoming the subject of exploitation or negative critique, also in the sense of not being mentioned or distinguished as 'best practice'. Another consequence was that it became necessary to develop new methods of analysis to investigate the research questions across the necessary case-distinctions that the project had to establish. These alterations had great impact on how the research was conducted. The objective of academic critique was clearly questioned and perceived as a potential threat to business, since it could reveal best practice and advantageous business solutions, but just as importantly, because earlier and current projects could be presented and discussed in a negative light. Characteristically, these issues, having to do with expectations to the role of critique, already emerged in their very particular manner in the opening phase of the research process. However, they were still almost impossible to predict beforehand, and thus also difficult to plan for and perhaps avoid in the usual alignment of interest between the partners involved in the PhD project. Instead, the issues seemed to call for another kind of ongoing conversation regarding the threats that critical practices might entail and not least the uses of this practice.

Example B: Escalating conflicts and the biased researcher

As an extreme case (cf. Flyvbjerg, 2015), the PhD project chose to investigate a relevant renovation project of which the development had been unusually long, problematic and characterized by conflicts and mistrust between the technical advisors and the client. This project was conducted by the architectural office employing the researcher, and full access was given to the case related data. Or almost. Due to the tensions and conflicts related to the project development, the project manager saw the attendance of the researcher at certain meetings as well as the researcher approaching the client as a potential liability in terms of escalating existing conflicts and thereby jeopardizing project development. Again, the researcher's affiliation was key insofar as the industrial partner feared that the client would be annoyed by or question the aim of the research project, deny any participation and then, as a result, criticize the architectural office responsible for developing the difficult project, which the client had already questioned extensively in prior years.

The client's critique and dissatisfaction with the industrial partner could potentially lead to further delay of the project, with consequences both in terms of time, economy and at a personal level for the involved employees. Basically, addressing the client with the aim of performing academic critique, for instance, by asking for an interview or merely by being present as an observer, could from the point of view from the industrial partner challenge ongoing practice and not least business. This risk of increasing conflict was mainly due to the affiliation of the researcher and the possible questioning of the researcher's objectivity by the client. The industrial partner worried that the client would mistrust the researcher for being biased and therefore for taking sides in a heated conflict when presenting academic results of the research. A more reflective discussion of different modes of critique and expectations to critique, and notably affirmative critique, could perhaps have eased the research participants at this point, but the PhD researcher fell short in this. To meet the immediate concerns of the industrial partner and not to jeopardize the important participation of the client, new measures were taken in the PhD project. The researcher stayed away from meetings and could only refer to minutes of meetings. Approaching the client was postponed for as long as possible to ensure that the level of potential conflict relating to the case was tolerable for the industrial partner. These measures put pressure on the planning of the research project, which had an impact on the planned timeframe of data collection and thus for the whole project.

Again, the affiliation of the researcher with an industrial partner became a potential issue and made it imperative to establish trust when encountering case-involved informants. To obtain data, it became crucially necessary to explain that the researcher did not solely represent either of the industrial partners, or a negative critique on behalf of one of them,

but rather aimed at engaging in an affirmative critique concerning all the partners. This explanation succeeded in adjusting the participants' expectations, and thereby became a gateway to a broader range of information.

Example C: Modes of critique and mistrust in research focus

The last example of how expectations to critique are pivotal for industrial architectural research concerns a series of interviews conducted with employees of the other industrial partner and main funder of the PhD project. In the process of interviewing, mistrust arose when one of the interviewees voiced concern as to how the answers would be used in the analysis and how the results would be presented. The mistrust especially concerned whether the academic critique would entail assessments of how individuals performed professionally, with implications for the evaluation of how the organization performed as a whole. It proved important to avoid the mistrust of the employees of the industrial partner, not only because of their role in funding the project, but more significantly for the purpose of access to the employees' knowledge and experience within their field and their willingness to share data. This was especially pertinent since the partner was also one of the researcher's workplaces and much knowledge about the industrial partners' daily practice was gained through everyday exchanges with the employees, informal discussions, observations and invitations to join unplanned meetings. A graver mistrust of the researcher's intentions would likely result in limitations and exclusion from partaking in informal exchanges of knowledge, as well as making the working environment somewhat awkward. To avoid this scenario, the research focus had to be further clarified and carefully communicated to the employees and the industrial partner. In addition, the interview transcriptions had to be sent to the informants for approval, even in cases where it was very unlikely that they would end up being cited in the final project.

The incident described resulted in a clearer delineation of the research focus, as well as a more continuous approval of the collected data. But even more crucial to the research was that particular findings had to be supported by supplemental references, data and analysis in order to present research results that would prevent a potential conflict with the industrial partner. Even though the industrial partner was open to criticism in respect to its practice, negative as well as affirmative, the practice of academic critique and the criticism itself had to consider and try to avoid the possible severe consequences on everyday practice. In this example, it was necessary to negotiate and navigate the distance that made critique possible only by establishing proximity and a trustful relationship with the industrial partner, a relationship that could not be established once and for all but, as a critical practice, had to be continuously nurtured by way of articulating what to expect, and what not to expect, from critique.

Discussion and conclusion: Building trust, working with critical expectations

A common, and very reasonable, approach to the challenges associated with industrial PhD research is the recommendation to the alignment of expectations concerning research focus, research execution and output between research partners (Schlegel & Keitsch 2016). No doubt such discussions are paramount to performing industrial architectural research projects adequately, and they are in line with common understandings. However, such initial exercises, no matter how prudently executed, do not prevent further issues of concern developing during the research process. These issues are not possible to align initially, but rather relate to questions of building and recreating trust, an ongoing development of critical trust and the articulation of expectations related to critique.

As shown in examples B and C, it seems important to actively cultivate an attentiveness between the collaborating partners and the researcher regarding the different forms of knowledge and critique in use, spanning from what can be published as longstanding results in academic journals to the insights of an affirmative kind that may possibly be implemented in everyday practice. Equally, the researcher needs to understand the risk that performing academic critique, no matter how affirmative, may be perceived as having possibly negative impact on current business, which was the case in all three examples. Similarly, the examples emphasize the importance of nurturing trust between researcher and industrial partner with respect to the aim and character of the academic critique. In particular, this is the case when the centre of attention is not only architecture, understood as the physical buildings, solutions and end-results, but also the practice itself, including the practitioners and their working methods. The examples show that when architectural research goes beyond the built environment and also considers organization, decision-making and design-process, the practitioners involved may not only produce often challenging feedback to the research process but also introduce their own legitimate conditions for the access to data, timing and focus of inquiry. In the examples described, the critical situations primarily came into being due to concerns for current business rather than ill faith in the researcher's overall aim of improving practice on a long-term basis. These issues were augmented in example A and partly B due to the questions of the researcher's possible bias. As a result, the researcher had in all three examples to become increasingly aware of, and in example C also to communicate provisionally, how data collection, analysis and findings may affect practice within a complex field of diverse expectations to critique as well as business concerns.

Another set of problems would arise when and if practice experienced that the academic critique might question unfavourably current practice, or directly impact business opportunities. This was the case in both examples A and B, while the industrial partner in example C did not mind

critical analysis of current practice but found it pertinent to make sure that the critique did not involve politically controversial issues. In all three cases, the overall aim of the research to improve practice was not questioned, yet the aim of the academic critique was. As the research focus of the PhD was imbedded in a complex and a politically influenced network of interests, it would be too simplistic to claim that it came down to whether the academic critique was of a negative or affirmative kind. It was indeed a question of how research could improve practice through academic critique without potentially damaging business in the process.

When it comes to the particular collaboration between the research partners, this process is a matter of ongoing mediation, a task that may fall back upon the researcher. Ideally, however, the discussion of expectations to and modes of academic critique may be less challenging and put to better strategic use if they were qualified by the degree-granting institutions, not only prior to embarking upon the industrial research collaboration, but certainly also as an ongoing reflection, ideally involving peers, supervisors and exchange of past experiences.

On the part of the academic institutions, it is recommendable to create a forum for the continuous discussion of this collaborative meeting point between long-term academic critique and the agendas of the industrial partners, whom no doubt engages in industrial research projects due to a professional interest in critical knowledge development, but equally to qualify current practice and increase business. Referring to Figure 1 above, this forum should extend beyond the initial alignment of interests for the sake of addressing present experiences in addition to cases similar to the examples given above. While facilitated and organized by the grant-giving institution, it would most likely be beneficial for this forum also to invite professional partners for a two-sided exchange of both past and current critical expectations. Here, it may be acknowledged that the anticipated negative ramifications of the critique are only one aspect of a practice encompassing affirmative possibilities as well, yet without disregarding the challenges for business exemplified above.

Finally, even though industrial architectural research can seem conflictual, difficult and somewhat restrained due to the necessary accommodation of the interests and agendas of the industrial partners, this type of research also presents new possibilities in terms of access to data and a deeper understanding of practice. For this reason, the above questions concerning the practice of critique ought to be addressed further. Another reason is that industrial architectural research will become in all likelihood even more relevant in the near future, given the growing number of industrial PhD students and the increase in research funds coming from state-funded industrial research programs, semiprivate funding institutions and businesses.

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