Quotes bank

**Introduction**

These quotes can be used to supplement presentations aimed at developing mid-career social science expertise.

When using research informant quotes in presentations or publications, please cite them as follows:

Wray, A. & Wallace, M. 2014. *Developing Social Science Research Expertise*. Cardiff: Cardiff University. <http://www.restore.ac.uk/researchexpertise/>

For indications of how these quotes can be used discursively, see *Developing Social Science Research Expertise*.

Quotes from published sources are in green. Quotes from research informants are in blue.

***Key to informants***

AL = Applied Linguist (n = 17)

BM = Business & Management (n = 11)

OS = Other social scientist (n = 3)

NA = North America (USA, Canada) (n = 12)

UK = UK (n = 10)

EU = Europe (Spain, Netherlands, Germany) (n = 3)

RW = Rest of world (New Zealand, Australia, Israel, China) (n = 6)

m = male (n =17)

f = female (n = 14)

**Is ‘expert’ a reliable concept?**

by looking at how well an outcome or product is received, one can determine who is or is not an expert

(Chi, 2006, p.21).

Expertise is not an endpoint, it is a continuum…studies will allow us to frame and text meaningful opportunities for advancing the development of talent, however far, for ever-expanding numbers of individuals…

(Sosniak 2006: 300)

* + ‘I know I’m operating most of the time very much at the edge of my capabilities’ [AL,UK,m]
  + ‘I think there is a danger in regarding people as experts. Anyone who eventually gets that title usually realizes that they have enormous gaps in their knowledge. One of the problems is that that unofficial title blinds people to the weaknesses in the research of ‘experts’. Just because an expert says or does it, does not mean that it is correct. Once experts start believing in their own expertness, we are in deep trouble.’ [RW,AL,m]

# **Definitions**

* a large, integrated knowledge base;
* sophisticated mental models of a domain that guide problem solving and critical thinking;
* highly automated procedural skills;
* and excellent monitoring skills within the domain

(paraphrased from Schraw 2006: 259)

* Social (reputation, as attributed by others);
* Length of experience in the domain;
* Consistent high-level performance of tasks within this domain.

(paraphrased from Ericsson 2006b)

***Knowledge***

We must not forget that these subjects referred specifically to domain relevant thinking styles taught by masters in that field.

(Ochse 1990: 259)

* ‘When you go to conferences and you don’t learn very much, I think that’s when you realize that you’ve become a bit of an expert in your field’ [OS,UK,f]
* ‘An expert is ‘up’ on the topic at hand, familiar with the range and breadth of the field, knowledgeable about ancillary fields, follows particular writers, researchers, journals and topics’ [AL,NA,f]
* ‘[An encyclopaedic knowledge] would keep you from being flexible in your thinking. You’d know too much to be creative’ [BM,NA,f]
* ‘It’s very difficult to see [the] gaps if you’re immersed in the literature’ [BM,UK,m]
* ‘I’ve known specific people whose research career was frozen and stultified by the fact that they had to read everything’ [OS,UK,m]
* ‘[It’s best to have] a smaller focus of expertise and to be absolutely world-standingly on top of it…it’s easier to become an expert if you’re in a restricted area [OS,UK,f]
* ‘While some experts may be stronger in theory and others in methodology, an ideal expert should blend the knowledge and understanding of both aspects of their chosen area’ [AL,NA,f]
* [Without theory] ‘you’re not going to publish in the top journals’ [BM,UK,m]
* ‘They should…have lots of experience in doing research so that they can appreciate the difficulties of operationalizing research’ [AL,RW,m]

***Mental capacity and thinking style***

* ‘A good question here means one that others in the field would…immediately recognize as important to be answered…Good means it’s answerable in principle or even in practice with what we know today…’ [AL,NA,m]
* ‘What you know and begin to take for granted, or as an assumption, by definition you don’t question, and if you don’t question then there’s probably not further study of it’ [BM,NA,m]
* ‘You can have theory and data and not have any ideas, so I think that imagination and ability to look at things in a different way…that’s critical’ [OS,UK,f]
* ‘[They] come up with the most amazing clever ideas. They see something out there which once they see it you think, my gosh, why didn’t I think of that before?’ [BM,NA,f]
* ‘That person not only has a knowledge of alternatives but can go into depths about each alternative, can articulate the theory, if you will, of those alternatives. Has an ability to argue each perspective’ [BM,NA,m]
* An expert [is] one who not only has a body of knowledge but who continues to search for advancing that knowledge…’ [BM,NA,m]
* ‘What I like to think I’m good at is crossing boundaries…I like to hear what people of a different perspective on a general topic area have got to say. I find myself immediately thinking, how can I turn what they’ve said into something that I could capitalize on in my own work?’ [AL,NA,m]
* ‘I can see how different pieces of work go together and inform each other, and I can see how things can fit together and be answered’ [OS,UK,f]
* ‘An ability to take a step back and see the forest beyond the trees’ [AL,NA,f]
* ‘The point is to rub theory into the practice’ [BM,NA,f]

# *Procedural skills*

Although it might seem desirable to rely on objective criteria, external standards frequently do not exist for many real-world problems (such as livestock judging). Indeed, experts are essential in precisely those domains where there are *no* right answers. Even when standards do exist, as in auditing, it is experts who establish these standards and who have the power to change them. Thus experts define the standards, not the other way around.

(Shanteau 1988: 205-206)

* ‘Somebody who can write about [their research] really well and somebody who can stand up and talk about this in a very persuasive and clear way’ [AL,RW,m]
* ‘I can tell you this very interesting story. At the end of it there’s a very big question you’re going to ask: So what? And that’s when you start engaging with theory’ [BM,UK,m]
* ‘One of the classical mistakes, I think, is to be method driven...The mistake that people make is they start with the wrong method, so the method is misaligned’ [BM,UK,m]
* ‘Any decent project that I’ve done has involved me totally rethinking where I’m going at least ten times’ [BM,NA,f]
* ‘I think part of expertise, at least in my area, is learning how to navigate [the] quantitative versus qualitative research divide which exists, and to me it’s a completely false divide. It shouldn’t be there…I see far too much still where people are entrenched in one or the other, and they think somehow there is a hierarchy’ [AL,NA,m]

# *Length of service*

There appears not to be on record any case (including Bobby Fischer) where a person reached grandmaster level with less than about a decade’s intense preoccupation with the game. We would estimate, very roughly, that a master has spent perhaps 10,000 to 50,000 hours staring at chess positions…

(Simon and Chase 1973: 402)

* ‘Learning through experience is very important’ [AL,RW,m]
* ‘I learned by experience. I progressed from smaller projects to larger ones and periods of reflection on what we had learned were helpful. I imagine this is pretty typical of the experience of most applied…linguists involved in research projects’ [AL,RW,f]
* ‘I essentially believe that you should be continually learning, evolving and developing. It’s what we’re paid to do’ [BM,NA,m]

# *Recognition*

* ‘expertise is a two-place predicate’ [AL, UK,m]
* ‘It’s not an objective quality. It requires a certain amount of recognition from the community for you to be defined as an expert, and that recognition may be slower or quicker in coming’ [AL,UK,m]
* ‘You define [expertise] by the fact that individuals on the outside understand and recognize that you have a high ability on those skill levels’ [BM,RW,m]
* ‘It really is a social construction process, how we classify and label people, and expert is really not what is in one’s head, it’s how others’ heads judge this person’ [BM,NA,m]
* ‘Expertise has to be defined in terms of standards of the world that generally seem accepted—you may not like those standards, you may think those standards are wrong‘ [BM,NA,m]
* ‘[This question] made me reflect on the implicit criteria I use to decide who I consider to be experts in particular fields (e.g., to invite as conference plenary speakers, organizers of invited colloquia or authors of book chapters)’ [AL,NA,f]
* ‘I could concur with you that I am seen as an expert because I receive letters from people saying, as you are an expert on this...’ [OS,UK,f]

[According to one manager] ‘an expert is anyone who can persuade someone else that he (she) is an expert’.

(Dino and Shanteau 1984, cited in Shanteau 1988: 209).

* ‘I’m basically known for one paper, which is very highly cited’ [BM,NA, f]
* ‘The applied linguistics experts I know have a remarkable ability to communicate very clearly the important insights they have gained from their research. They are good researchers and good communicators’ [AL,RW,f]
* ‘There’s no point being authoritative about something people are not interested in.’ [AL,UK,m]
* ‘Able to … sniff out something that was absolutely critical… that has social currency, not just academically, but financially, organizationally, socially, culturally, artistically’ [AL,RW,m]
* ‘Somebody who can change the way I think about something by asking me questions, that forces me to put knowledge into different relationships from what I had before, and gives me tools for thinking about it differently. What’s exciting about talking to an expert I think is when that person is able to make you see new horizons for the boundaries of their knowledge’ [AL,NA,m]
* ‘I invest a lot in pushing various types of uncomfortable points, because pushing comfortable points isn’t really particularly useful’ [BM,RW,m]

# *Personal traits*

* ‘A real burning desire to understand something’ [OS,UK,f]
* ‘We need confidence in ourselves, identity is crucial, self-identity, with respect to knowledge…I’m OK and you’re OK, now let’s talk. But if I’m not OK I’m going to feel very intimidated or threatened by you who really are OK’ [BM,NA,m]
* ‘An expert would be a very open person, open and listening to the ideas of others in relation to themselves….If [a] person’s not open they become a dilettante, an authoritative ‘I know best’ fundamentalist…[which] would have to disqualify them [as experts] because they become converts, advocates for a point of view that is no longer open to reconsideration or a critical attitude’ [BM,NA,m]
* ‘There are some people who just are never going to get there because of what I would call temperament, personality. They don’t want to listen, they want to do what they want to do. Some people are attracted to academia because they love the sound of their own voice…and they really don’t want to read or engage with others’ [BM,NA,f]
* ‘You have to be able to survive setbacks and keep going...you’re rejected all the time’ [BM,NA,m]
* ‘[An expert] keeps working until a problem is solved’ [AL,NA,f]
* ‘In my view a successful researcher needs the skills of affective management, that is, a great ability to manage one’s own emotions, to reduce anxiety common among those engaged in intellectual pursuits, and to dominate negative emotions common in responses to criticisms of one’s own work’ [AL,NA,f]
* ‘The issue of ego in research and willingness to admit...that they changed their minds or they found something wrong that they did before...in my mind that makes them more expert’ [AL,UK,f]
* ‘Someone once said, you can accomplish anything if you don’t care who gets the credit for it. I think that’s a tremendously wise thing, and it works’ [AL,NA,m]
* ‘Someone who cares about junior people will give them opportunities, will introduce them to people, will author papers with them…you’re hands on with these people until they can pretty well do it themselves’ [AL,RW,m]

# *Types of expertise*

* ‘The splitters are those who are trying to set up their work as unique, as different, as separate from all of these other approaches that are wrong. The lumpers, on the other hand, are trying to integrate, they compare and contrast and see how their approach compares with others and then make…comparative assessments between these alternatives…Splitters…are certainly experts. But they tend to be more narrow, they tend to be deeper and narrower whereas the lumpers are perhaps shallower and broader. And I think that is a trade-off’ [BM,NA,m]
* ‘One [type of expert] is the individual who demonstrates an in-depth understanding of some particular area. When you think of the area, the individual leaps immediately to mind. The person has a coherent research programme, has pursued it over time, is fully aware of the research of others, and can speak and write authoritatively on the particular area. The other type of expert is someone for whom the ‘big picture’ is important—someone who is capable of, and, in fact, has carried out highly focused research, but someone who values bringing in ‘outside’ perspectives and who enjoys thinking ‘outside of the box.’ [AL,NA,f]

# Group expertise and the role of collaboration

Knowledge—in a sense—must exist inside heads. Where else could it reside? As an analogy…when the expert carpenter leaves the workshop, something does leave with him. Could you or I use the tools to build, say, a china cabinet?

However, knowledge—in a sense—is an attribution that resides in social groups. How else could it be developed, taught, or standardized? How could someone be regarded as an expert if her judgments are not followed in the decisions made by other people?

(Hoffman 1998: 94)

# *The value of collaboration*

* ‘There are fewer and fewer studies I think in my field where somebody just writes an article themselves, unless they’re a junior faculty member who needs to do it to get tenure’ [BM,NA,f]
* ‘I had a very particular idea and I knew I didn’t have the expertise to pull it off. And so I knew I needed help, and after some time because I’m persistent, found the help’ [BM,NA,m]

# *Mutual understanding*

There is an important kind of specialist expertise, called ‘interactional expertise’ that turns on fluency in the language of the domain rather than hands-on experience; it is acquired more through immersion in the discourse of the hands-on experts than through participation in their characteristic practices.

(Collins 2007: 615)

* ‘I’ve discovered that we use [some words] in the social sciences in an entirely different way to computer science and so you just have to get down to real basics and pin down what your assumptions are’ [OA,UK,f]
* When you feel there’s a clash, that something’s not quite being mutually understood and then pushing through and saying “well, what actually do you mean by that?”’ [AL,UK,f]
* ‘When we do our research [the collaborator] doesn’t really know the things I’m talking about. “What do you mean, the type-token ratio? What do you mean, the sentence length?…What are the constructs you’re using? Are they meaningful?” But actually by having to explain it, it becomes clearer to you yourself, what it is that you’re doing’ [AL,EU,f]
* ‘Seeing the world through someone else’s eyes’ [AL,UK,f]
* ‘You have to move out of your comfort zone...and work in it and not worry about the fact that you don’t know the answers’ [AL,UK, m]
* ‘You have to be willing to accept ideas of other persons, back up and let others take the lead as well as you’ [AL,NA,f]
* ‘You need an equivalent level of expertise in what you’re both bringing, but then you also need an understanding of where the other person’s at’ [AL,UK,f]
* ‘I needed someone who could help me write a theory article [on a topic I didn’t know]...she taught me a huge amount of stuff that I didn’t even know existed, plus giving me new theory building ideas’ [BM,US,m]
* ‘The nuts and bolts of keeping a project on track, I’m really not very good at that. I have a colleague who is much better, thank goodness, at doing that’ [BM,NA,f]
* ‘If I am leader of a research team, I need the interactive expertise to span the boundaries of the disciplines that people have, that are needed to address the project question.. [You have to put in] enough work so that you have the competence to be able to be considered credible to the participants of their respective domains’ [BM,NA,m]
* ‘You’ve got to gain the tacit knowledge pertaining to somebody else’s field’ [OS,UK,m]
* ‘[To gain access to busy experts] I would have to pay my dues, I would have to read quite a bit, I would have to take some formal education so that I would, at least, be able to speak the language to show that I am really interested’ [BM,NA,m]
* ‘You do need to know how people work, not just what they say... it’s about working style, not just knowledge’ [AL,UK,f]
* ‘You need to work out why you’re working together, what you’re each going to bring, and whether you’re working as equals or not, how you’re going to publish, what your strategies are. There’s an awful lot of working out of quite hard-headed details beforehand, so you don’t trip over’ [OA,UK,f]
* ‘Some colleagues I can work with, and some I can’t’ [BM,NA,f]
* ‘There are some teams that work, and some that don’t. Don’t ask me why’ [BM,UK,m]
* ‘I do know that some experts are difficult to work with, but there are also some who are easy to work with and are open to new ideas. I consider myself easy to work with, but I know not everyone around me thinks so. Collaboration does not always happen.’ [AL,RW,m]
* ‘I realized I really enjoyed working in a team and I have done so ever since. I am good at working with others and coping with many different work-styles, and this has been a real asset’ [AL,RW,f]
* ‘I think special skills are required in collaborating and they are personal skills as much as research skills’ [AL,RW,m]
* ‘Withdrawing from collaborations is another thing you have to be expert at’ [AL,UK,f]

# *Releasing creativity*

* ‘One of the things I have learned is that if you just put half a dozen smart people in a room together you don’t have to have too much of an agenda for something good to come out of it, as long as people obey certain social rules such as respecting each other, being flexible and letting ideas flow together. That works. People enjoy it as they feel they’re getting involved, they’re contributing something and they’re learning something…but if it isn’t fun and people feel they’re being socially pressured to do things that they wouldn’t otherwise want to do, because they don’t have time for it, it’s going to fail’ [AL,NA,m]
* ‘You have conversations on things you couldn’t imagine on your own...at the end of the day when you’re drinking that bottle of wine and you’re working on the debrief of the [jointly conducted] interviews, you wish you could take the white tablecloth of the restaurant with you because you’ve written on it’ [BM,NA,f]
* ‘I’ve seen two ways of collaborating. One is less likely to be successful...you have a perspective on a topic which is different from my perspective on a topic, and it’s kind of interesting to hear what we each have to say. But neither of these perspectives has a real impact on the other. [The other approach] is to develop this larger picture of the problem which makes both perspectives absolutely indispensable and inherent in that larger picture…So it’s not just interesting add-on to their work, it’s a necessary component and they have to feel the same about yours’ [AL,NA,m]
* ‘it seems to me magical that, for example, statistics experts be involved in work with colleagues doing quantitative research or that child psychology experts be involved in Applied Linguistics or Second Language Acquisition work with school subjects.’ [AL,EU,m]

# *Thinking in new ways*

* ‘I think to be an expert in collaboration…you have to listen and look at it from other people’s perspectives’ [OS,UK,f]
* ‘The first quality is to try to be open to understanding another point of view. But, this is not something that can be done superficially or selectively. One has to truly learn to think differently. One of the challenges of interdisciplinary collaboration is the need to remain as true as possible to how ideas are portrayed in the allied discipline.’ [AL,NA,f]
* ‘One needs to be able to find time to read the literature in the other field and to understand the limitations of one’s own professional upbringing. Because scholars coming from different disciplinary perspectives may adopt very different views of and approaches to the same problem. In the study of the same area of research, such as the bilingual mental lexicon, psychologists and linguists often articulate very different research questions, make different assumptions, and apply different methods, as a result speaking past each other. Interdisciplinary collaborations help us evaluate each other’s assumptions, reassess our own, combine methodologies in order to satisfy requirements in each field, and find ways to speak to each other’ [AL,NA,f].

# What can be acquired and what cannot?

* ‘You certainly have to have predispositions to want to do certain things and to be able to do certain things,’ [BM,NA,m].

# What is it that develops?

### **Self-monitoring**

The development of expertise is largely a matter of amassing considerable skills, knowledge, and mechanisms that monitor and control cognitive processes to perform a delimited set of tasks efficiently and effectively. Experts restructure, reorganize, and refine their representation of knowledge and procedures for efficient application to their work-a-day environments…experts certainly know more, but they also know differently.’

(Feltovich et al 2006: 57)

* ‘When I was a PhD student, I tried to think about questions in…the more conventional way, which is to be more linear. And to say, “Well, this research…produced these findings, and if we extrapolate that, then we should find this…” [But now] I won’t be excited unless I can see how it fits into a bigger picture of some sort.’ [AL,NA,m]

# **Chunking**

The data suggest that the superior performance of stronger players...derives from the ability of those players to encode the position into larger perceptual chunks, each consisting of a familiar subconfiguration of pieces. Pieces within a single chunk are bound by relations of mutual defense, proximity, attack over small distances, and common color and type.

There is also some evidence that chunks may be held together by more abstract relations. There are more chunks in recall for the stronger players, yet the frequencies of between-chunk relations...are all close to chance. This may derive from a hierarchical organization of the chunks, related to chess skill, that is more abstract than the simple chess relations we have measured.

(Chase and Simon 1973: 80-81)

* ‘Although I can see evidence in my early research activity of a critical approach to reading, it was not until much later that I developed some fluency in the skill of reading critically’ [AL,NA,f]

The psychology of human inference demonstrates that keeping an open mind is simply not possible; in the absence of information, individuals extrapolate and frame problems on the basis of their prior knowledge and beliefs.

(Wright 2013: 193)

# *Flexible restructuring*

...novices are essentially just as competent as experts in identifying the key features in a problem statement. The limitation of the novices derives from their inability to infer further knowledge from the literal cues in the problem statement. In contrast, these inferences necessarily are generated in the context of the relevant knowledge structures that experts possess.

(Chi et al 1982: 71)

* ‘I probably didn’t appreciate the bigger picture, I probably didn’t appreciate that it was possible to bring together a number of different elements to inform a project’ [OS,UK,f]
* ‘When I was a graduate student I imagined that all one needs to be a researcher is...to know the literature and have some methodological expertise, and that’s basically it’ [BM,UK,m]
* ‘I remember the feeling of frustration I had after writing my first book...At that point I was aware that I had read most of what was written about [the topic], but I did not see clear avenues of research arising out of that. It was not until several years later that I began to get a clearer picture of what research needed to be done’ [AL,RW,m]
* ‘Roughly every decade I discovered something in terms of, say, a method[ological] approach that I thought was more meaningful and helpful than the previous one. This at the same time increased my uncertainty as to how I understood what was going on’ [BM,UK,m]
* ‘Lots of reading, lots of research and lots of talking and writing about research have resulted in an awareness of what we need to be careful about when doing research’ [AL,RW,m]

# *Tacit or explicit knowledge?*

With enough experience in a variety of situations, all seen from the same perspective but requiring different tactical decisions, the brain of the expert gradually decomposes this class of situations into subclasses, each of which requires a specific response. This allows the immediate intuitive situational response that is characteristic of expertise.

(Dreyfus and Dreyfus 2005: 787)

* ‘Knowledge and skills [can be] so ingrained that the person can’t even articulate them. It’s just natural, it’s part of your body, or part of the way you do things, and it becomes second nature’ [BM,NA,f]
* ‘Experts cannot explain why or how they are experts because it’s recessed so deeply in their mind they lose that explicit knowledge of how and why one and one made two, it just does. So if you wish to understand an expert, see what he or she does, not what he or she says’ [BM,NA,m]
* ‘The ability to look at things in a different way...[is] something that it may be most difficult to teach’ [OS, UK,f]

# **Emotion and motivation**

* ‘My first paper I submitted…I can look at that paper now and think that they were very kind in their reviews. But I was devastated. I thought my career was over. I sent in this thing that was totally inappropriate. I didn’t know how to write for the journal. I just did a small version of my dissertation, and it was totally wrong because I wasn’t in the conversation’ [BM,NA.f]
* [Of things going wrong]: ‘When it first happened to me it was terrifying. I did not love it, but now I’ve learned it’s going to be okay. Things usually work out in the end, if you stick at it for long enough and you’re ready to let things happen’ [OS,UK,m]
* ‘I probably was far too tentative in pushing my own thoughts, I was lacking in confidence, I’m sure’ [OS,UK,f]
* ‘I think I've learned that I'm better at conceptual theorizing than at empirical research. In the beginning I was doing lots of empirical work…but I wasn't creative at it, and it appeared, at least to me, that I enjoyed and was better at trying to speculate about the big picture.’ [AL,NA,m]

# *Getting to know the ropes and becoming streetwise*

* ‘I have learned to plan ahead, to set objectives and review them regularly…’ [AL,RW,f]
* ‘I have...somewhat revised my definition of good scholarship. I now think that an expert is someone who remains open, questing—prepared to shift perspectives, even whole theoretical commitments—when the evidence suggests that they are no longer worthy’ [AL,NA,f]
* ‘Perhaps I show more respect for facts than years ago, when I would stick to certain facts while ignoring others [AL,RW,m]
* The key change in my own thinking is that I no longer think of my professional activities in terms of ‘publishing’ but in terms of social relevance, scholarly importance, and impact...Given the limited time-frame we all have for any kind of meaningful activity, this approach leads me to prioritize activities I design myself (i.e. my own studies, books, and articles) and turn down most of the invitations I get, because they advance other people’s agendas rather than my own. [AL,NA,f]

# How can development be accelerated?

# *Training*

* ‘There are not many opportunities to do courses on research, and such courses often lack immediate relevance.’ [AL,RW,m]

# **Deliberate practice**

The expert performers and their teachers identify specific goals for improving particular aspects of performance and design training activities that allow the performer to gradually refine performance with feedback and opportunities for repetition (deliberate practice). The performers will gradually acquire mechanisms that increase their ability to control, self-monitor, and evaluate their performance in representative situations from the domain and thus gain independence from the feedback of their teachers.

(Ericsson 2006a: 694)

* ‘I see anonymous peer-review as central in the expertise-building enterprise’ [AL,NA,f]
* ‘One or two colleagues were very useful in developing my research skills largely through discussion and through co-operative critiquing of research designs. Their main help to me came through their pointing out the weaknesses of my designs and suggesting other possibilities. I have also learned a lot through listening to others describe and justify their research designs.’ [AL,RW,m]

…individuals who eventually reach very high levels do not simply accumulate more routine experience of domain-related activities, but extend their active skill-building period for years or even decades.

(Ericsson 2006a: 691)

# *The research environment*

* ‘I did doctoral work in a prestigious, Ivy League US university, where I participated in conferences, workshops, and summer schools and met many prominent scholars while still a doctoral student’ [AL,NA,f]
* ‘So what made some people fast learners? Well we all think of that as an individual trait, but it could also be that they were exposed to a set of enabling conditions that made the rapid learn possible’ [BM,NA,m]
* ‘I do not know of any formal way to learn to be an expert. I suppose I learned by watching and reading others, listening to and engaging with them. I have also had a succession of co-authors; sometimes I have been the senior author, other times the junior author. I am sure that I learned from both roles’ [AL,NA,f]
* ‘We can learn by osmosis, just being around people, and for me this means not being too much of a hermit, not working in a little cubbyhole somewhere’ [AL,NA,m]
* ‘These people just write superb prose, and I tried to copy them’ [OS,UK,m]
* ‘I was strongly influenced in the choice of [my specialist] areas by senior colleagues I worked with early in my career. They did not direct me towards these areas but, through talking to them and observing their own research, I developed a strong interest in what they were doing’ [AL,RW,m]
* ‘I remember being struck by this atmosphere of high-powered research that seemed to be in the air there. In the seminars it was perfectly relaxed, they didn’t feel very competitive and they didn’t feel stressful...a couple of profs were essential in providing that spark’ [AL,EU,f]
* ‘I learned a great deal from the ‘big cheeses’ from politics and policy from the UK and other countries [who] used to come in. And everybody would go down to coffee and tea to the common room every day, twice a day usually, because you never knew who was going to be there. There would always be somebody interesting’ [OS,UK,f]
* ‘I had no idea of the quality, calibre and community that I was going to be joining...[plus] other young academics who were very open, very willing to discuss ideas and formed the basis of a network that lasted me in one way or another throughout my career’ [BM,UK,m]
* I think sabbaticals are an underestimated benefit. They should go somewhere…You need to go somewhere else to revitalize. Time is critical for research. If you’re doing four courses, you cannot do research’ [BM,NA,m]
* ‘We have a very active Speaker Series, which gives my students opportunities to organize visits, meet and talk to well-known researchers (and get feedback on their own projects), and to see firsthand a variety of experts in the field. After the visits, I engage the students in critical discussions about what they saw and learned, and give them extra credit for papers that articulate such critical reflections’ [AL,NA,f]
* ‘See yourself as a citizen in your context where you do your work. You cannot do your work in isolation, so you’re dependent on the environment that surrounds you. So the first thing is, you’re not entitled to anything…you have to make the environment work for you’ [AL,NA,m]
* ‘I think the role of the head of department is to set up a situation where it’s okay for people to do research and talk about it. If you can get that atmosphere going, most other things will follow from it’ [AL,UK,m]
* ‘It’s to do with me hanging out in my office and being able to chat to people when needed, but they chat to each other and we have meetings where we talk about shared issues…it’s that kind of community which is absolutely paramount…for making any kind of apprenticeship work in academia…There are lots of conversations going on and I think that gets picked up by people and we’re proud of that environment…So this is not just about mentoring other people, this is about me feeling part of a bigger thing which has such enormous potential’ [AL,RW,m]
* ‘I see this activity of changing one’s environment as a *Go!* game, as opposed to a chess game, which most people think of it as.…With *Go!*, you try to build up a stable structure so you can change the environment in such a way that it becomes self-sustaining. And for me that means bringing in new ways of doing things and getting as many people invested in that new way of doing things—in such a way that it can never be undone without tremendous effort on some bad person’s part…If good decisions are made, write them down and put them where they’re accessible, so people don’t forget them, and they don’t just get thrown away’ [AL,NA,m]

# *Learning through teaching*

* ‘More of what I do directly or indirectly involves helping people, mentoring people, motivating people...to do research and engage with policy, press and all that sort of stuff. When I started off my academic career there was a lot less of that for me’ [BM,UK,m]
* ‘We had the idea that we would team-teach so that there would always be two of us in the room. And because it was going to be an interdisciplinary degree we would teach each other’s expertise in front of the expert. Well, it was one of the most terrifying things I’ve ever done…but it was a very good grounding for me in learning about interdisciplinarity’ [OS,UK,f]
* ‘It’s things you learn from teaching them to others’ [AL,UK,f]
* ‘The other thing that really helped was teaching research methods, ’cause it just forces you to be very clear and present [information] to others...You’re selecting work to illustrate the methods and you’re evaluating it with your students, so that means you need to work towards that deeper understanding where you can evaluate something’ [AL,UK,f]
* ‘When I look back over my career I realize that a lot of my learning came through having to write about what I was reading…Whenever I teach a new course my immediate goal is to write a book that covers the ideas in that course...I find that through having to write I need to clarify my ideas, and that sends me back to critical reading and thinking about what I have read’ [AL,RW,m]

# **Coaching or self-coaching**

…more-accomplished individuals in the domain, such as professional coaches and teachers, will always play an essential role in guiding the sequencing of practice activities for future experts in a safe and effective manner. Research on self-regulated learning…has documented effective study methods that are related to superior academic performance, especially in high schools.

(Ericsson 2006a: 698-699)

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