SKILLS FOR RESEARCH:
Identifying and developing best practice in development for doctoral students
The Skills Development for Research project seeks to address the problems and needs presented in the development of skills of PhD students in Mexico. Through interdisciplinary research and collaboration between British and Mexican institutions of Higher Education, the project focuses on improving the professionalization of PhD students. An outcome of the project will be developing best practice tools and guidelines for supervisors and doctoral research managers in the Mexican context.
The success of the previous workshops with UK colleagues from St. Andrews demonstrated the potential of this international and interdisciplinary approach as a means of identifying and developing best practice in doctoral education for early career researchers. They also identified a number of areas where differing contexts in the UK and Mexico present distinct challenges. Based on the results of these workshops the British Council created the *Skills Development for Research* project, which highlights the needs and concerns that are shared by representatives of these institutions.

### Priorities and Rationale of the British Council

In order to increase interdisciplinary research and collaboration between British and Mexican institutions to improve the professionalism of PhD students, the British Council and several prestigious universities in Mexico created a series of workshops that seeks to address the problems and needs that Mexican PhD students and researchers present in the development of skills at the beginning of their careers. This project builds on several successful initiatives between the British Council and UK Higher Education Institutions (HEIs), and particularly on workshops carried out with colleagues specialising in doctoral education at the University of St. Andrews (described in more detail below). In general, this initiative also links to the British Council’s *Education and Society 2020 Strategy*; the vision for which is to facilitate the international sharing of knowledge, ideas and expression as well as the sharing of experience and expertise in social and civic development. This project builds on this vision by establishing a global partnership between academics in the UK and Mexico. Mutuality, respect, trusted relationships and local cultural sensitivity are at the core of the project delivery as well as in our approach to best practice in doctoral education. Indeed, *mutual reinforcement* - between doctoral student and supervisor - is at the core of the framework for innovative approaches to doctoral training that we outline below. The 2020 Strategy recognises as one of the challenges for contemporary society the need to more effectively support graduates in the development of skills and competencies required to flourish in the wider world. In identifying ways of facilitating the development of skills for research among doctoral students, this project in this sense aligns directly with the British Council’s vision for education and society (and specifically the *Strategy 2020* outcomes for Higher Education).

### Previous Work

Previous workshops involving Mexican HEI partners and academic partners at the University of St. Andrews highlighted a number of areas of shared issues in skills development for doctoral students and early career researchers. They also identified a number of areas where differing contexts in the UK and Mexico present distinct challenges. Based on the results of these workshops the British Council created the *Skills Development for Research* project, which highlights the needs and concerns that are shared by representatives of these institutions.

### Project aims and objectives

The success of the previous workshops with UK colleagues from St. Andrews demonstrated the potential of this international and interdisciplinary approach as a means of identifying and developing best practice in development for doctoral students. With this in mind, in 2016-2017 the British Council collaborated with the Centre for Educational Consultancy and Development (CECD) in the School of Education at Oxford Brookes University to extend dialogue between UK and Mexican HEIs. The rationale of the project is that through establishing international, UK and Mexican best practice in existing provision for the development of doctoral students as well as challenges to best practice, it will be possible to find new and innovative ways of overcoming these challenges.

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**The priorities** in this series of workshops were as follows:

1. Increase interdisciplinary research through collaboration between British and Mexican institutions.
2. Improve the professionalization of postgraduates and young researchers, using self-reflective analysis.
3. Create a template for inter-institutional research and post-graduate training for future collaboration between British and Latin American institutions by:
   A. Developing and increasing interdisciplinary connections;
   B. Improving dissemination of intercultural and interdisciplinary pedagogies;
   C. Exploring the development of graduate paradigms.

**The aim** of the project, therefore, is as follows:

1. Mapping the needs of Mexican institutions regarding the development of PhD students.
2. Formation of a bilateral working group between Mexican Institutions and a UK Institution that will work on the development of the framework.
3. Draft design of pedagogies and tools that can be used by the institutions to develop and PhD students.
In this document, we present the outcomes of our collaboration with HEI partners in Mexico, including:

- Recommendations for the development of PhD students.
- Recommendations for quality assurance in research.
- Recommendations for capacity building programmes for those in charge of developing PhD students.
- A framework and a draft series of tools – instruments, protocols, recommendations, that are aligned to the needs of the Mexican context and that have a practical use for Universities and Higher Education staff to develop successful PhD students.
- A Logic Model/Theory of Change for the project that presents the connections between the resources, activities, outputs and outcomes of a programme.
- An outcome map defining the audiences for whom these recommendations are relevant, the activities and the outcomes for learning, action and legacy.

**Methodology**

**Consultation Phase**

In order to explore how generic models of best practice may be best applied in the context of the Mexican Higher Education (HE) landscape, HE partners were asked to participate in a consultation exercise where they would identify areas of existing best practice, challenges, problems, and needs. Higher Education partners provided detailed feedback on the current challenges that Mexico faces in the development of tools, methodologies and other contents that would Higher Education Institutions to support doctoral students.

**Phase 1: Analysis of Existing Practice; Workshop in Mexico**

After initial meetings with British Council, British Council colleagues, the research team established contact and agreed terms of collaboration with chosen HEA partners in Mexico. These early discussions fed into a systematic review and analysis of existing best practice in developing academic practice with PhD students. We provide a review of best practice and policy framing in the UK context, followed by evidence of best practice from an international perspective. This phase culminated in a workshop organised by British Council in collaboration with Oxford Brookes University, hosted in Mexico City.

**Workshops**

The Skills for Developing Researchers workshop took place over two days in Mexico City during November 2016. The workshop encouraged constructive discussion of priorities for skills development for research in Mexico. Clarifying and debating critically these priorities emerged as a central theme during the workshop. While some areas of development remained contested, during the second day of the workshop there emerged a consensus around the following areas of need, each of which is outlined below. This kind of contextual input into the project was vital for its success. The outcomes and recommendations of this workshop then flowed directly into the design of the tools and activities in Phase 2.

**Phase 2: Devising Logic Model, Theory of Change, Outcomes Map**

The critical approach adopted in Phase 1 allowed the team to return to the UK in order develop a critical ‘logic model’ that goes beyond a traditional linear framing of the relationships between resources, activities, outputs and outcomes. That is, the logic model is devised to take into account the unpredictable realities of life as a doctoral student. This is intended to show how the ‘logic’ of professional development and academic practice is also tied into the complexities of social, political and economic context and personal circumstance. Accordingly, the approach to theory of change and to the outcomes map here incorporates uncertainty and idiosyncratic personal narratives not as derivations from a singular and linear model of change but as necessary parts of it. In turn, our outcomes map plots evaluation in general terms but is applied to specific individual personal narratives to understand how resources and activities work well or can be improved for particular groups or individuals. The specifics of the model are, therefore, devised in response to the findings in Phase 1 and in discussion with our partners in Mexico. The components of Phase 2 are outlined in more detail below.

**Phase 3: Developing Tools and an Initial Draft of Resources**

The findings from Phase 1 and 2 led to the development of the project report and proposed framework for the development of a research skills toolkit.
Participating organisations and individuals

We have been fortunate to collaborate with a range of different key stakeholders from across the Mexican Higher Education landscape, as well as experts in the field from UK institutions (our panel of honorary advisors). The participating institutions and individuals are listed below:

**Mexican Government Institutions**
- Public Centers of Research of the National Council of Science and Technology (CONACyT)
- Asociación Nacional de Universidades e Instituciones de Educación Superior (ANUIES)

**Mexican HEI partners**

1. El Colegio de la Frontera Sur (ECOSUR): The Colegio de la Frontera Sur is a public scientific research center that seeks to contribute to the sustainable development of the southern border of Mexico, Central America and the Caribbean through the generation of knowledge, training of human resources and linkage from the social and natural sciences.

2. Research Centre for Latin America and Caribbean (UNAM) The Center for Research on Latin America and the Caribbean CIALC seeks to contribute to the creation of a greater and better understanding about Latin America and the Caribbean, always from a personal and critical perspective.

3. Centro Nacional de Investigación y Desarrollo Tecnológico (CENIDET) The National Center of Research and Technological Development, CENIDET, is located in Cuernavaca, Mor. A city that has become the seat of numerous scientific institutions, dedicated to research and teaching, which has allowed a fruitful exchange between them. CENIDET offers its graduate programs for graduates of related degrees who are interested in preparing for applied research and technological development.

4. El Colegio de la Frontera Norte COLEF The North Border College is an institution dedicated to high-level research and teaching whose purpose is to generate scientific knowledge on the regional phenomena of the US-Mexico border, train high-level human resources and institutionally link to contribute to the development of the region. COLEF is an academic center with a cross-border perspective of social phenomena, with international recognition for the high academic level of its research and the quality of its graduate programs.

5. Instituto de Geología, UNAM The Institute of Geology (IGI) is a unit of the National Autonomous University of Mexico created to realize its Latin American vocation. With the study on the region, CIALC seeks to contribute to the creation of a greater and better understanding about Latin America and the Caribbean, always from a personal and critical perspective.

**UK HEI partners**

**Oxford Brookes University (CECD)**

The Centre for Educational Consultancy and Development (CECD) is the consultancy arm of the School of Education at Oxford Brookes University. CECD specialises in contract research and consultancy in the education sector, and in continuing professional development for teachers and educational professionals. We draw on the academic and professional expertise of a network of educational researchers and practitioners fromacross the Oxford Brookes School of Education. The diverse specialties of our consultants allow us to provide excellent research, consultancy and training services across a broad range of fields, tailored to the needs of our clients. One of our main strengths as a research centre is our capacity to map across diverse research areas in this way, responding dynamically to client briefs and to the rapidly changing landscape of the education sector. Recent examples of our research, consultancy and training work can be found on the CECD website (www.education.brookes.ac.uk/consultancy).

**Honorary Advisors**
- Professor David Boucher Professor of Political Science and International Relations Cardiff University
- Professor Paul Garner, Emeritus Professor of Social Anthropology The University of Manchester
- Professor Simon Mahony, Principal Teaching Fellow, University College London
- Professor William Fowler Professor of Spanish, Head of the School of Modern Languages St. Andrews University

With the above project overview in mind, we now move on to consider a theory of change model that will facilitate innovative approaches to skills development for doctoral students.
The Theory of Change (TOC) process hinges upon defining all of the necessary and sufficient conditions required to bring about a given long term outcome. TOC uses backwards mapping, requiring planners to think in backwards steps from the long-term goal to the intermediate and then early-term changes that would be required to cause the desired change. This creates a set of connected outcomes known as a “pathway of change”. A ‘pathway of change’ graphically represents the change process as it is understood by the initiative planners and is the skeleton around which the other elements of the theory are developed. During the process of creating the pathway of change, participants are required to articulate as many of their assumptions about the change process as they can so that they can be examined and even tested to determine if any key assumptions are hard to support (or even false). There are typically three important types of assumptions to consider: (a) assertions about the connections between long term, intermediate and early outcomes on the map; (b) substantiation for the claim that all of the important preconditions for success have been identified; and (c) justifications supporting the links between program activities and the outcomes they are expected to produce. A fourth type of assumption which outlines the contextual or environmental factors that will support or hinder progress toward the realization of outcomes in the pathway of change is often an additional important factor in illustrating the complete theory of change. A TOC approach to planning is designed to encourage very clearly defined outcomes at every step of the change process. Users are required to specify a number of details about the nature of the desired change — including specifics about the target population, the amount of change required to signal success, and the timeframe over which such change is expected to occur. This attention to detail often helps both funders and grantees reassess the feasibility of reaching goals that may have initially been vaguely defined, and in the end, promotes the development of reasonable long-term outcome targets that are acceptable to all parties.

The approach to theory of change and to the outcomes map incorporates uncertainty and idiosyncratic personal narratives not as derivations from a singular and linear model of change but as necessary parts of it. The ‘missing middle’ of theory of change as applied to this project, then, is both the shared and idiosyncratic experiences of doctoral students and their particular experiences of a generic model of developing academic practice. Further, the approach to theory of change will emphasise the importance of reflective practice among doctoral students, and, importantly, among their supervisors. The focus is on the capacity of individuals to recognise practical effective systems of change and development and to reflect critically on them.
Within the framework of this TOC model, we propose the following series of recursive critical propositions to assumptions about skills development for doctoral students:

- What is the purpose or intention of doctoral training? How do we reconcile different ‘paradigms’ of doctoral education?
- What is the experience of doctoral training? How do we capture more of the complexity of this experience across different actors/interests?
- What approaches, tools and resources allow us to effectively align the purpose of doctoral training with its experience?
- What do we propose are the outcomes of doctoral training, when the purpose, experience and appropriate frameworks of support are in place?

The above diagram is intended to capture something of the complexity of the doctoral journey, with a focus on the tension and interplay between actors negotiating the experience of doctoral training in relation to the intended and eventual outcomes of completing a PhD. In addition to doctoral students, multiple stakeholders (government, policymakers, industry, HE institutions, funding bodies) influence the intended outcomes of doctoral training. At the policy level it is possible to see a direct link to developing industry and nurturing transferrable skills for employment alongside skills for research. For doctoral students and their supervisors, the intended outcomes of doctoral training may include these motivations but will also include academic, philosophical, sociological and cultural considerations at the level of the individual. For doctoral students, motivations for training will be shaped also by the influence of ‘significant others’ - by parents, partners, children, peers, former teachers, and so on, and it is important to consider these influences when understanding the individual narratives of doctoral students. Intentions are then mediated through the experience of the doctorate, which is also shaped by institutions; by the influence of supervisors on what the doctoral experience ‘should be’, by the actions of the doctoral student her/himself; and by significant others in the candidate’s life. An effective deployment of training activities that lead to successful student attributes, which are in turn also reflective of what is valued by students themselves, will reflect an overlap of intentions for and experiences of the doctoral journey. Finally, it is crucial to connect intended doctoral outcomes and experiences with the realities that face doctoral candidates upon completion. All key stakeholders have an interest in making the doctoral experience the first step on a longer path towards future research, employment, and fulfilment. Where the outcomes of the doctoral journey intersect with intentions and experiences of the doctorate (in terms of aspirations, preparation for employability, intellectual fulfilment, developing critical skills for intellectual engagement, and so on), there is the potential for powerful change in the framing of researcher development. The idiosyncratic nature of the doctoral journey and the multiple stakeholders involved make it difficult to pinpoint an exact constellation of attributes or activities that map intentions, experiences, and outcomes in a neat way that is always completely coherent. On the contrary, it is important to recognise dissonance, tension and the reconciliation of contested interests as an inherent (and ultimately positive) part of the doctoral experience. The above theory of change suggests that there is no single ‘ideal’ constellation of intentions, experiences, and outcomes for the doctoral journey, but rather a particular constellation for each individual. It is the challenge of those supporting doctoral training to help doctoral students to work reflexively at the intersection of motivations, skills development, and future opportunities or aspirations.

**Critical Logic Model**

The critical approach to TOC outlined above allows for the development of a critical ‘logic model’ that goes beyond a traditional linear framing of the relationships between resources, activities, outputs and outcomes. That is, it is important to devise a logic model that also takes into account the unpredictable realities of life as a doctoral student. One of our actions is to map the doctoral journey in a nonlinear way that takes into account hesitation, false starts, moving backwards as well as forwards along an idiosyncratic pathway. This is intended to show how the ‘logic’ of professional development and academic practice is also tied into the complexities of social, political and economic context and personal circumstance. However, we argue that this is also possible within the linear framework outlined below. In the following section we explore each section of the model in turn to put forward a critical approach to the logic of skills development for doctoral students.
## Situation

- Public investment in growing graduate workforce.
- Issues of transferrable skills and employability for doctoral students.
- Need for dialogue about intentions, experiences and outcomes of doctoral training to maximise successful student attributes.
- Potential to reconfigure the parameters of doctoral training, recognising the importance of democratised relationships between doctoral students, supervisors, and institutions.
- Potential to develop through this process a critical perspective on the skills for research developed during doctoral training.

## Resources and Expertise

- Prior workshop activities and findings.
- Consultation on existing best practice and challenges for Mexican HEIs.
- Workshops on best practice for skills development in collaboration with Mexican HEI partners.
- Review of existing best practice and research literature.
- Contributions of honorary advisors.
- Supervisors.
- Other HE staff involved in supporting doctoral training.
- Doctoral Students.
- Significant ‘others’ in the lives of doctoral students - peers, families, children, etc.
- Institutional management staff.
- Employers.

## Audience

Emphasis on the importance of encouraging dialogue between different audiences.

## Activity (Outputs)

- A Portfolio Approach.
- Skills Development Diagnostics.
- Developing Core Skills.
- Developing Collaborative Skills.
- Developing Criticality, Creativity and Reflexivity.
- Recursive engagement with supervisors/ HEI partners.
- Engagement and dialogue with/between supervisors and doctoral students.
- Dialogue and exchange between HEIs in the UK and Mexico.
- Raising awareness of individual needs in skills development for supervisors and students (an outcome of the skills development diagnostics).
- Developing individual knowledge, skills and competencies through collaboration (an outcome of developing core skills).
- Motivating engagement in Professional Development.
- Strengthening research communities.
- Engaging researchers in career planning.

## Delivery Quality & Stakeholder Engagement

## Learning Outcomes:

(Individual & collaborative)

## Action Outcomes

(individual/collaborative and institutional)

- Affecting a change in individual behaviour/ Collaborative approaches to skills development for doctoral students and supervisors (an outcome of developing collaborative skills).
- Agenda setting and change at the institutional level through the championing of critical, creative and reflexive approaches to skills development, measured against progress mapped through a portfolio approach to skills development.

## Legacy Outcomes

(sustained positive change): Open Space for Dialogue

- Through creating open spaces for dialogue, to positively shape individual experiences of the doctoral journey, equipping the capacities and employability of doctoral graduates.
- To begin to shape new institutional cultures of doctoral training that facilitate the development of a nuanced portfolio of skills.

## Global Outcomes

- Establish new perspectives on skills development for doctoral students.
- Positive impact on the capacities and employability of doctoral graduates.
- Positive impact on the Mexican workforce and HE sector.
- Achieving core elements of the BC 2020 Global and HE Outcomes.

## Evaluation and Programme Outcomes

### Situation

- Monitoring

### Resources

- Inputs

### Who and What

- Positive Change
Traditionally, mapping the situation in a logic model requires a statement of the problem that must be addressed and a rationale for the problem, as well as identifying the population for whom the problem is relevant. In this case, the starting point for this review is the global increase in the number of doctoral candidates entering job markets both inside and, increasingly, outside of academia. The growing number of PhD graduates in countries like Mexico, that have invested heavily in the expansion of their HE research infrastructure, indicate a need for a thoughtful, well-informed and critical approach to skills development that moves beyond the limits of a more traditional ‘formal research training’ towards thesis completion. This focus on skills development has been a strategic focus for universities over the past decade, with diverse programmes of academic best practice in place across institutions. In the UK, this is evidenced in the programming of ESRC Doctoral Training Centres and in examples of provision from a wide variety of HEIs (UCL’s doctoraldskills programme; Oxford University’s Skills Training for Doctoral Students; to name but a few). The challenge of this project is to synthesise in a critical and innovative way the best practice from across these programmes in order to devise a coherent and effective programme for the Mexican HE context.

In this case, the problem becomes more complex because there may be a lack of agreement about exactly what the ‘problem’ is with current doctoral supervision in the Mexican context. Or to put this in another way, an additional problem is a lack of open dialogue among supervisors and between HEIs about problems in skills development for doctoral students. This may be indicative of broader political and economic shifts in the HE sector and tensions in the extent to which approaches to doctoral supervision may reflect or resist these changes. This can be framed both in relation to the broader philosophical meaning and aims of doctoral training and its relationship to employability and skills. Identifying common ground about what counts as ‘best practice’ in doctoral education in this shifting landscape is a challenge; and the problem of how to create spaces for dialogue around these issues represents an important part of the overall project.

This an issue that emerged in our consultation phase. Two participants in the workshop urged that there was not a consensus on the ‘problems’ faced by PhD supervisors. A desire was identified for resources that might stimulate dialogue between academic colleagues about what ‘problems’ they faced in their supervisory relationships. It was further argued that some of the issues brought by participants to these workshops - particularly around the need to see the doctoral journey as an ontological ‘event of becoming’ rather than an instrumental process of acquiring certain competences, addressed in one of the case studies below - were not perceived by colleagues as problems to be overcome. These issues are addressed through a number of the reflective activities outlined in the outcomes section aimed at highlighting the ‘raising
Social, Institutional, and Personal Issues
An important point of consideration is the fact that cultures and approaches to doctoral training and professional development will vary considerably across private public and state universities in Mexico, and across faculties and disciplines within these universities. Accounting for this diversity and recognising already existing best practice will form an important part of providing pedagogies and tools suitable for implementation in Mexican universities. With reference to the problems outlined above, our consultation partners also recognised as an issue the challenge of mapping a coherent framework of skills development across a diversity of disciplinary, departmental, and institutional contexts, in which structures of instruction and supervision may vary considerably.

Motivating Researchers to Engage in their own Professional Development
A theme within the literature on supporting early career researchers is the role of motivation in both initiating and sustaining individuals’ professional development. According to Matthews, Lodge, & Bosanquet (2014) early career academics’ perceptions of their own value and abilities are a key factor in their ongoing career success, so consideration of the emotional aspects of researcher development should not be overlooked. These can include work-life balance (Chan, Kallith, Brough, Sia, Oldiscoll & Timms, 2016), resilience in the face of both personal and work-related challenges, and a willingness to undertake planning activities alongside urgent and competing tasks. The work of Chiaburu, Muoz, & Gardner (2013) also suggests that career success can correlate with personal traits, in particular self-belief, which promotes engagement with professional planning. Others have investigated traits linked with effective research leadership (Ansmann et al., 2014; Evans, 2014) and proactive professional development planning (Evans & Cert, 2011).

In relation to the role of motivation in professional development, a seminal study of Finnish doctoral candidates’ productivity and success in obtaining PhDs (Lonka, Chow, Keskinen, Hakkarainen, & Pyhältö, 2014) found that the factors linked with good outcomes included students’ belief in their own ability to succeed, and their ability to maintain a momentum in their research and writing. Lonka et al. (2014) found that rather than intellectual ability alone, perseverance and a disciplined work ethic foster success as a researcher. This is an important result because it implies that early career researchers can be helped in their career planning by interventions which work on their self-confidence and self-management as scholars (Mcdonough, 2016). Underpinning research into individuals’ engagement with their own future employability is the question of how to promote intrinsic motivation in this area (Valerand, 1997; Dörnyei, 2001). Scholars have explored the possible role of self-regulation (Zimmerman & Zimmerman, 2016) both in general, and in terms of personal career success, finding that readiness for change useful in a fast-paced global employment context (Phelps, 2016).

Another method for fostering the development of intrinsic motivation is motivational interviewing (Rollnick & Miller, 1995) which is a personalised dialogic approach to professional development wherein participants are given prompts to aid self-analysis and personal development planning (Miller & Rollnick, 2009). The effectiveness of this form of personal is argued for by Murray, Thow, Moore, & Murphy (2008) who are particularly interested in the role of motivational interventions to enhance researchers’ production of publications to disseminate their work. Combined with institutional strategies for talent management (Claussen, Grohsjean, Luger, & Probst, 2014), a focus on supporting researchers’ self-regulation and an awareness of the role of motivation in career planning are therefore considerations in the development of training in this area.

Mapping Existing Best Practice in Doctoral Training (Inputs and Expertise)

Scoping Study
One of the key inputs into developing new models for supporting doctoral students is a clear mapping of the research landscape for best practice in skills development for these groups. The review included here is not intended to be an exhaustive account of this research, but instead identifies several key themes of importance for this project (further recommended references are included at the end of the report). With this in mind, this section of the report examines best practice in the field of professional development for doctoral candidates, concentrating on the three areas of:

1. Motivating researchers to engage in their own professional development
2. Strengthening research communities to promote career planning
3. Engaging researchers in tools to support their personal career planning.

Based on discussion of these issues this section then suggests advice for developers, which we expand on in further sections focusing on outputs and outcomes.
Strengthening research communities

An alternative model for professional development is the community-based approach, for example the UK based Vitae network (CRAC, 2011). This virtual hub focuses on ‘realising the potential of researchers’ (Vitae, 2016) and it works by connecting regional champions in researcher development, who host events and network with other developers in their local areas. Vitae invites both groups and individuals to engage with a framework for researcher development that sets standards for measuring capabilities against a national set of benchmarks specific to career development.

Such community building holds potential to support early career academics (Bray & Boon, 2011) because it fosters a culture of proactive professional development. Many UK higher educational institutions are organisational members of Vitae network which provides an online hub, resources, and training opportunities for early career researchers, and individual researchers can also join to take advantage of career development support and events. The online hub approach to researcher development acts like a networking agency to put researchers in touch with others in their local areas. Vitae invites both groups and individuals to engage with a framework for researcher development that sets standards for measuring capabilities against a national set of benchmarks specific to career development.

Engaging researchers in career planning

In Europe, the quality of provision is influenced by the ‘Charter for Researchers and Code of Conduct for their Ruitment’ (2005), and in the UK funding comes from the Research Councils UK (RCUK, 2016). Although the Concordat is a voluntary scheme, it has proven to be influential across the UK higher education sector (Vitae, 2016c). Nevertheless, a downside of this approach is its reliance upon local management and momentum, which can be dependent upon the staff and systems in place at particular universities.

A more individualized tool for engagement with professional development is the Researcher Development Planner (Vitae, 2016). This is an interactive excel-based tool for self-analysis and action towards specific goals. This planner helps individuals to assess their own knowledge, skills, behaviours, and personal qualities against the national benchmarks of the Researcher Development Framework. The tool employs a matrix of descriptors which researchers use to plot their own development needs, as shown in Table 1, below.

A benefit of this planner is that it provides individuals with a method for monitoring their own development, but a disadvantage is that many may find it too time-consuming to complete. A mix of community-based and individual activities could therefore be a useful approach to developing researchers.

HEIs have adapted and adopted different elements of this approach to the assessment of existing skills and skills for development. Examples of approaches to mapping skills that are informed by the Vitae framework can be seen in the programming of ESRC Doctoral Training Centres and in provision from a wide variety of HEIs - UCL’s Doctoral Skills Development Programme: Oxford University’s Skills Training for Doctoral Students to name but two. A mix of community-based and individual activities could therefore be a useful approach to developing researchers.

Beyond the categories shown in this table there is a further level of detail so that the tool comprises in total 63 descriptors (Bray & Boon, 2011, p. 101). A benefit of this planner is that it provides individuals with a method for monitoring their own development, but a disadvantage is that many may find it too time-consuming to complete. A mix of community-based and individual activities could therefore be a useful approach to developing researchers.

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While there are clear benefits to this more expansive system of training and accountability, what remains to be seen is the extent to which systems at the sector or institutional level are flexible to the idiosyncratic nature of the doctoral experience. Other tools, such as those piloted in the Next Generation of Social Scientists Project, attempt to augment such systems by accounting for more of the complexity and nuance of individual doctoral or early career research experiences (see for example Alexander et al 2012). With reference to the propositions outlined in the TOC above, we explore these questions in the outputs section.
Considerations for Developers

• As part of preliminary scoping, developers should map researchers’ motivations in relation to professional development.

• Some individuals may prefer to undertake personalized professional development planning, whilst others may benefit from a community approach, so both methods should be considered by developers.

• There may be a tension between the needs of institutions and those of individuals in terms of providing professional development.

• No framework for development or planning tool can be all-encompassing, so other approaches should be considered.

• A potential problem with the use of self-analysis is that this requires researchers to be skilled in self-reflection, which may not be the case if they are new to this genre, so training in this area may be required.

The analysis now turns to existing evidence of best practice that address these and other issues as another key input into the project.

Recognising Challenge and Applying Existing Best Practice: Consultation Case Studies (Expertise)

In order to explore how generic models of best practice may be best applied in the context of the Mexican Higher Education (HE) landscape, HE partners were asked to participate in a consultation exercise where they would identify areas of existing best practice, challenges, and needs. HE partners provided detailed feedback on the current challenges that Mexico faces in the development of tools, methodologies and other contents that would Higher Education Institutions to support doctoral students. Participants were asked to adopt a problem-oriented method to fulfilling the consultation document, providing case studies of real-life situations where existing problems need to be solved. Participants were encouraged to focus on the following points: relating theory to practical situations; identifying problems in these situations; focusing analysis on the root/main problem; and formulating the problem within a deficit model (i.e. identifying what remains to be solved, rather than identifying the absence of a solution as the problem). The following themes emerged from this consultation. Individuals raised a number of key areas of challenge, as well as examples of best practice to take forward. In brief, these are as follows:

Issues with prior learning

Graduates may not come to postgraduate study with the critical skills expected of them to thrive in a research environment. They are not necessarily prepared in earlier phases of HE for the kinds of challenges presented by a research role.

As one contributor suggested: The principal problem for developing research skills in postgraduate students lies in weaknesses in academic and critical thinking that students bring with them from basic, middle and higher education. Abilities that should be taken for granted in masters and, above all, doctoral students are not necessarily in place when students begin their postgraduate studies.

Learning the Art of Articulation

Connected to issues of prior learning, students may need support in developing capacity for articulating creative, critical research ideas, both in academic writing and in presenting research.

Issues with supporting development

In connection with issues of prior learning, there can be problems with effectively identifying and supporting areas where doctoral students may need support. Supervisors may assume certain competencies of doctoral students that have yet to develop and for which they require guidance.

Specialisation and Interdisciplinarity

Both supervisors and students may need to develop capacities for marrying detailed specialist knowledge with the ability to work collaboratively across disciplinary boundaries.

Structures of training and critical research

There can be tension between the structures that organise doctoral training and the purpose of doctoral training as a critical, creative endeavour of ‘learning to learn’

Challenging postgraduate pedagogies

There may be tensions between accepted approaches to postgraduate pedagogies and the need to challenge students to think in new critical ways.

Professional pressures

Supervisors may be risk averse in their approaches to doctoral training because of other professional pressures (e.g. to deliver research outputs and publications).

Open space for discussion

There is a need for contexts in which supervisors can discuss challenges and share best practice across institutional and disciplinary boundaries. There should also be opportunity for similar critical discussions to take place between supervisors and students.

FINDINGS
Existing best practice:
In their own words, participants in the consultation provided detailed information about already existing best practice for the development of research skills with doctoral students. It is crucial to recognise that innovation is already happening, in spite of the issues outlined above. A summary of consultation responses is provided in Appendix A. What is clear from the consultations is that the HEIs all have in place examples of very good practice in doctoral training and supervision. The challenge is to establish the means of sharing this good practice in ways that are compatible across diverse disciplinary and institutional contexts. Challenges and best practice were part of the broad discussion around skills development that took place during the workshops with expert practitioners. As an important input into the process of devising best practice for skills development, these workshops and the key points of discussion arising are outlined below. We then move on to consider how the above inputs and expert contributions can be most effectively reflected in the outputs of the project - and specifically in the proposed toolkit for doctoral skills development.

Emerging Findings from the Workshops: Assessment, Community, Student Voice

The skills for developing researchers workshop took place over two days in Mexico City during November 2016. The workshop encouraged constructive discussion of priorities for skills development for research in Mexico, and clarifying and debating critically these priorities emerged as a central theme during the workshop. While some areas of development remained contested, during the workshops there emerged a consensus around the following areas of need:

1. **Assessment.** There was agreement that students need more from their doctoral training than is assessed in their thesis. This kind of approach is reflected in Vitae framework, developed in the UK context and discussed as an exemplar in the day two workshop (see below). A system of assessing other key skills or competences linked to future employment and career development seemed attractive to participants.

2. **Community.** There was agreement that there is a need to build spaces/environments for research, and collaboration, across disciplines and in expanded academic and professional networks (e.g. using links with alumni, etc).

3. **The student’s voice.** Participants argued in favour of a student-centred approach where student voices are valued and brought explicitly into the institutional and national discussion. However, there were questions about how to do so without relying on and creating simply a new means by which universities/students will be audited and monitored. Participants discussed the possibility of creating a national platform to gather and compare student experiences as a valuable tool for quality assurance and equity in doctoral training. This may be a rich area for collaboration with UK institutions where such systems are already in place (for example, institutional responses to the National Student Survey and the soon-to-be-implemented Teaching Excellence Framework (see, for example, Oxford Brookes’ successful approach to student experience).

The above points provide invaluable insights into the needs of academics engaged in the challenges facing skills development for researchers. What, then, do these inputs suggest that we ‘need’ from the outputs of this process? Some key points emerge here, relating back to the Theory of Change:

1. **Valuing the student voice:** Institutions differ widely - therefore student experiences and supervisor experiences are not and cannot be uniform, but there might be commonalities in terms of the lived phenomena. It is important to devise means to encourage students and academics to recognise shared elements of each other’s experiences; and it is equally important to find ways through dialogue, of challenging assumptions about how students and supervisors experience and navigate the doctoral journey.

2. **Paying attention to the experiences of academics/researchers and recognising pressures on students:**
   - The supervisor can be a ‘model’ to the students. How does a supervisor under these pressures ‘model’ the lived reality of research for students?
   - The trajectory of researchers: how do they develop their teaching ‘expertise’ when they become supervisors?
   - The identity of the academic as teacher/researcher - is there a tension? What are the qualities of a good postgraduate teacher?
   - What does it mean to teach how to teach in the context of doctoral skills development?
   - How do we reconcile the teacher’s hope that a student ‘overcomes’ or ‘surpasses’ them with entrenched systems of hierarchy in doctoral supervision?

In light of 1 and 2, the findings indicate that any attempt to provide a method for PhD student development, or to map the skills and capacities of the successful doctoral student (epistemological), should be accompanied by a parallel process that focuses on the becoming of the student (ontological). For example, we could hardly make prescriptions about academic monitoring that could traverse all institutions, disciplines and individual student experiences. But, we could attend to the student’s experience of being left alone, going off track, or feeling directionless by understanding both their intentions for the doctorate and their experience of reaching (or not reaching) those intentions, and supporting them accordingly.

With these points in mind, in the following sections we provide an overview of the different audiences that must be taken into consideration in the process of developing best practice in these areas, before moving on to outline the overarching structure of the toolkit and connected outputs.
Framing Skills Development Relationally: Rethinking the Relationships Between Actors in the Doctoral Journey (Audience)

While the obvious audiences in this process are supervisors and their PhD students, it is clearly important to develop a nuanced perspective of the other audiences involved in doctoral journeys. Crucially, we suggest that this involves moving beyond an actor-oriented model that focuses on separate segments of audiences, but rather focusing instead on the interactions between different audiences. In this sense we argue for the combination of an individualised approach to understanding the particular idiosyncratic experiences of persons within different audience groups, alongside an account of the connections between persons. This has implications for developing a nuanced toolkit for skills development that may incorporate an individualised approach (in the style of the UK’s Vitae programme but recognising the importance of a nuanced, localised approach appropriate to local context) alongside an approach that focuses on the relational or social nature of the doctoral experience.

Linking together diverse audiences involves recognising what we term ‘genealogies of practice’ in approaches to supervision and doctoral training. Through reflection on their own practice, supervisors may be able to identify the ways in which their own experiences of being supervised may also influence how they now teach and support students. Incorporating a historical perspective that allows for reflection on how supervisor practice emerges, with a focus on how supervisors may mimic or perform supervision based on their own experience of good practice, provides a means of linking this audience (supervisors) with one element of their broader academic networks. We may also incorporate into this model the link between supervisors and ideal, imagined models of supervision – that is, the benchmark of supervision that supervisors may have aspired to in their previous practice as doctoral students themselves, and which they may still aspire to in their current practice. We can add to this audience the broader experiences that supervisors have of their colleagues’ academic practice, and how observing or talking with other supervisors may be instrumental in the co-construction of ideas about what counts as ‘best practice’ in doctoral supervision. Recognising the relational construction of ideas about doctoral supervision, and creating platforms where these relationships can be explored, is an important part of developing collaborative and critical skills both for doctoral supervisors and their students. Other audience groups include institutions, HE funding bodies and research funders, and potential future employers (e.g. civil service, academic institutions, commercial interests), and it is important to recognise the webs of connection that exist between these actors and the individuals directly involved in the doctoral experience.

When thinking about PhD students as an audience, we can continue to complicate the picture by taking into consideration the ‘significant others’ that may also figure in the doctoral journey, but who are not captured in the formal everyday practice of studying for a doctoral qualification. That is, we argue that it is important to recognise that family, friends, partners, ex-partners, academic or professional colleagues, children, and peers will all represent significant actors in the reckoning of individual, idiosyncratic routes through the doctoral journey. Research conducted by Alexander et al (2013) McAlpine et al (2014) and Hopwood (2012) (see also Paulson and Mills 2015) suggests that these informal networks make up a profoundly important part of the ‘hidden realities’ of the doctoral experience, and may be instrumental in providing the support and guidance necessary to successfully complete a doctoral programme of research. While any kind of programme of skills development does not necessarily actively engage these actors in the process of improving academic practice, it is important to recognise the significance of this audience on the experiences of individual students. Accounting for their role in the doctoral process through capturing student voice, or student articulations of the wider socio-cultural context in which doctoral education sits, will be an important means of complicating the picture of skills development.

A Framework for Skills Development (Outputs)

The inputs indicate the need for a recursive, reflexive, student-centred, critical model of researcher development. Outputs derived from this project will include, therefore, both the ‘roadmap’ or framework for skills development and exemplars of good practice (if not an exhaustive ‘how-to’ guide) for putting the framework into practice. We propose that this model focuses in the following three fields: 1) Developing Core Skills; 2) Developing Collaborative Skills; 3) Developing Criticality, Creativity and Reflexivity. While these fields are inextricably tied together and overlapping, for the clarity of the present model we have divided them in order to account for different spheres of skills development for research. Together they form the basis of a coherent but flexible toolkit that will in turn help to shape the mapping of ‘successful’ student attributes (see below).

In order for supervisors to effectively develop students across these fields, we suggest a portfolio model to skills development, whereby supervisors maintain with their students a clear ‘audit trail’ of student progress in the fields below. This will allow students and supervisors to regularly review and identify strengths, areas of challenge, and value added. While functioning as a tool for teams of students and supervisors in terms of mapping skills development, this also represents a valuable diagnostic tool/ formative assessment tool for institutions to support supervisors in maintaining quality and best practice in doctoral provision. This is not the same as suggesting that skills development can or should be standardised through a diagnostic approach, but rather that a diagnostic approach should better capture the idiosyncratic nature of individual journeys through the doctorate, across multiple cases.

FINDINGS
With this approach in mind, we suggest that the skills development begin with an exercise in skills development diagnostics - that is, a reflective exercise between supervisor and student to a) identify areas of prior learning; b) set short-, medium- and long-term skills objectives; c) identify activities through which skills objectives can be achieved; and d) regularly review and reflect on progress towards these objectives. This will in part address stakeholder concerns that doctoral students begin programmes of study as yet unprepared for the demands of doctoral research, while also allowing supervisors to take full advantage of student prior learning (e.g. in other professional fields). This model reflects existing best practice in assessing or analysing the needs of doctoral students (see for example the Training Needs Analysis model employed in the Division of Social Sciences at Oxford University [here]. Crucially, however, we suggest that supervisors also engage in this diagnostic of skills development to recognise where they can develop their own practice in response to student needs (for example, if a student identified needing support in developing skills for grant writing, the supervisor would also assess their capacity to either lead or facilitate development in this area). Including the supervisor as an active participant in skills development in this way represents an innovation from existing models. Further, this process should also reflect the need for greater representation of student voice in the doctoral training process by identifying not only areas of development for individual students, but also areas where institutions or supervisors might better meet demand for skills development provision. In terms of outcomes, this dialogic approach links learning and action outcomes to legacy and global outcomes in terms of the broader questions raised, for example, about variation in the structure of doctoral programmes across institutions and what may be done to streamline provision with the best interests of supervisors and students in mind.

**Developing Core Skills**

This section of the outputs refers to practical skills development for researchers, focusing both on academic practice and preparedness for professional fields outside of academia. Core Skills correlates broadly with Section A and C of the UK’s Vitae Researcher Development Framework and is, accordingly, the most individualised component of the outputs. Core skills are seen in this sense as the means to engaging fully in a broader range of academic and professional competencies, leading to transferable skills/skills for employability as well as a sense of academic identity.

In response to emerging themes in the literature and in response to consultation with experts in the Mexico HEI context, core skills development would include supervisor or institution-led training/activities in the following areas:

- Developing substantive/specialist expertise and methodological expertise.
- Writing for academic practice (including core literacy skills, writing for publication, writing for impact, and so on). The British Council already has in place a number of successful initiatives in this area that can be used as evidence of best practice, such as The Research connect programme.
- Skills for disseminating research and building a research profile (including submitting and presenting papers, research posters, developing research profiles/outputs online, etc)
- Skills for developing new research projects (understanding grant and tender writing, writing for funding applications, dealing productively with rejection, project management, etc)
- Developing best practice for teaching and learning in HE contexts (including curriculum design, assessment, innovative pedagogy, using technology, teaching practice, shadowing, auditing/observing existing best practice in teaching, pursuing teaching qualifications such as the PCiHE, and so on)
- Developing transferable skills for employment outside of academia (understanding transferable skills; understanding the job market; skills for applying and interviewing for jobs; developing an online profile of skills, etc)
Developing Collaborative Skills

While core skills may be articulated as individual competencies for developing academic practice, it is important to note that these and other skills are developed relationally and in collaboration with others. With this in mind we propose a suite of activities and actions focused around developing skills for development that focus on the importance of interactions, networks, and relations (broadly mapping onto sections B&D of the Vitae framework). This speaks to the themes emerging from the literature and the consultation around the need to facilitate the development of doctoral students through their introduction to and effective participation in academic dialogues, from membership in global networks, to cooperation across disciplinary boundaries, through to building more democratic relationships between supervisors and supervisees.

A collaborative focus also returns the focus to a recognition of the active role of the student in shaping skills development, and suggests that supervisors may also need to develop skills for collaboration in order to facilitate the development of students. We recognise that our expert contributors in the Mexico and UK HEI contexts demonstrate a wealth of best practice in these areas and we welcome further collaboration in terms of developing this area of the toolkit.

Activities focusing on developing collaborative skills include (but are not limited) to the following:

- The development of a legacy of specific initiatives e.g. regular research conferences and the establishment of an international/bilateral Latin America-UK network focusing on doctoral training, with an emphasis on an ‘open space for discussion’ that encourages a more democratic approach to dialogue between students and supervisors.
- Expanding traditional guidance for students around organising and attending networking events (e.g. conferences, etc)
- Activities focusing on integrating alumni into skills development, in order to expand networks for doctoral students
- Activities focusing on the effective management of exchanges and internships for doctoral students, linking in particular to networks that will facilitate core skills for ‘real life’ and employment (both inside and outside of academia). Developing guidance on good practice for quality assurance in doctoral training, with a focus on dialogue and student voice;
- Developing best practice for gathering and responding to student feedback (linking to the skills development diagnostics, above)
- Guidance on how to build community and critical engagement in doctoral training, with a focus on student-centred pedagogy (e.g. how best to integrate students as ‘research colleagues’, how best to manage disruptions to existing hierarchies that this may imply).
- Activities focusing on best practice for creating inclusive environments for skills development, raising issues of gender, ethnicity, socio-economic background, age, and so on (see, for example, activities for promoting ‘good relations’ within the Athena Swan programme)
- Guidance for supervisors in order to encourage interdisciplinary collaboration and collaboration across methodological boundaries
- Developing best practice for working in supervisory teams of two or more
- Exploring best practice in democratising the supervisor-student relationship
- Exploring best practice in developing a flexible means of auditing/reporting progress supervision
- Activities focusing on mapping the broader social networks of the doctoral experience (identifying the important roles of ‘significant others’, mentioned above).
Developing Criticality, Creativity and Reflexivity

The above approach to collaboration suggests the importance of developing skills for critical reflection on academic practice and on creativity and innovation in developing new ways of approaching skills development for researchers (this maps broadly onto areas A, B & D of the Vitae framework). Findings emerging from the literature and feedback from consultation with stakeholders suggest that creativity, criticality and reflexivity form key elements of developing best practice in skills development for researchers. This is evidenced in the existing best practice across the domains of core and collaborative skills. However, we also recognise that there exist significant structural and individual challenges in designing activities for skills development that are genuinely reflective, critical and creative in their design (e.g. challenging traditional institutional structures and traditional approaches to the supervisor/supervisee relationship). With this in mind, we suggest the inclusion of activities that are explicitly focused on developing skills for critical reflection and creativity, in support of activities that more directly focus on core and collaborative skills. This links directly to the element of the British Council Theory of Change that refers to ‘raising awareness’ - in this case, raising awareness of taken-for-granted practices and thinking about imaginative, critical ways of affecting positive change. The challenge here is to devise activities in a supported, structured way that nurtures creativity and critical reflection while mitigating the potential challenge and discomfort that comes with looking critically at one’s own practice.

Activities may include (but are not restricted to) the following:

• Methodologies/paradigms training for PhD supervisors and students to encourage new ways of thinking across disciplinary boundaries. This may be particularly important where students seek to work across disciplinary boundaries or are looking to get research funding or positions on projects that transcend the narrow disciplinary confines of their PhD projects.

• Building on this training, devising supported, structured activities that challenge students and supervisors to develop practices of attentiveness, ‘letting go’ of disciplinary norms and preconceptions to explore research questions from new vantages.

• Activities that nurture open spaces for discussion about the nature of the doctoral journey and how existing practices can be challenged or improved.

• Activities focused on nurturing creativity in research, encouraging dialogue focused on wonder, amazement, mystery, and investigation. Activities in this area recognise both the need to articulate student voices in the development of research and the need for ‘open’ spaces for dialogue about research.

• Activities focused on open, honest dialogue around the politics of academic practice and the pragmatics of working both inside and outside of academia.

• Devising an online platform to collect vignettes of student and supervisor experiences as a way of encouraging reflection about the doctoral journey. This set of ‘reflections’ - or autoethnographic narratives of students of supervisors - will be used to stimulate dialogue between supervisors around what students ‘undergo’ as part of the doctoral journey.
Mapping ‘successful’ student attributes: A Portfolio Approach

Mapping skills development across these three fields will allow us to consider student attributes both in generic terms - a kind of ‘ideal’ type of doctoral trajectory - and to more effectively plot the idiosyncratic pathways that individuals negotiate through doctoral training and beyond. The portfolio approach outlined above would allow for the mapping of these attributes through a range of tools, including the skills development diagnostic, supervision reports, and the collection of reflective vignettes along the doctoral journey. The former may lend itself more directly to metrics that indicate the development of successful student attributes linked to practical activities (e.g., training to develop writing skills, skills for networking, or creative research skills), while the latter will provide both an audit trail for skills development and a reflective, narrative account of doctoral trajectories. This combined approach will allow us to incorporate the best practice evidenced in the Vitae approach to devising a researcher development framework (see here), alongside greater detail on the intricacies of the doctoral experience. A portfolio approach to student attributes engages in this sense with the literature on the skills agenda in Higher Education and the need to think critically about learning needs analysis and professional development profiling (see, for example, recent research published by the Society for Research in Higher Education).

Challenges

There are, of course, a range of challenges to overcome in the effective implementation of the above framework. A number of key issues were raised by academics involved in the project, as follows:

• Financial and time constraints were an important issue: many were concerned that there would not be the institutional support or infrastructure necessary to implement a more engaged, challenging (and therefore potentially more demanding and time-consuming) approach to skills development for research.

• Others raised issues of power and equity in doctoral training, and the likelihood that some supervisors would be reticent about the project of engaging fully in a relational approach to supervision that would potentially require vulnerability and/or the development of new skills and capacities.

• Some were concerned about the danger of implementing a general framework across a range of disciplinary and institutional contexts. Even with the strong focus on individual needs outlined above, there was a concern that any generic framework is prone to glossing over the particular challenges faced by individual students or supervisory teams.

• Another concern linked to the framework was the issue of institutional bureaucracy and audit culture: used incorrectly, it is possible that a system of mapping the doctoral journey could be used to surveil the work of doctoral supervisory teams and to create additional administrative work.

Moving forward, these are areas for further positive discussion and collaboration, in order to ensure that the practical application of the framework yields its intended results.
Stakeholder Engagement

It is important to emphasise that, in keeping with the principles outlined above, the development of the skills development toolkit is a recursive process. The strength of the model lies in the need to continually return to the questions posed in the TOC so that we can challenge assumptions about skills development for research. Stakeholder engagement is a key part of this process and is captured in the outputs in the Development of Collaborative Skills, which would include events focusing on collaboration and constructive critique. In this vein, the project incorporates ongoing discussion with our Mexico HEI partners alongside Honorary Advisors from a range of UK HEIs, in addition to continued discussions with experts from the British Council. A crucial part of this process of stakeholder engagement will be the inclusion of doctoral students in the discussion during the remainder of the project.

Conclusions: Outcomes and Ways Forward (Programme Outcomes and Positive Change)

Outcomes

This final section the report outlines potential outcomes from this approach to skills development for researchers, before recommending the need for further discussion around the precise nature of the activities and resources to be employed in each area of skills development. We re-emphasise that taking into consideration specific disciplinary and institutional contexts is a crucial part of developing these resources in an effective way.

The concept of the skills portfolio suggests the possibility of mapping the development of generic positive student attributes through the skills development process, but also places emphasis on mapping how outcomes emerge in specific individual narratives, to then understand how resources and activities work well or can be improved for particular groups or individuals. This involves mapping the outcomes for traditional audiences (including supervisors, administrators, etc.) but also requires a consideration of the role of less conventional audiences, including other students, families, children, partners, and so on. The intention is to link learning outcomes and action outcomes to legacy outcomes and global outcomes in this way - linking, as it were, portraits of individual doctoral experiences to the ‘bigger picture’ of skills development for researchers. Specific outcomes in terms of events and opportunities for collaboration link to outcomes related to the development and implementation of the kinds of activities/resources suggested in the Appendices. These in turn link to the legacy outcome of reconfiguring debate about doctoral training as an open space for discussion, and the global outcome of encouraging alternate conceptions of skills development as part of the doctoral journey (Barnett 2012).

Learning Outcomes (Individual & collaborative):

A key outcome of this approach to developing skills for doctoral students is raising awareness of individual needs in skills development for both supervisors and supervisees. As suggested above, this outcome is achieved through critical dialogue about the purposes of doctoral education and approaches to achieving these purposes (the intersection of intentions for doctoral training, experiences of being a doctoral student, and the reality of outcomes at the end of the doctoral journey). This is a direct outcome of implementing the skills development diagnostics, which should identify areas of prior learning and experience as well as areas of challenge/areas for development.

After framing this discussion and providing a space for critical discussion, a key individual outcome is the development of individual knowledge, skills and competencies that also map onto transferrable skills for employability. This is an outcome of developing core skills, and is achieved collaboratively as a positive outcome for both supervisor and supervisee. Less tangible, but no less important outcomes of this process (linking to best practice identified in the literature review) are: motivating engagement in Professional Development; strengthening research communities; and engaging researchers in career planning.

Action Outcomes (individual/collaborative and institutional)

In some ways the action outcomes overlap with the learning outcomes. The skills development diagnostics and process of developing core skills is linked to developing collaborative skills and developing criticality, creativity and reflexivity. Activities aimed at developing these skills lead to the outcome of affecting change in individual behaviour and collaborative approaches to skills development for doctoral students, articulated both in the changing interactions between supervisors and supervisors and in the framing of the doctoral journey at the institutional level. Longer-term, there is the potential outcome of agenda setting and change at the institutional level through the championing of critical, creative and reflexive approaches to skills development. The added value of this approach can be measured against progress mapped through the portfolio approach to skills development.

Legacy Outcomes (sustained positive change): Open Space for Dialogue

Through creating open spaces for dialogue, the overarching outcome of this approach to skills development is to positively shape individual experiences of the doctoral journey, equipping students with criticality, creativity, reflexivity as part of a core of transferrable skills for employment. The concurrent outcome of this change in the doctoral experience is to begin to shape new institutional cultures of doctoral training, facilitating the development of a nuanced portfolio of skills.
Global Outcomes:
Ultimately, the global outcome of this approach is to establish new perspectives on skills development for doctoral students. In addition to positive impacts on experiences of the doctoral journey, this will have a positive impact on the capacities and employability of doctoral graduates, and on the Mexican workforce and HE sector.

In terms of achieving core elements of the British Council 2020 Global and HE Outcomes, this approach, and continued collaboration on new approaches to doctoral training, is directed at the following goals:

- To shape, inform and influence higher education policy globally through dialogue and sharing information and best practice.
- To promote and support holistic partnerships and international collaboration through a range of global programmes to enhance capacity, capability, access and quality in higher education.
- To provide consultancy and services that support development, internationalisation, collaboration, reform and innovation in higher education.
- To promote UK sector expertise and create market opportunities and connections for UK stakeholders and institutions.
- To encourage and support a range of international scholarship and mobility programmes building connections between the UK and globally.
- To celebrate the quality, experience and benefits of UK higher education.

Ways Forward
This project has been successful in bringing together colleagues from across Mexican and UK HEIs to discuss the range of challenges and opportunities around designing innovative, dynamic programmes of skills development for research. We hope that the above framework is an effective starting point for continued discussion around the practical application of this model of doctoral training. An important area for future dialogue is the development of a toolkit of activities and resources that can map onto the three areas of skills development and which can be tailored to the specific needs of students in different disciplinary and institutional contexts. With this in mind, we recommend the following future activities going forward, all of which resonate with the theme of ‘open space for discussion’:

- **Skills Development Workshops:** It is important to continue the dialogue between academics in Mexico and the UK. A series of future workshops would allow academics to come together with the express purpose of designing a suite of critical, creative, flexible tools (activities and resources) that facilitate the practical application of the above framework.

- **Online Forum and Resource Repository:** Supervisors, managers and doctoral students alike would benefit from an online platform that encourages dialogue around skills for research development, while also providing a potential location for storing and showcasing practical tools for skills development.

- **Continued Critical Engagement and Mapping Best Practice:** It is important to recognise the excellent practice in skills development for research already taking place in Mexico. With this in mind, and in the spirit of the framework above, it will be valuable to more conclusively map best practice across a broader range of Mexican HEIs and to share this evidence with colleagues in the UK. In this way we can continue to develop a positive, engaged and genuinely reciprocal relationship of academic inquiry around the theme of skills development for research.

FINDINGS
BIBLIOGRAPHY


APPENDICES
APPENDIX A
Consultation responses

Areas of existing innovation included the following:

Institution I:

Strategies/Tools: seminars on writing thesis proposals, and on qual/quant methodology, embedded in ‘real life’ research environment, internships (mobility to other institutions), can graduate by thesis or by publication of two articles, ‘diverse tools’ to evaluate programmes (and students), ‘teaching committee’ scrutinises postgraduate provision (ongoing formative process)

Strengths:
• Innovation
• Students immersed in a research environment rather than a teaching community; research is not a ‘remote phenomenon’. Rather it is a ‘way of life, a daily practice’
• Active involvement of students in the academic life of the institution e.g. projects, week of academic exchange.

Institution II:

Strategies/Tools: generate ‘spaces of interdisciplinary interaction’ between researchers and doctoral students, national and international collective interdisciplinary research projects, explicit interdisciplinary thematic seminars (theory and methodology), PhD and postdocs participate in forums and symposia (learning from established researchers), PhDs contribute to collective research projects (learning alongside), interdisciplinary support and counselling (research ‘stays’), support for publication of research results (advice), thesis research awards (the best is chosen on theoretical and methodological grounds), skills for digital environments.

Strengths:
• ‘Research stays’
• Collective interdisciplinary projects
• Organisation of national and international academic activities

Institution III:

Strategies/Tools: student is given topic by research group, develops his or her own research proposal, review of proposal by committee, student has support of director of studies and research group, biannual progress review by the committee - student writes and reflects on progress, progress reported is included in final thesis, software and hardware e.g. 3D printers, access to databases, linking with other institutions nationally and internationally, research ‘stays’, laboratories, thesis projects presented at national innovation forums.

Strengths:
• Consolidated groups and ‘lines of research’
• Methodology to ensure student graduation
• Knowledge transfer office

Institution IV:

Strategies/Tools: methodology, thesis research follow up, competent thesis committees, field trips to meet field leaders, gathering primary and secondary data: surveys, databases, books and articles.

Strengths:
• Thesis assessors accredited via National Researchers System
• Five departments correspond to DCS areas - both quantitative and qualitative work
• Train professionals and researchers at highest academic level to interpret regional, national and international realities

Institution V:

Strategies/Tools: student mobility with other institutions, projects linked with industry, seminars and forums for discussion, field trip support, require publication in specific journals, support participation in conferences, scholarships, need to present a clear programme of work, biannual progress assessments, must be full time researchers.

Strengths:
• Good communication between students
• Laboratories and equipment
• Diversity of research areas and teachers
APPENDIX: Skills Development Diagnostics

A reflective exercise between supervisor and student to a) identify areas of prior learning; b) set short-, medium- and long-term skills objectives; c) identify activities through which skills objectives can be achieved; and d) regularly review and reflect on progress towards these objectives.

Training Needs Analysis (TNA) (Pilot 2016-2017) (Oxford University)

Instructions and guidance

For Students:
• TNA provides an opportunity to reflect on your existing expertise and skills, and to work with your supervisor to identify your training and development needs. Be honest with your self-assessment of your current skills, and make some realistic objectives for the year ahead.
• If this is the first time you’ve carried out a TNA, think about it as a baseline and reflect on all previous relevant experiences. If this is a follow-up TNA (students in years 2 and beyond) then please provide responses to questions 1-10 relating only to the previous academic year.
• In developing your training plan and objectives, have a look at the training, courses and resources offered by your department, the Social Sciences Division, the University’s Language Centre, the Careers Service, the Bodleian libraries, IT services, as well as any national and international opportunities. Information about all these can be found at [www.socsci.ox.ac.uk/training](http://www.socsci.ox.ac.uk/training).
• Arrange a meeting to share and discuss this analysis with your supervisor.
• Upload the completed TNA to the Graduate Supervision System (GSS) once discussed and agreed with your supervisor.

For Supervisor:
• Review the TNA form prior to the scheduled meeting.
• Help identify areas where the researcher could take action over the coming year to acquire and develop the skills and competencies needed to progress their research.
• Assist with selecting and prioritising concrete actions to accomplish, and suggest targets and deadlines.
• Consider training and resources available through the department, the Social Sciences Division ([www.socsci.ox.ac.uk/training](http://www.socsci.ox.ac.uk/training)), the Language Centre, the Careers Service, the Bodleian libraries and ITLP.
• Write down your comments to summarise any advice, guidance, and suggested next steps.
• Ensure the student uploads the completed TNA form to GSS following your meeting.

Name:

Department:

Funder, if applicable:

Pathway, if applicable:
(e.g. Area Studies, Migration, Politics)

Supervisor(s):

Current programme of study:

Please confirm that you have discussed your TNA with your supervisor.

Previous training and work experience

Describe any previous professional and work experience that may be relevant to your current research plans and topic of study.
1. Writing and publications:

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<th>Question</th>
<th>Answer</th>
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<td>Alongside your dissertation, what other publication and writing projects do you plan to pursue?</td>
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<td>What training or support would help you do so?</td>
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<td>What writing experience/skills have you developed? List any report writing, policy briefs, academic publishing, blogging, book reviewing, funding proposals, peer reviewing and journal editing experience.</td>
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2. Communication skills and public engagement:

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<td>What specific opportunities should you seek in order to develop your confidence and communication skills? Are there further opportunities you should seek to improve your language skills? What training might you need to do so?</td>
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<tr>
<td>To date, what opportunities have you had to develop your communication skills? How much experience do you have of oral presentations, conferences, outreach and public engagement activities? Have you participated in any language, presentation or media training or in other communication activities relevant to your research?</td>
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3. Non-academic engagement and knowledge exchange:

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<tr>
<th>Question</th>
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<tbody>
<tr>
<td>Think about ways your research could contribute to society or influence work being done outside of academia. Are there any connections you need help in brokering? What skills or training might you need?</td>
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<tr>
<td>What experience have you had of working with business, public-sector, or civil-society organisations? Have you been involved in ‘knowledge exchange’ activities (e.g. advisory work, collaborative research with non-academic partners, placements, briefings etc?) How have these strengthened your skills and/or your networks?</td>
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4. Teaching:

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<th>Question</th>
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<tr>
<td>What teaching and supervisory experience would be beneficial?</td>
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<tr>
<td>What teaching experience, if any, have you gained (e.g. tutorials, one-off courses)? Do you have a teaching accreditation or relevant experience from training or the workplace?</td>
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5. Bibliographic and computing skills:

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<th>What specific opportunities should you seek to improve your skills in this area over the year(s) ahead?</th>
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<tr>
<th>What research and technical skills have you acquired to date? Please include details, such as bibliographic tools, statistical software, as well as research and data management.</th>
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6. Training in research design and methodology:

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<tr>
<th>What research and methods training are you planning (or required to complete) over the coming year? Are there specific skills you think you will need help with, or that you would like to develop further?</th>
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<tr>
<th>What research methods skills have you acquired, either as part of a formal research training degree or in other forms? List content from your previous or current degree programme as relevant.</th>
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7. Ethics and research integrity

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<tr>
<th>What ethical and safety issues will your research raise? What skills or training might you need?</th>
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<tr>
<th>What, if any, training have you received on research ethics, research integrity and/or fieldwork risk assessments?</th>
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8. Fieldwork

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<th>What ethical and safety issues will your fieldwork raise? What skills or training might you need?</th>
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<tr>
<th>To date, have you carried out any fieldwork? Have you received training on safety in fieldwork and risk assessments?</th>
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<td>9. Funding, research leadership &amp; project planning</td>
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<td>-----------------------------------------------</td>
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<tr>
<td>What opportunities do you plan to gain in these areas during this year and throughout your DPhil? Do you have ideas for new research initiatives or collaborations? What skills or training might you need?</td>
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<tr>
<td>Have you applied for small grants, fellowships or other funding? (e.g. equipment grants, conference travel, early career fellowships)? Have you organised seminars/conferences or edited journals? Have you designed or managed projects outside of your DPhil?</td>
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<th>10. Professional and personal effectiveness</th>
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<tr>
<td>Are there areas of personal effectiveness you would like to develop? What are these and how best can you pursue this?</td>
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<tr>
<td>What do you see as your particular professional and personal strengths? (e.g. team working, managing projects/people, leadership, bridging between academia and policy/practice, communication).</td>
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</table>
And finally, your current career aspirations (if you know!)

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<tr>
<th>Where do you see yourself working in 3 to 5 years? What do you hope to achieve in your career in the long-term? What would help you to gain more clarity in your career plans? This will help your supervisor understand and support your current plans.</th>
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Other training and professional development objectives for this year

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Subject and research methods training and objectives for this year

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<th>Subject and research methods training and objectives for this year</th>
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Other comments, thoughts, concerns?

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APPENDIX B
Developing Core Skills

*Vitae* provides a range of different resources for developing core skills for researcher development. It is important to note that this report does not advocate the imposition of the Vitae framework in its entirety to other contexts where it may not be appropriate. Nor does Vitae capture completely the more critical, relational approach outlined in the report. However, Vitae does give an indication of one model among many where doctoral training activities and resources are already developed and may be used as an exemplar from which to develop new activity guides and resources.

APPENDIX C
Developing Collaborative Skills

Collaborative skills cover a wide range of different activities and capacities, from collaborative work in the context of supervision, through to presenting research to audiences, working collectively on research outputs, and developing effective networks for career progression. Developing collaborative skills also includes facilitating the work of supervisors in building constructive, critical relationships with their supervisees. The exemplars below are two among many different activities that may help supervisors to think more openly about the intricacies of the doctoral journey.

**Exemplar 1**

Modelling ‘What If?’ Scenarios for Doctoral Supervision

Modelling exercise for collaboration between supervisors. Small Groups. Approx. 60 mins

You have a series of ‘What if…’ scenarios to consider and discuss in your triads.

Please consider what you could do as a supervisor in each situation in turn. There may be more than one approach to supporting the student.

Be prepared to share your triads’ thoughts with the rest of the group.

1. Your student has repeatedly said they will send you some writing – but it is now 3 months after their initial promise. When does this become concerning?
2. You are the Director of Studies on a supervisory team. Your colleague, the second supervisor, has a new job and will be leaving the university at the end of the academic year. What happens now?
3. Your student wishes to go through ‘Transfer’ but they have only written 5,000 words reviewing (uncritically) the literature they have read so far. When does this become a worry?
4. Your student appears unable to articulate 3 key research questions. When does this really matter?
5. The ethical approval form has been completed, but there are still no research tools devised. When does this become a concern?
6. Your colleague on a supervisory team will be taking maternity leave in four months. Your colleague is the Director of Studies on the team. What does the supervisory team need to do? Is there anyone else who needs to be involved?
7. Your highly enthusiastic student is three months into their doctoral studies and raring to go with their data collection. In fact, you suspect they have already started in an ad hoc way. They have not yet registered or begun their ethics application. How might you respond to this?
8. Your student experiences a major crisis in their private life. They are hoping that this will not adversely affect their progress on their thesis. What should the supervisory team do?
Exemplar 2
Supervisor support for late-stage doctoral students
Discussion Points for supervision/small group work. Approx. 60mins

Conceptual & writing issues:
• Open by discussing time and writing: how long did doctoral students think it would take to write thesis sections, and how long did it end up taking? This can lead into an exercise in effective time modelling for writing tasks.
• Ensuring that doctoral standards of writing are consistent throughout the thesis - what strategies can we use to ensure quality right up to the end of the process? Discuss taking time (even at the final stage) to read/refer to other doctoral theses to ensure that you are hitting the right standards. This can act as re-assurance for many candidates.
• Discuss spotting danger signs: Is a student simply incapable of recognising or meeting the expected standards? If so, what to do about this: spectrum from clarifying / stern talking-to / need to seek health advice / need to suspend / etc.

Pastoral & support issues
• Discuss the final, final stages of submission. Guard against rushing and not giving the supervisors a ‘final, final draft version’ of the thesis to work/comment on with enough time to respond fully.
• Discuss getting distracted - applying for jobs, getting back to normal life, writing articles on the back of the research completed, etc. All time consuming... and prone to delaying the final thesis production.
• Discuss the examination process and the importance of realising just how long the process of examining takes - getting external and internal examiners on board, giving them time to read the thesis, fixing a mutually convenient examination date, etc.
• For the very final push before submission: Discuss the ideal conditions for completing the thesis (eg prompt: ‘my partner going on holiday for two weeks and me taking annual leave from my job and staying with my parents so I didn’t have to deal with cooking or housework!’)
• Explore the balance between honest evaluation and courtesy / sensitivity / support in the supervisory relationship - what do students think they need most?
• Discuss emotional support from friends and family and the different role of supervisors as honest, critical colleagues.

APPENDIX D
Criticality, Creativity, and Reflexivity

Exemplar 1
Reflexivity: Reflecting on Developing Academic Identity and Practice: Monthly Logs
Log or Discussion exercise. 30 mins, once a month

Discuss the following questions in small groups, reflecting on the answers in comparison with responses captured in the previous month’s session.

• If there was a significant event or experience in which you felt like an academic or that you belonged to an academic community, please tell us about it.
• Why was this event or experience important?
• What difficulties have you faced this month?
• What did you do to overcome them, and what role did your supervisor play in this?
Exemplar 2

Reflecting on Academic Practice: Card Sort Activity

A visual reflection activity requiring pictograms/cards representing different key influences on the doctoral journey (eg supervisor, funding, family, etc).

Visually mapping different people, activities and emotions related to academic life can lead to a more synthesized cumulative characterization of doctoral experiences. Since the 1950s, card-sorting activities have been used as a means of yielding data across the behavioural and social sciences, often with the intention of gathering quantifiable data about cognition or psychological responses (Harloff, 2005). In this exercise the card-sorting is instead intended as an interpretive activity that stimulates conversation and provides an alternate means for participants to imagine their academic identities. Pictogram cards are assembled on the basis of the range of experiences which participants describe - for example, domestic, academic, employment, friends/family, and leisure - and candidates organise these cards relative to their recent doctoral experience, while narrating the logic behind the way that the cards are sorted. A few cards are left blank for participants to add their own pictograms, if they feel this is appropriate. There is no need to specify how participants should organize the cards or discuss them.

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Exemplar 3

Auditing/Monitoring Supervision

Section 1 – to be completed by STUDENT prior to supervision meeting

i. Name:

ii. Director Of Studies name:

iii. Other supervisors name(s):

iv. Date/time of supervision:

v. Date of last supervision:

vi. Work undertaken since last supervisory meeting:

vii. Issues you would like to discuss at the supervision:

Section 2 - to be completed by the STUDENT/DoS and SUPERVISORS after the supervision meeting

i. Topics covered in the supervision (refer to 1 (vii) above:

ii. Comments on student’s progress since last supervision

iii. Comments on student’s performance in taught elements of the programme: modules; marks; elements to be completed.

iv. Overall rating of student’s progress:

Very Satisfactory          Satisfactory         Giving cause for concern

If ‘Giving cause for concern’ state clearly the steps the student should take to reach a level of satisfactory progress:

v. Work student should undertake between now and next supervision:

vi. Work to be submitted to DoS/supervisors before next supervision:

Vii. Areas for DoS/Supervisors to consider for their own development to support supervision:
Section 3

Date/time of next meeting:

Signatures:

Student:

DoS:

Supervisor (s):

Notes