- Advice to the next generation
- Improving performance of the next generation
- Key points and decisions on the career journey
- Lessons learned about leadership
- Things that would have helped on the career journey
- Topics recommended for training

2. Emergent coding
These initial categories were then widened to include the following themes / codes that emerged from the interviews:
- Being mentored on the career journey
- Mentoring for the next generation
- Work-life balance and time-workload management
- "Other" for other interesting aspects that arose from the interviews

3. Review and discussion of coding
Once the interviews had been coded, the project team reviewed the themes with the intention of cross-checking the coding and identifying what they considered to be the most prominent and important elements. The project team then met for a one-day discussion of the themes and agreed a list of 6 emerging key elements from the coded transcripts that could be used in developing the next generation:
- Careers and career planning
- Balance
- Culture and environment
- Working with others
- Management
- Mentoring and role models

4. Creation of the guidance documents
The project team reviewed the theme documents against the 6 emerging key elements, identified quotes belonging to each of these elements, and began to structure the quotes into subheadings belonging to each element. At this stage, a further two emergent themes were identified:
- Networking
- The 'business' of doing research

5. Sector feedback and creation of the final documents
During the final stage of analysis, we sought feedback from the sector on the 8 initial guidance documents, including how useful the key elements would be in training the next generation and what the appropriate format would be for the documents.

On the basis of this feedback, we created the final guidance and reflection sheets by identifying the appropriate subheadings to capture the advice relayed by the research leaders during the interviews. Each subheading was elaborated on by summarising messages and reflections identified from the interviews, supported by exemplar quotes.

The interviews produced a huge amount of high-quality information about the experience of academic leaders in UK universities. We recognise that only a fraction of this is captured in this documents and it is our intention to continue analysing the transcripts and producing further outputs in the future.

Appendix 2: Leadership Lens

Our research leaders were asked to suggest five topics to be included in training for the next generation of leaders. Their suggestions closely overlapped with the Leadership Lens on the Vitae Researcher Development Framework (RDF), as pictured below (the topics identified by our research leaders are indicated with an asterisk).

The full Leadership Lens and other lenses on the RDF can be found at www.vitae.ac.uk/rdflenses.
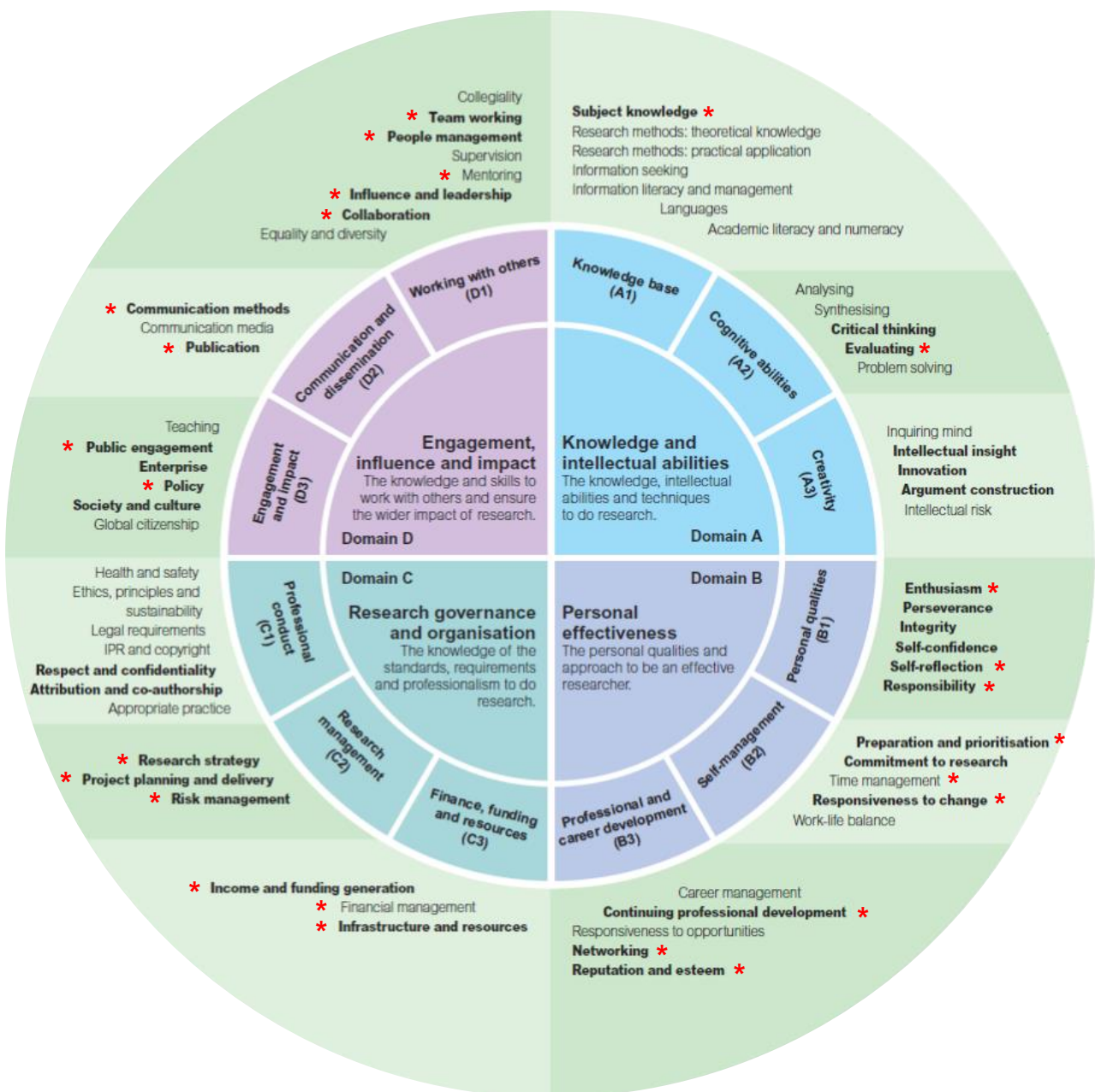
Appendix 3: Supporting quotes

Our research leaders were specifically asked to identify their top five topics to be included in training courses. We have collated and summarised these by mapping them onto the relevant descriptor from the Vitae Researcher Development Framework (RDF). The supporting quotes from the interviews are included below.

A1 Subject knowledge*

"Successful multi-disciplinary working because unless you work in a very particular area, and they're getting more and more scarce, you've got to be able to work in multi-disciplinary teams and then head multi-disciplinary teams and really keep everybody engaged…and people can quite easily I think feel slightly disenfranchised that they haven't got much to offer and people just march with their feet so they end up not coming to meetings so it's really important somehow that you let everybody see what their contribution could possibly be. So working in multi-disciplinary teams and the way you make them work successfully."

A2 Evaluating*

"In general I find the more negative conversations are always ones I don't really want to have, even now, even though I've done them, I still don't like doing them. I don't think you lose that, you have to just become accustomed to doing it."

"I think you need to have a good idea on how to deal with difficult situations and difficult conversations, I think that's a very important one."

"…make sure they can communicate effectively but also on top of that have things like difficult conversations, teach them how to deal with difficult situations."

"I've noticed quite a few of my colleagues are going through 360° evaluations at the moment, I in this last week have been interviewed three times by people doing this round the university. I found them quite valuable for myself actually because when I'm asked to say what I think about what's good or bad in close colleagues' performance and some of these colleagues are people I've worked with for ten years, it really becomes a self-reflective exercise and I actually begin to wonder why am I in the room, am I in the room for myself or for the person that I've been asked to help"

"The 360 degree was very powerful. In fact very moving. I was almost in tears when you know this woman was explaining stuff, well it kind of exploited me. She filtered it and it was so nice you know. I said, does this always happen that people say nice things. And there were challenging things and interesting things."

B1 Ethusiasm*

"I think it is absolutely vital that they keep, somehow at the forefront of what they're doing they're excited about it, they convey that excitement and they convey it in papers and in talks and so on."

B1 Self-reflection*

"part of it's being flexible and part of it's about recognising when you need to go away and learn some extra stuff in order to deliver the role that you're doing. So being self-aware of your current skills set and the skills that you might need to keep developing, and I think the skills sets keep... it's a continuous thing actually, you need to keep developing that"

"And I think if you recognise professional life being as trying to make the best of the position you're in all the way through then, that would actually give you quite a different perspective on what professional support and training, capacity building would be. It's rarely about specific skills, it might be about specific techniques and specific knowledge and specific skills to do a particular thing but taken in the round it's a career trajectory, it's more about giving people the tools to have the insight and the confidence and the wherewithal to do things for themselves. I don't know how you fix that other than finding a really good mentor for people, and I would say that that is the single biggest important thing for me would be to have somebody who's a good mentor."

"So it's not so much leadership training or how to be a leader, it's helping you understand all the stuff you need to do in order to be the best leader that you can be."

B1 Responsibility*
"…how to develop your staff, how to make them feel valued, how to support them, and also how to deal with difficult or insubordinate staff, what if you have a rogue member of staff, and what the processes in the college actually are with all kinds of contacts listed."

"…managing what a research problem is and how to create your own view of research problems as you move out from under the shadow of somebody who might have done it for you. The importance of things that aren't researching an academic career, teaching, administration, broader student pastoral support, your colleagues and working with them, all those kind of things."

B2 Preparation and prioritisation*
"Know how to prioritise and balance and that's a very..."do as I say, not as I do" element"

"I think prioritising. The young man I was talking about, the thing he's not doing yet is prioritising, he doesn't understand that if something's important and urgent then he has to do that first. He just thinks that because something's urgent it goes first."

"…managing different demands, time management. How do you split your time, how do you make sure you still run a top lab, your quality of science needs to be top, it's very competitive."

B2 Time management
"…organising time because I think that's something we have least of, I'm really bad at this I still think. You can tend to get side-tracked"

"Probably time management, because I'm rubbish at it."

"Time management comes into it. Another topic would be dealing with the data overload, how you and your group work with following the literature or being totally unable to follow the literature, how you manage your time and their time to try and keep up with some of it, but not get swamped by it"

"Training in time management skills, I think that is really important."

B2 Responsiveness to change*
"I would put change management; I think it's really important you understand the intricacies of change management and how frightening it is for people and how comfortable to stay doing the same thing all the time."

"Managing change... you know, trying to foresee it, manage it, help others through it"

B3 Continuing professional development*
"…having an understanding of road mapping your career very early on, you know, so around career development"

"I think this appreciation of your career path, identifying what it is that you want, what support you need, identifying a mentoring scheme, you know, that can facilitate that I think are very, very important."

B3 Networking*

"Networking is important"

B3 Reputation and esteem*

"I think it's always valuable to pursue a professional profile beyond your own institution, to be involved in professional activities, whether that's your subject area association, whether that's one of the research councils, whether that's working for a journal; all of things will give you a better peer view of your field, they enable you to build contacts, they enable you to see and start going down directions that you never knew were out there to go down."

C2 Research strategy*

"First is about proper research planning. As I say, not very detailed level but having a plan for your next sort of three or four years, knowing what it is... you know, what are the areas you're going to try and work on, how are you going to make those happen, what's the process to get you to the outputs and get the outputs where you want them,"

"Strategic plans, how to write them, and alongside that same on business plans as well"

"…develop a strategic plan. So I think in all aspects, whether it is lab related, so develop a research project, or whether it is ultimately head of department or something like what I do, I think this is critical, to be able to do this and to be given some options and advice on how you actually do this, because that is something that I personally have never learned, have never been trained in, that's normally when you do a PhD, a post doc, nobody ever mentions to you that you might need to think about this, but I think that would be really, really helpful."

C2 Project planning and delivery*

"I think if you're trying to run a project and somebody says to you, "So where's your critical path at the moment?" and you look blank your project's going to fail."

C2 Risk management*

"you've got the quality of the product, the timescale that you're delivering it in, the scope of what you've got to cover and the cost…it's understanding how to unpack that and what the options are when things don't happen the way that you expect."

C3 Income and funding generation*

"…have a training around resourcing your research. Often, again, we can be very blinkered to think that for early career researchers if you work on stem cells your research has to be on stem cells, your income has to come from stem cell sources, but that's not the case, but often they don't know this. So there should, I think, be a session around resourcing your research and opportunities"

"…the grant writing training, so especially because the research councils are now limiting the number of applications that we can put in, we need to, if we are going to have these future leaders or these fellowships coming out, they need to have some very good examples of successful grants, they need to understand that they need to write it strategically and not just be so excited about their very narrow topic"

C3 Financial management

"I think you've got to learn more than you think is wholesome about finance so I'd say a lot of training about finance, even stuff that you don't see the point of when you learn it."

"Personally I think I've got a poor grasp of how financial management works in the university because it's so opaque, I don't really need to know. It's difficult to know how you would actually find out without sounding stupid…But there's nothing obvious at that level which would allow me to come to terms with that. And I think that kind of quite technical specialist knowledge acts as a gatekeeper between senior management on an academic, intellectual, strategic side and on the support services kind of organisational, deliverable side."

C3 Infrastructure and resources*

"…just knowing how the organisation you're in works, it's surprising how little people know about the functions of the university, who does what, where to go when something needs … when you've got an issue."

"I suppose that training leadership would happen in a particular organisation navigating the central services. HR, finance, grants and contracts, all these things you have to deal with when you are starting new and at least here at [Russell Group University] there is not a booklet or a sheet or two of bullet points as how do I go about applying for a grant, who are the people to contact, whom do I contact to give, how do I hire a person, how do I get my finances sorted, so that in a sort of, you know, each of those, some bullet points would be super helpful because otherwise everybody starts reinventing the way."

"And you suddenly realise when you begin to ask questions that a lot of people are as ignorant as you, that they don't know where to go either. And you kind of think "you must know, you have been here for years". And you think well they don't. So some kind of I suppose better induction in terms of where to go for what kind of things. And you do learn with time of course you do. But it can save a lot of frustration if you are told up front. And to make sure the information is up to date, like the person you are trying to find hasn't left five years ago which happens more often than you think."

"I do think that every new member of staff, be they postdoc or permanent staff, who comes into the college should have to have a formal training course in order to learn about all the systems, navigate the systems, think about these processes, etc. I'll sign up for it too."

D1 Team working*

"I would give some training on how to create a team, how to shortlist people and getting the best out of your interviews for jobs"

"I think that the thing that academics and early career researchers need a lot of is I think understanding how to build teams and people, I think understanding people. I think understanding how to deal with difficult situations because you will have them, all the way through right from the earliest part"

"…how do you have that conversation with your team especially when your team might have 21 different organisations in it?"

"Group size, designing your group size and interaction, how big does it really need to be. At which point does it ... are you no longer being productive?"

"Deciding how to run your group, which everybody has seen different models as they grow up"

D1 People management*

"…how to develop your staff, how to make them feel valued, how to support them, and also how to deal with difficult or insubordinate staff, what if you have a rogue member of staff, and what the processes in the college actually are with all kinds of contacts listed"

"…learning to manage other people, even quite early in your career you're probably starting to manage PHD students and so on and they are also junior researchers, so something on HR aspects of research."

"People skills, and that is everything dealing with difficult people, looking at people having different needs and how do you fulfil these needs, if you need to fulfil them and how do you make sure that for example in your research group you divide your time equally because what often happens is that you have some people who are happy and just get on with their work and then you have people who are maybe not that good who are extremely needy, so what happens, you give these people a lot of time but you neglect the people who could be doing even better if you spend more time with them."

D1 Mentoring

"An appreciation of what mentoring is… We use the word 'mentoring' a lot but I don't think many people understand what mentoring is and how that can be used effectively. So a training for early career researchers really would need some studying of mentoring and how they can utilise that to their benefit – I think that's really, really crucial."

"Somehow we need to train people how to supervise effectively and maybe how to mentor as well. Because although you may not necessarily want to mentor the people within your team it might be quite effective in the department to mentor people in other people's team and they can mentor yours. And I think supervising and mentoring are something quite different."

D1 Influence and leadership*

"Definitely have a session on research leadership itself, what does it mean, how is this different to leadership in a general context or in a sort of a public sector context as opposed to research, because it's very different I think"

"…they have to have the basic skills, but also leadership and thinking about leadership is a different thing, and the ways that different people do it. I suppose something I have talked about quite a lot on my leadership course is the fact that so many of the examples are men and quite a lot of the speakers are men and it looks like there's only one way to do leadership in a way so I suppose the more different examples we have the better in terms of training and letting people see what the options might be... it's also good to see women in the roles of leadership doing things in a different way."

"Leadership's not management, making it clear because the two terms are often used interchangeably and they're not the same. And I think many of our leaders and many of our managers don't know the difference."

"Principled negotiating, remembering that you're going to actually have to work with these people afterwards and remembering the gender differences in negotiating for oneself are extremely different and so being negotiated with as well as negotiating."

"If you can't get people to buy into your vision what are we doing? How can you get anything achieved?"

"Strategies of how to engage people…I think it is way more difficult when you are a head of department or Dean of Research because you don't have that immediate contact anymore and you probably, I don't know, but you are probably seen as the guys at the top and I think it becomes increasingly more difficult to have this engagement and this sort of personal touch with people and get the buy in from people into change or things like that, so yes, strategies of engagement and leading change"

"If you're going to have a leadership programme you need to have some really inspirational people teaching on it if because… some people were really quite inspiring and then others you thought, "Well yeah, I know you're in that position but I can't see quite what inspires me to be like you, why should I be?" you know, it doesn't come across. So you need some really inspirational people who obviously have a lot of self-belief and are really good speakers, have a very clear vision of where they're going, and not only just having a vision of where they're going but then how they're going to take people with them. Because I think poor leaders are people who may have really good visions but just don't

understand anything about how to take people with them, because if you don't take people with you you're just going to end up with all these difficult conversations. You'll still have them, even if you do take the majority there's always going to be some of the minority who really don't want to know and won't come"

D1 Collaboration*

"Developing collaborations"

D2 Communication methods*

"I think communication is probably the number 1. How are people going to understand what you want to make happen? How are you going to elicit their support, aside from the mechanics? Communication, time-management, managing conflict, that really comes under communication. Developing a collective sense of direction and identity I suppose."

"…being able to communicate effectively and clearly, especially in research, and there can be some very strong views, especially if you work in a research team; so you work in a collaborative group where you have a professor that's been banging on about a theory for years and years and yet you know and others know that that's past its day. Being able to communicate your own ideas across in an effective way so that it's heard, it's listened to in research I find very challenging because often senior people can be very dismissive, if they haven't thought of it they don't know it"

D2 Publication*

"…writing research proposals and papers, because they're so important. So that kind of would be really important. And understanding funders and who to go to for what journals would be the same thing."

"How to write the four star or five star publications and how to think about these publications from the moment that the grant starts."

"…publication strategy, grant winning strategy, very important right across the university"

D3 Public engagement*

"I was just thinking about academic impacts when I started this work, and we're very applied in what we do. So you almost need a different mindset to think about all the different types of impacts that you can have, and I think if we had more training around that it would be wonderful."

"Formal project management training including the nuts and bolts of costing grants, writing grants in terms of the strategic vision of them, ideas for dissemination, ideas for public engagement, communicating or framing your findings for different audiences, of course ethics"

D3 Policy*

"Trying to do a little bit of, you know, sort of foresight activity around what are the opportunities, what are some of the immediate threats, how do you think things might change in the next steps. Of course it's hard to sort of see too far forward but things like sometimes you can have a sense that certain funders are shifting in what they're interested in and sometimes that's towards what you want and, sadly, sometimes it's away from what you want, but it's quite useful to be thoughtful about that... Yeah, so just thinking about the environment, in its broadest sense, around you."

"And I think some sort of introduction on how to be an effective member of your organisation. So how to work within their politics, within their mission statement within whatever, that kind of thing."

"You've got to understand the constraints that the people above you are under. There are some things where they cannot say yes to, there are some things you can ask for where they're in a position where they can't say yes"

As well as important topics listed above, our research leaders also identified a number of recommendations for the format of training for the next generation of research leaders, including activity, role-play and case-study based training; the opportunity to interact with colleagues from other departments and subject areas; the importance of learning to find the information you need and apply to it a new context; and being prepared for the inevitable challenges of future leadership. The supporting quotes are included below.

"I'd probably do activities because I don't think the topic stuff matters. So for example send me on a training course with a load of PowerPoint slides for a day, I don't care what that topic is, I don't want to do it. Offer me an hour with somebody smart, to sit and talk to them, that's what I want. Somebody that understands mentoring or somebody that understands coaching or just sitting in a room, some of the most valuable activities were sitting in rooms with people in broadly similar positions to me, not necessarily the same roles, definitely not the same subject areas, and doing things like action learning"

"I'm a very bottom up person, I'm always suspicious of theory, and the kind of training I like is case study-based where you say, "Okay, here's a case study, here's the problem, what are the options, what are the pros and cons, work with other people to try and build a consensus about what to do." And I think that's more sort of how to deliver the training but I think just sitting down and, you know, going... Death by bullet point is not helpful."

"A lot of practical sort of role play. I mean this is often common management stuff in any case, but we don't do enough of that, where you know you have people sat around a table or whatever and somebody comes up with a scenario and actually it's facilitated and led by somebody who will actually follow it through as a bit of role playing and maybe give us all a sheet of paper which says whatever. There's loads of different techniques. But something a bit serious or quite serious and of longer duration than half a day."

"I think it's true as a researcher as well as a leader, is you can't necessarily learn all the skills first that you might apply at some point in the next 40 years of your career; I think you have to learn to learn or something."

"is it's better to leave it in the very specific context and to say, "Yeah, I know this is a problem to do with literary criticism or some other academic discipline that you don't know anything about but the skill we're trying to get you to pull out of this is generic, and there's actually an advantage to looking at something where you don't understand the specifics but you just have to understand enough of them to pull out the methodological approach.""

"So I guess rather than leadership programme, a late career programme saying well know you're in this position these are the five things that you need to learn to be good at, what would be much more helpful would be to recognise that every new post doc will at some point be a leader of some sort and to help them develop mechanisms at that point which will allow them to manage their time effectively, articulate things effectively and recognising every single thing which happens, good or bad, will actually allow them to analyse their ability to do things and find ways of doing things in the future. So it's almost like a forward looking tool-kit for a leadership career which will actually blossom in ten or 20 years' time rather than something which will help you as a kind of sticking plaster at the point where you're suddenly taking on this big job."