Lawyers know that there is no right answer – true professional expertise lies in skilful action, here defined as *phronesis* in contradistinction to technical expertise – *techne*.

Transferable knowledge: an interview with Bent Flyvbjerg

Inge Mette Kirkeby

The question of the nature of knowledge is vital in understanding the relation between research and practice.[1] This question is vital, not least for architectural researchers since they often have to struggle with a rationalist ideal that research-based knowledge must be context-independent. But architects 'know' that this kind of knowledge does not cover the need for knowledge in architecture and design, a field between the humanities, social sciences and technology. Several volumes of **arq** contain articles and letters on this subject.[2]

Architectural research is here understood as research producing knowledge useful to practitioners. It can be theoretical as well as practical. This definition also includes research by design as one of several ways to knowledge. The research may be conducted by researchers who themselves have an education in architecture, but also by researchers from other disciplines. Certainly some research results may be valuable as 'pure knowledge' contributing to a general understanding of architecture, but this interview deals with the question of what kind of research-based knowledge feeds into practice.

Bent Flyvbjerg's research provides a theoretical basis for including context-dependent knowledge in research-based knowledge. With his books *Rationality and Power* and *Making Social Science Matter,* Bent Flyvbjerg has become mandatory reading for researchers and students in the social sciences and planning in many places.[3] In several writings he discusses the importance of context-dependent knowledge – in opposition to a general scientific ideal of context-independent knowledge. Instead he advocates case studies, and with reference to Aristotle he distinguishes between three kinds of knowledge – episteme, techne and phronesis – which he explains as follows: episteme is scientific knowledge, invariable in time and space. Research leading to episteme is carried out with analytical rationality, it concerns *know why*. Techne is the technical *know how*, it is concrete, variable and context-dependent. Phronesis goes beyond analytical, scientific knowledge (episteme) and beyond technical knowledge (techne). Phronesis concerns values and involves 'the art of judgement'. Phronesis is held by Aristotle to be the most important of the three kinds of knowledge, it involves 'the good example', context-dependent knowledge and it guides practitioners to make choices and find solutions 'good for man'. Flyvbjerg pioneers a research methodology which he calls 'phronetic social science' dealing with the particular and not only looking for rules and generalised context-independent knowledge. But how does 'phronetic research' relate to phronesis used by the practitioner? How can results from phronetic research feed into practice in such a way that it supports the practitioner in action? The question is highly relevant in architecture, where practising architects to a large extent depend on their own experiences of buildings and spaces that they have visited as well as 'the good example'.

In the interview Bent Flyvbjerg gives his view on how the practitioner works, how the practitioner is educated to perform phronesis and the importance of research-based knowledge being 'transferable' to other situations and new contexts. Furthermore, the interview questions the role of *analysis* as part of research as a possible tool for the practitioner in the actual design process.

The interview was conducted on 19 March 2010 at Oxford University, Saïd Business School, where professor Bent Flyvbjerg is Chair of Major Programme Management and Director of Oxford University's BT Centre for Major Programme Management. The interviewer is the author of this paper.

The interview

Q: *In* Power and Rationality *you emphasise the importance of phronesis in the process of planning and the importance of the planner being able to make judgements about what is good for man. Architecture obviously has similarities to planning but also differences – do you see principal differences between planning and designing in regard to the use of phronesis?*

BF: Let me start with the difference that I see between planning and designing. I think planning is more analytical than design; design is more creative even

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'[…] *the substance of phronesis depends on which area you use it in. In design, you will be using it more directly in a creative process than when you use it in planning.'*

though one of the things I really like about planning is that typically you have to come up with solutions and therefore you have to be creative. People who work strictly in design move to the creative phase much faster than planners do and therefore have more experience with the creative phase and less experience with the analytical phase. So planners do more analysis than creative work whereas designers do more creative work than analysis. Of course you can talk about architecture critics and designer critics that do analysis but that's a different story – they are not designers as such, but rather design critics and therefore again more analytical.

Whether there's a difference regarding phronesis? Let's break the phronetic questions down to: 'Where are we going with design?', 'Who gains and who loses?', 'By which mechanisms of power?', 'Is this development desirable?' and 'What should we do about it, if anything?' If you ask the questions like that, where you use phronesis to reflect on the activity of design, or reflect on the activity of planning, there is no difference in principle, only in content. But for a designer who's not reflecting on design, but who's in the process of doing design, there might be a different role for phronesis – this would be practical wisdom in the act of designing and not practical wisdom reflecting on design. I would distinguish between these two things. Donald Schön has written about what it would mean to reflect in action as a designer and as a planner.[4] And basically the reflection in action as such, as intellectual activity, as something going on in your brain, would be similar, but it would be about different subject matters. One would be about design and one would be about planning. In design that's the practical skills you need for creating a design and if you're doing a plan, you would be reflecting on the practical skills that go into making a plan. There is a difference between drawing a building and drawing a city plan/developing a city plan, but the root activity – the reflection in practice and practical wisdom or whatever you wish to call it – would be similar.

Q: *Does it mean that you think phronesis has two components – a reflective/analytical one and a more creative one?*

BF: No, but the substance of phronesis depends on which area you use it in. In design, you will be using it more directly in a creative process than when you use it in planning. You can also use it in a more structured process like management. In fact, Aristotle emphasised the use of phronesis in the 'management of households and states' in his original formulation.[5] Phronesis can be used both to do good design and to do good planning. But the way you use phronesis would be different. The body – the shape – that phronesis would take would be different. Just as if you are using phronesis in politics, it would still be phronesis but the concrete manifestation of that phronesis would be different from design and planning.

Q: *You have made comprehensive reflections on how research ought to deal with phronesis and the making of choices in practice. In 'Phronetic Planning Research', you say:*

A central task of phronetic planning research is to provide concrete examples and detailed narratives of the ways in which power and values work in planning and with what consequences to whom, and to suggest how relations of power and values could be changed to work with other consequences.[6]

Could you expand on how 'phronetic research' may support the practitioner in developing 'phronesis'?

BF: We could start by distinguishing between *educating the practitioner*, and then *working as a practitioner*, after having been educated. In *educating the practitioner* you may improve learning by simulating practice, and case studies are great for simulating practice. That's why they are used extensively in professional education at top universities like Harvard and here at Oxford. These universities have realised that if they are going to have the best professional education around, they need to simulate practice, because that's the only way you can develop phronesis, as practical judgement, which is at the core of their training. You can use phronesis in training the practitioner by making sure that you simulate practical situations where you need to use practical judgement. So students get into practical or simulated practical situations, where they have to make the decisions practitioners have to make. In this way you force the students to develop their sense of judgements, which is key to phronesis.

Case studies are a certain form of pedagogy – the opposite of lecturing. Lecturing is not how you teach phronesis, that's didactics. In didactics you think that the way to train people is to assume that the teacher knows best and he/she will just pick his/her brain and put the knowledge into small parcels to be communicated to the students and the students can unpack the parcels when they need the knowledge inside. The students will be tested on the parcels of knowledge in exams and then they are supposed to unpack the knowledge later in practice. That's not what you want to do. What you want to do is the kind of pedagogy that's called experiential as opposed to didactics. Experiential pedagogy tries to give the students experience and skills more than pre-packed

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knowledge. It doesn't mean you don't have knowledge when you have experience, of course you do, but you have much more than that. You get knowledge and you also get experience and with experience you get skills, so it's a much more skills-oriented type of teaching than didactics which is knowledge-oriented. This is why I have never understood the expression 'tacit knowledge'. It's almost an oxymoron to me. The right term seems to me to be 'tacit skills'. In any case, you may train these types of skills through case studies. Other types of experiential learning are problem-based learning or apprenticeship. Getting students out to work in actual practice is excellent for training these kinds of skills. Discussion teaching is yet another example of experiential teaching where you actually force the students to take part, the teacher leads a discussion and tries to keep it on a certain track, but the students are expected to be active, and they cannot pass their exams if they are not active. That's the way you can train students to become practitioners.

Practitioners who have graduated and actually work in practice as practical planners or practical designers, they have a situation in the workplace where they actually learn from experience. In this situation where you create feedback loops, reflective situations, you get into the work mode that Donald Schön calls 'The reflective practitioner'. Schön says it's all about teaching students to 'think on their feet', that is, *in action*, as opposed to the slow deliberation that characterises analytical thinking, which comes *before action*, if there is any action at all.[7]

Basically the reflective practitioner is aware of his or her own phronesis, without being able to make it explicit in rules or the like, and knows that it's a key skill to have phronetic sense and that it's a skill that you can develop and maintain like any other skill. Donald Schön recommends that you try to get out of the rationalist mode – that you try not to be rule-based, not to think you can find the answers in a manual or get the right result by following a certain number of steps and rules and a manual. This is exactly what you don't do with this kind of practice, according to Donald Schön, Hubert Dreyfus and others.[8] Instead you teach people to think on their feet. This applies to many different professions. In medicine, doctors know that you cannot become a good emergency-room doctor by merely attending lectures. There's no way you will ever become a good doctor if you don't get the type of training where at four o'clock in the morning you have somebody being wheeled in from an accident and you just have to deal with the situation. You have to deal with it on you feet, take full responsibility and try to save that patient. All doctors, and research, will tell you that this is a necessary ingredient in becoming a good doctor and in developing the kind of phronetic judgement you need in order to make the right decisions.

So those are the kind of things you can do for people who are already in practice and as you can see it's already embedded in some professions.

Q: *You emphasise the role of experience in learning and in developing as a practitioner, and you just referred to Dreyfus and Dreyfus. In their five-step learning model: novice, advanced beginner, competence, proficiency and expertise, the upper levels are reached mainly through training and experience. Furthermore, practitioners in architecture often tell me about the importance of having their own experiences – they talk about their knowledge as something they have developed on their own or in a team. But where does that leave research and the researcher, in architecture or in planning? How does research feed into practice?*[9]

BF: As a researcher you could be the one who's researching and writing the case studies. This is one of the reasons that many classic texts in each field – be it planning, sociology or political science, even medicine – are case studies. Such studies communicate well and help make the subject matter come alive to the reader. Case studies are therefore effective pedagogically.

As a teacher, it is a decision to choose the experiential learning format, which is something I have done consistently in my own teaching after I first experienced experiential methods at Harvard with C. Roland Christensen, the godfather of the case method, who became a mentor for this type of learning. Lectures still have a certain place in experiential teaching, but it's reduced and it's as support for experiential methods.[10]

'It's an important task for researchers to point out that the technical-rational expert is not a true expert, but at best an advanced beginner [...]. If experts stay with the rationalist model, which stands strong in our culture, then they are bound to underperform.'

In addition to writing case studies, researchers may also promote phronesis and practical judgement by studying the reflective practitioner, like Donald Schön did. It's an important task for researchers to point out that the technical-rational expert is not a true expert, but at best an advanced beginner, as shown by Hubert and Stuart Dreyfus. If experts stay with the rationalist model, which stands strong in our culture, then they are bound to underperform. The rationalist model assumes that if you have the right methods, or the right engineering manual, then you arrive at the right answers. But this is a mistake. It basically means that we will stay eternal beginners and never become experts. You have engineers being trained to become incompetent engineers, you have political scientists being trained to become incompetent political scientists. Not to pick on engineers or political scientists, it applies in general to much education for professionals. It is interesting to note, however, that it does not apply to law. Lawyers know there's not *one* answer or a manual where you can find it. Lawyers know that knowledge

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is contested, because there will always be a defender who is attacked by a prosecutor, and *vice versa*, and they both know there's a judge or a jury who will make a ruling in the end. So law, as the only discipline on campus, does not have the illusion of objective knowledge that can be settled once and for all, and law does not defend what it is doing against this ideal. It's not that law does not have a concept of truth, it's just very different and we could all learn a lot from it.

Personally, as a researcher and teacher, my best moments are when I see my students having an 'aha!' experience realising, 'Hey, if I continue to do things this way, the rule-based way, I'll never be really good. But there is another way and it's not chaos, just because I'm not following engineering-like manuals'. Or entering into a master-apprenticeship relation with somebody more experienced than yourself, you can achieve much higher professional goals that way than by didactic learning. It's just wonderful to see when people realise that and they take off and start becoming true experts. The danger is, of course, that people give up the rational model, which we are all used to, without really grasping judgement and true expertise, and therefore are worse off than if they had stayed with the rational model.

Q: *In your article 'Phronetic Planning Research' you point to the fact that it seems a paradox to argue theoretically for a methodology that emphasises practice. In the same article you suggest that answers to the four questions – (1) Where are we going with planning? (2) Who gains and who loses, and by which mechanisms of power? (3) Is this development desirable? and (4) What, if anything, should we do about it? – may give clarifications which 'are a principal concern for phronetic planning research and provide the main link to praxis'. What kind of knowledge are the clarifications themselves?*[11]

BF: The clarifications are dense stories, similar to what the anthropologist Clifford Geertz called 'thick description', which he himself did in his anthropological and ethnographic studies. If we want to be clear about what planning is in practice, then we need to understand it through detailed stories about who is doing what to whom and with what consequences.[12]

Q: *According to interviews with practising architects, analysis is a very important activity in the design process; they stress the importance of analysis and often spend much time doing it. They analyse the design problem, the building programme, and possibilities to design according to the building programme. Maybe the analysis could be a 'common ground' between research and practice – but first of all: would it be possible to perform a case study without analysis?*

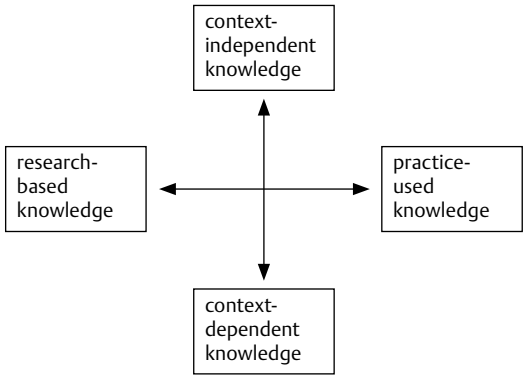
BF: No, but you can also not make a good case study that is analytical only. Look at the Dreyfus model of learning – in the first steps you're analytical and the latest steps you shift in and out of analysis. Any skill you practise at a high level, you'll need to zoom in and out of analysis. If you only stick with analysis, you won't get further than step two and a half in the Dreyfus learning model, stuck somewhere between advanced beginner and competency. However, you can teach children to do many things without being analytical, and by being analytical I mean breaking things down into rules. To teach a child to ski it's actually better not to explain the rules. You just get the kids on the skis and ride in front of them and tell them to follow you. That's all, and they learn faster and they become better skiers than if you started to lecture them about skiing. The point is that analysis does have a role in many contexts – especially for grown-ups – but if you stick only with analysis, you won't get very far. On the other hand you can't drop it totally.

'[…] you can teach children to do many things without being analytical, and by being analytical I mean breaking things down into rules. To teach a child to ski it's actually better not to explain the rules.'

Q: *But since analysis is actually an important task for both researchers and practitioners, could it form a kind of 'common ground' between researcher and practitioner?*

BF: Yes, and that's a classic question. If we go back to functionalism, this was the height of interaction between analysis and research on one side and synthesis and design on the other side. In that period, architects were big on analysis, they did lots of research and wrote thick reports before they designed something. This later spilled over into planning, because as we know historically, in many countries, including Denmark, planning was originally done by architects, and you can see this functionalist attitude in the early structure plans.

Q: *In your research you stress the importance of context-dependent knowledge in contrast to context-independent knowledge. And it seems important – at least for researchers – to discuss how research-based knowledge relates to the knowledge practitioners use in action. If we combine the two parameters, we can draw a diagram: [1]*



1 Two major distinctions are made in the interview. First, the distinction between *research-based knowledge* and *practice-used knowledge*. Second, the distinction between *context-independent knowledge* and *context-dependent knowledge*

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Q: *Practitioners tell me that they use a lot of hard-fact rational knowledge taken from the north-west corner – and use it in their north-east corner. But they also say: 'We use it, it's very important for our design process, we can't do without it. But that's the easy part. It is much more difficult to explain the intuitive or experiential part of our knowledge' – that will be knowledge in the south-east corner. Phronetic research, including analyses that form part of it, we could place in the south-west corner. But where would you place theoretical considerations that might result from the analysis. Could you expand on analysis and theoretical concepts of phronetic research?*

BF: They would be down in the south-west corner. Analysis goes into case studies; it's already there, as we talked about. I would say the NW corner is *rule-based*, maybe a more precise word here is rule-based instead of analytical.

Q: *You said analysis forms part of case studies (SW corner), but sometimes you make an analysis and then afterwards you pull out some kind of structure from the analysis and offer the structure as a tool others may use …*

BF: That's true – even from case studies you may do that. Let's take an example, my studies of Aalborg as written up in *Rationality and Power*.[13] This is a study, it certainly is research-based and it is context-dependent knowledge. All the way through to the last chapter of the book it would be in the SW corner in the model, but then, in the last chapter, I develop ten propositions about rationality and power. The ten propositions are still research-based, but they |are also still context-dependent. They are not context-independent, so I'm definitely not moving up to the NW corner of your diagram. I'm staying in the SW corner.

Q: *Are the ten propositions about rationality and power mainly addressed to other researchers?*

BF: Yes, but also to practitioners, many of whom have read and commented on the book. And both researchers and practitioners have used the propositions in other contexts. What is important here is what is called *transferability* – to transfer something from one context to another. That doesn't make it context-independent, but it means that it crosses contexts and that people in one context may learn from another.

Q: *So the transferability refers to the knowledge which actually finds it way from research into new situations – if we use the diagram again – if it is transferred to other researchers it'll stay in the SW corner, if transferred to practitioners it goes from west to east?*

BF: Yes, and I think transferability is a very important phenomenon for phronesis, case studies and practitioners. Let's take the Aalborg study again.[14] In no place in the whole study do I claim that what goes on in planning in Aalborg actually applies anywhere but Aalborg, and I was very careful not to do that. But the Aalborg study was studied by other people from other places, and some of them said, 'Hey, this is similar to what's going on here – and we can actually use this'. Just like we used it in Aalborg to change planning here, others have used it to change planning in other cities. In Lund in Sweden it was used as a model, so we have examples of transferability, and I think that for practitioners this is particularly important because they often learn from other examples. Such examples may be completely context-dependent case studies done in the context of research – and practitioners know how to read it so there's a knowledge transfer. There's transferability from research to practice and good examples help to carry knowledge from one context to another.

Q: *Architects are often laughed at because they look at photos in architectural magazines … but it sounds as if architects in fact could extract some knowledge from the pictures, there could be a kind of transfer by means of the examples …*

'A lot of architects are not able to formulate what they're doing. This is normal. The more you go into the arts, the less people are able to explain what they're doing.'

BF: Frank Gehry famously said that the difference between art and architecture is that architects do art with toilets and windows. Gehry is talking about ideal architecture here, and if this is your work, obviously you need to be visual and look at lots of pictures of buildings and at real buildings too. Architects look and draw, scholars read and write. Leafing through magazines is very immediate, it's very intuitive. But you could also systematically study a situation similar to the one that you are working on in a deeper way. Both ways are legitimate ways for practitioners to learn. There would probably be a lot to learn by really studying architects at work and what architects actually do. I think there's a big black box, and it's a huge mystery even to architects. A lot of architects are not able to formulate what they're doing. This is normal. The more you go into the arts, the less people are able to explain what they're doing. We shouldn't be surprised by that, but that doesn't mean that it couldn't be extremely interesting to see what's going on there. This is one of the interesting things about Donald Schön's work and the Dreyfus brothers' work – that you actually get to see what practitioners are doing when they practise what they know how to do.

Q: *If you make a number of case studies and analyse your results, sometimes you come up with a new way of categorising things, or new concepts, or you create a conceptual framework linking more concepts to each other. Say, for example, Kevin Lynch's concepts of landmark, route, districts – they are not really context-dependent, they offer no rules either, Lynch's concepts are on a higher abstraction level than the empirical cases – and they have guided a lot of*

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practitioners in action – could they also be included in phronesis?[15]

BF: But theoretical constructions do go with phronesis ... I interviewed Frank Gehry in December in Los Angeles, and if there is an architect in the world who is a prudent old man, who has phronesis in regard to architecture, it is him.[16] He uses hard computer technology to activate his tacit knowledge and there is no reason why he should not do that. Many people think that phronesis is qualitative, but it doesn't have to be. Or they think that phronesis is only about narratives and case studies. But phronesis is about what is good or bad for people, whatever it takes to know that, in your specific area of interest, be it architecture, planning or government. Gehry uses computer models to realise his tacit knowledge, and he cannot do without them. He has found that he needs this kind of support to express and execute his ideas, and he explains explicitly how he was not able to do what he wanted with curves before he got this new technology. This is an example of a situation where the practitioner is in the SE corner, and he makes an excursion into research-based knowledge and fetches some models to suit his needs. That made it possible for him to do what he wanted and has been a vehicle for becoming what he is today. He could not have made the Guggenheim Museum in Bilbao without these tools, so this is a good example of the interplay between something very structured and something based upon judgement that has been honed by many years of practice, resulting in the Guggenheim Bilbao.

When Utzon designed the Opera House in Sydney, he did not have the same tools to help him. You know that in his winning design the shells were lower – the angle was shallower, but the structure could not be calculated at that time, so he changed the design accordingly. Gehry's computer model has been used in an attempt to develop the competition design for the Sydney Opera House and it was proved that it *could* have been built. Not that anybody today would want anything other than what we got ... But it clearly shows how the actual working out of an idea in practice also depends on the theoretical tools you have at your disposal, and these tools are often developed through research.

Notes

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13. Flyvbjerg, 1998.
14. Flyvbjerg, 1998.
15. Kevin Lynch, *The Image of the City* (Cambridge, MA: MIT Press, 1960).
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Biography

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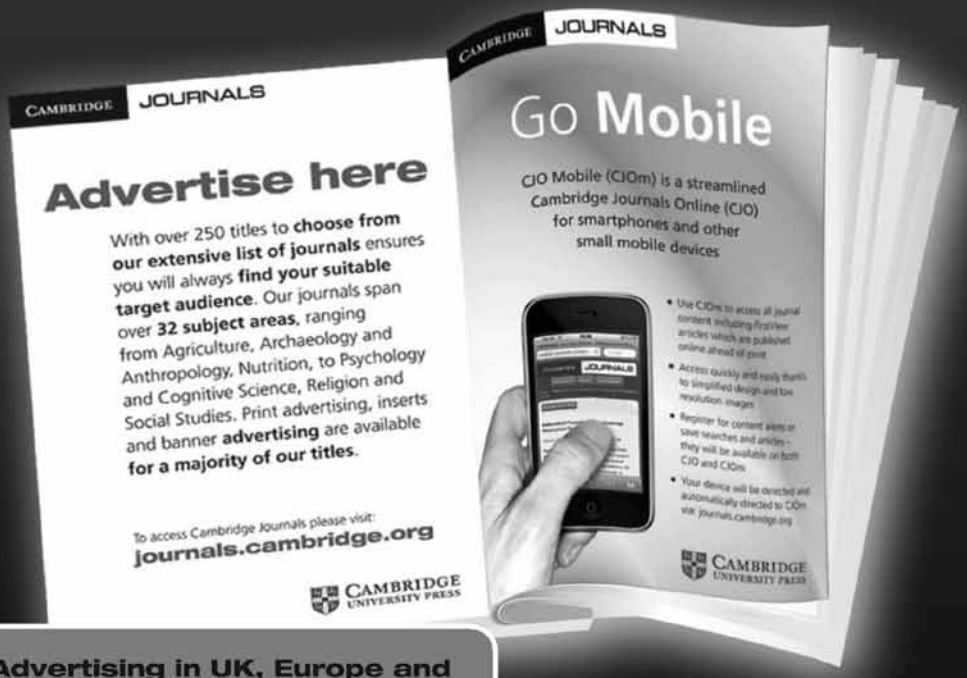
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