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Canadian Association for Graduate Studies: Report of the Task Force on the Dissertation

– Purpose, content, structure, assessment

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Executive Summary

The purpose, meaning, and scope of the PhD are changing in response to profound changes in both the academy and society. University researchers are increasingly engaged with other societal sectors and across disciplinary boundaries to address contemporary challenges. Doctoral graduates are contributing to society in increasingly varied ways and contexts. To engage in these diverse forms of research and to work and communicate both within and beyond the confines of the academy, doctoral students and graduates require new competencies. As the core of the PhD, the doctoral dissertation is diversifying in its forms and content in step with these changes.

The format of a bound volume mimicking a scholarly book is being challenged to better reflect the requirements of scholarship in the 21st century, whether that occurring inside or outside the academy. Digital artefacts, creative works, and publicly-relevant documents are increasingly being embedded within dissertations that may take diverse forms. The modes of scholarship described in this final product are expanding, and include those of engagement, application, teaching, and integration, in addition to that of discovery.

As the primary national organization committed to supporting and strengthening the Canadian graduate education community, CAGS embarked on a nation-wide consultation and analysis to build on Canada's position at the forefront of thinking on this important topic. Through these activities, our aim is to develop resources and clear recommendations and strategies to ensure both quality and relevance of doctoral research and the dissertation for the 21st century.

The report offers an overview of the changes occurring in the dissertation and summarizes the consultations held with the Canadian graduate education community and other stakeholders over the past year and a half. Opinions as to the merits and the desirable parameters of the transforming dissertation ranged widely, with the majority expressing a degree of cautious excitement as the academy broadens its views of doctoral education to increase its relevance for today. We endorse this growing openness, while acknowledging the need to address the concerns of those who express skepticism. Among them is the imperative to continue to value traditional, disciplinary-based scholarship and communication.

The report concludes with a call to action for universities. The dissertation is changing, and it is crucial that our policies and practices acknowledge and facilitate this reality, so that we can fulfill our mandate to promote and ensure the highest standards of scholarly rigour. Recommendations include expanding mentorship of doctoral students, enhancing learning opportunities, broadening dissertation policies, and expanding notions of valid scholarship in universities' faculty reward systems. On a national level, there is an important role for CAGS in the provision of resources, continued advocacy, and facilitating continuing dialogue. Canada's doctoral scholars are increasingly in a position to participate in a movement toward a more socially relevant academy; we encourage them to seize this opportunity.

I: Changing Scholarship and the Evolution of the Dissertation

Context

A stream of urgent calls to reform doctoral education has emerged globally over the past three decades. Among other concerns, a prevalent sentiment has been that the academy has not kept pace with the changes occurring in society. The role and relationship of the university with society has changed, modes of research and innovation are evolving, most doctoral graduates are now employed outside academia, and the problems facing the world are increasingly complex, with solutions not largely amenable to traditional ways of thinking and working. We also know that current and potential students are often discouraged by the perceived limitations of doctoral education in helping them make meaningful change in the world. Doctoral education is seen by most to be as necessary as ever, but, for many, it is insufficiently oriented to meeting 21st century needs.

In response, dozens of national and international reports have recommended a broadening of doctoral education, with specific appeals including:

- increased opportunities for interdisciplinary education and research
- provision of training in professional skills
- increased experiential learning, research, and engagement opportunities outside academia
- affirmation of extra-academic career paths and provision of more career information
- increased opportunities for teamwork
- broadened possibilities for doctoral research and the dissertation
- movement beyond the sole master-apprentice paradigm

Universities and granting councils responded to many of these recommendations, and most universities now offer interdisciplinary programs, professional and career development opportunities, and research experience in environments outside the university.

Previous recommendations related to doctoral research and dissertations

Produce scholar-citizens who see their special training connected more closely to the needs of society and the global economy.
Re-envisioning the PhD
(Nyquist & Woodford, 2000)

Break the dissertation mold and find forms better matched to the functions of scholarly life in diverse professional settings
Carnegie Initiative on the Doctorate
(Walker et al, 2008)

Replace the PhD dissertation with a coherent ensemble of scholarly projects.
White Paper on the Future of the Humanities
(IPLAI, 2013)

Expand the spectrum of forms the dissertation may take and ensure that students receive mentoring from professionals beyond the department as appropriate.
MLA Task Force Report
(MLA, 2014)

The dissertation needs to be subjected to 'backward design' from the actual anticipated needs of the student, the workplace, and society.
The Future of the Dissertation Workshop
(Council of Graduate Schools, 2016)

Faculty and graduate programs should periodically review and modify…dissertation requirements…to ensure timeliness and alignment with the ways relevant work is conducted…
Graduate STEM Education for the 21st C.
(NASEM, 2018)

Some would argue that these additional opportunities provide the breadth of learning needed for the changing world, and that the form, content, and purpose of the dissertation as it is traditionally conceived is serving doctoral students (and society) well. Others see value in these 'add-ons', but also envision more integrated and profound opportunities to deepen and evaluate doctoral learning by rethinking the core of the doctoral experience itself (see highlights from several key reports, above).

The current curricula that focus on discrete skills are generally not designed to promote deep learning of alternative scholarly approaches, broadened perspectives, or the significant development of capability (defined here as a higher order ability to adapt effectively and creatively to different contexts or approaches[1]). Although experiential learning opportunities have more of an impact in this domain, students' learning, scholarship and performance are not usually evaluated, nor are the experiences usually embedded within a learning framework.

These opportunities are also typically dissociated from the dissertation and the students' deepest learning, which doesn't promote the formation of meaningful connections or enriched dissertation scholarship. They are not considered valuable enough to be required, or to even count toward the degree credential. The dissertation is often the only work formally evaluated, and, along with a successful defense, is often the sole criterion for the granting of the degree. If the forms of research and communication in the world are changing, why would the academy not only refrain from encouraging, but actually prohibit, dissertations that more closely align with those forms?

Changes in the dissertation and mentoring paradigm are the most radical of the approaches to broadening the degree, and the slowest to take root in the academy. Nevertheless, change is happening, and it is increasingly common to see dissertations that are 'breaking the mold' of traditional formats and content, and that represent work extending beyond that mentored solely by the faculty supervisor. The University of British Columbia, for example, through its Public Scholars Initiative[2] and other means, has been implementing the concept of broadened dissertations for several years, with positive outcomes and very encouraging feedback from students, faculty, external partners, and dissertation examiners.

The case for broadened dissertations

1. **The nature of the world's problems are changing**. Today's and tomorrow's scholars are tackling some of the most complex problems our world has faced. Most are not amenable to solutions that rely on one discipline, perspective, approach, or body. Our best scholars need habits of mind that are flexible, creative, and able to connect and transcend different ways of knowing and doing.

2. **Modes of scholarship and knowledge production are changing**. In 1990, the influential American educator Ernest Boyer argued eloquently for a 'more capacious' understanding of scholarship for the professoriate as essential to the continued vitality of the academy.[3] In addition to traditional 'discovery' research, he said, valued forms of scholarship should include those focused on forging

I argue that scholarship segregated is scholarship impoverished. I mean segregated from other disciplines, segregated from different sectors of employment, segregated by gender, segregated by culture, segregated by age, everything.

– George Walker, Director, Carnegie Initiative on the Doctorate (Walker, 2012)

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[1] Stephenson & Weil (1992)
[2] Peker et al (2017); https://www.grad.ubc.ca/psi
[3] Boyer (1990)

connections across perspectives and disciplines, on productively bridging theory and practice, and on teaching the next generation of scholars. This is in alignment to some extent with the continuous erosion we are seeing of the boundaries between the academy and the state, industry, culture, and the non-profit sector. Knowledge production and mobilization have been moving since the mid-20th century from a model that is largely linear and discipline-based, to ones that are more often problem-based, transdisciplinary, multisectoral, and iterative.[4] Knowledge generated from these latter modes is often more useful, relevant, nuanced, and accurate than that gained in isolation. Descriptions of some of the more recently-developed forms or terms of research are provided in the Appendix.

3. **Modes of innovation are changing**. Parallel to the changing modes of knowledge production, the linear mode of innovation (from basic research to public or private sector application to marketplace diffusion) is being surpassed by more open and interactive forms that engage diverse actors in non-linear processes. All forms of innovation (technical, social, other) require a breadth of understanding of the contexts, processes, and approaches to implementing knowledge.

4. **Forms of scholarly communication are changing.**
Communication forms outside the academy have always been diverse, but even within the academy, scholarly communication modes are expanding and transforming across all disciplines. Sales of scholarly monographs are in continual decline, journal publications are rising, informal avenues (e.g. social media and direct web publishing) are increasingly prevalent, and non-textual formats, such as video and multi-media, are common. Driving much of this change is a growing belief that alternative forms of expression can elicit more nuanced understandings of complex topics, and an increased interest in engaging potential audiences beyond the academy.

> *In the Humanities especially, dissertations have come to play a dual role, both as a credentialing device and as a book's first draft. This is a dangerous pairing in the current publishing climate.*
>
> - Greg Britton, Editorial Director, Johns Hopkins University Press (Britton, 2016)

The dissertation is meant to prepare students for scholarly habits of mind. The rhetorical flexibility required for today's and tomorrow's scholars, however, is not encouraged by the exclusive reliance on the monograph mode of dissertation, which can be 'single in focus, single in method, single in genre, single in purpose, single in medium, single in mode, single in authorship, single in readership'[5].

In some disciplines, pragmatic and even ethical concerns have also been raised around the concept of a dissertation as proto-book. With the decline in monograph publishing, it can be extremely difficult to publish a re-worked dissertation, and the re-working involved is often substantial and market-driven.[6] We need to question whether the historical rationale for this dissertation form continues to be valid in today's context.

5. **There is an invigorated student-centered focus in graduate education**. The flood of reports and initiatives over the past several decades have been directed at perceived deficiencies in the educational environment of graduate students (e.g., long times to degree, high attrition, under-representation of demographic groups, variable supervision quality), signaling a gradual shift in perspective from one viewing students as contributors to the research enterprise, towards a more student-centered approach

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[4] See, for example, Etzkowitz & Leydesdorff (2000); Nowotny et al (2001); Ziman (2000)
[5] Paré (2017)
[6] Britton (2016)

that views students more as learners, with individual strengths, needs, and purposes for undertaking doctoral study.

[The Responsive PhD committee] learned how greatly students and many faculty long for a more generous concept of their disciplines, one that will make learning less insular to the academy.

  - The Responsive PhD (Woodrow Wilson, 2005)

Freeing the format of the dissertation itself seems a pivotal part of freeing scholarship to be more inclusive and connected to the real world. - Canadian PhD student

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6. **Students are motivated to make a positive difference with their research.** While most doctoral students appreciate the long-term value of new knowledge for its own sake, research has suggested that many are strongly motivated to make more tangible connections with and contributions to society and/or to students through their scholarship.[7] We also know that many are frustrated with the narrowness of their experience, and don't see a fulfilling future ahead of them. Many of these students withdraw from their programs.[8] As doctoral research and the dissertation broadens and diversifies, it is also likely that we will see a greater diversity of individuals applying for doctoral study.

7. Doctoral graduates are not always well-prepared for research and other careers outside the academy. The careers of doctorate holders span every sector of society, involving research, teaching, management, communication, policy development, entrepreneurship, consulting, and more. Most graduates will have multiple careers. These graduates are 'scholars' in the broadest sense, using their intellectual skills and learning to create, apply, and communicate knowledge.

Employers (and to some extent, graduates themselves) have fairly consistently noted that although graduates have much to offer in the workforce, they frequently lack an adaptability to extra-academic environments, are too specialized, theoretical and/or technically-minded, and that they lack communication and teamwork skills.[9]

[S]peakers from outside of academia noted their need for graduates who have broad literacy across STEM fields and the humanities to enable the convergent, interdisciplinary, and team-based research that is needed to solve increasingly complex research problems.

  - National Academies of Science, Engineering and Medicine (NASEM, 2018)

8. **Changes in the dissertation are happening.** As scholarly approaches broaden and the conversation about the dissertation gains momentum, students are pushing the boundaries of dissertation forms and content. Knowledge mobilization work and related artefacts are being embedded in otherwise traditional dissertations, scholarly expression through creative products is not uncommon, and there are examples of dissertations composed wholly or primarily in non-traditional forms, e.g., as a website, graphic novel, or in the Indigenous oral tradition. Interdisciplinary, collaborative dissertations (which involve a common core for multiple students) are appearing. Assessing and ensuring the quality of these expanded genres and scholarly approaches can be challenging for many in academia for whom these are new.

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[7] Cherwitz et al (2003); Jaeger et al (2014); Phelps (2013); Walker et al. (2008)
[8] Lovitts (2001)
[9] See, for example, EURAXIND (2016); NASEM (2018); Wilson (2012)

What changes are being talked about?

Throughout its recent history, and reflected in almost all current guidelines and policies, the dissertation has been meant to communicate an *original and significant contribution to new knowledge*. These core criteria are not being challenged. Rather, the broadening being discussed and implemented relates to movement beyond the traditional disciplinary norms in research approaches and communication, and in some cases, to modes of scholarship and communication more frequently found outside the academy. Sample dissertations exemplifying these attributes are described in the task force's consultation document.[10]

While the dissertation of today is still most frequently a text…'today' is turning into 'tomorrow' before our eyes…[A] slow, but increasing number of culminating projects are created in non-textual formats…and expectations about the potential audiences and uses of dissertations have grown to encompass a far vaster scope of people and situations.

– Lisa Schiff, Publishing Technical Lead, California Digital Library, University of California (Schiff, 2016)

Changes to form

The traditional dissertation is a single monograph, developing one theme or thesis over a series of chapters, often including an introduction, a literature review, a discussion of methodology, and then presentation of findings and a conclusion. In some disciplines, this traditional form has already been largely or wholly replaced by the **manuscript thesis** (also known as the article thesis or the sandwich thesis), which includes two to three stand-alone articles that have been published or are ready for submission; the author adds an introduction and conclusion linking together the articles. In creative writing and other disciplines focused on creative practice, the dissertation can be comprised of a **novel** or other **creative work** such as a composition or artwork, accompanied by a scholarly critical analysis (exegesis). The digital revolution has made it possible to include a multitude of creative components with a thesis, including video, audio recordings, websites and other digital content.

Pushing these boundaries further, students have presented scholarly findings in **creative forms**. A pathbreaking example of this is Nick Sousanis's award-winning *Unflattening*, an EdD dissertation presented entirely in graphic novel form.[11]

The **portfolio** dissertation has its origins in professional doctorates, and offers a means by which students in these programs can demonstrate and reflect on a body of professional work (such as in architecture or business). Some PhD programs have become open to the model. The PhD in Gender Studies at Queen's University, for example, allows for a portfolio dissertation that 'consists of multiple components of scholarship based in analytical writing, applied writing, and/or research creation (to be determined by the student and dissertation committee) and presented alongside introductory and concluding writing.'[12]

Changes to scholarship

The distinction between changing the form of the dissertation and changing the scholarship presented in it is fluid. Dissertations that challenge the boundaries of traditional scholarship often require different formats to reflect the character of the scholarship they represent.

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[10] Canadian Association for Graduate Studies (2016)
[11] De Santis (2012)
[12] http://www.queensu.ca/gnds/graduate/phd-program-study

While there are many ways in which scholarship is evolving, with implications for doctoral research, a common thread is an erosion of the boundary between the locus of scholarship and its object of study. Traditional scholarship, whether in STEM or Humanities and Social Sciences disciplines, has been grounded in a notion of the academy that is set apart from the communities it studies and serves. Newer scholarly approaches create knowledge in the context of application, and multiple sectors and actors engage in iterative processes involving diverse perspectives and ways of knowing.

Indigenous research is an example of a conscious effort to change the modes of scholarship. Reviewing Indigenous research methodologies, Drawson and colleagues conclude that there are three common components of Indigenous research methods:

a. *Contextual reflection, in that researchers must situate themselves and the Indigenous Peoples with whom they are collaborating in the research process;*
b. *Inclusion of Indigenous Peoples in the research process in a way that is respectful and reciprocal as well as decolonizing and preserves self-determination.*
c. *Prioritization of Indigenous ways of knowing[13]*

Like Indigenous research, community-engaged research sees community members or community organizations as research partners rather than research subjects. In both cases, this affects the substance of the research, as well as the ways in which it is communicated and the audiences for whom it is intended. A greater emphasis is placed on appropriate ways of communicating research beyond the dissertation committee, given an expectation for communication of results to research partners.

Research that focuses wholly or in part on implementation also departs from the traditional dissertation in both form and substance. Although many dissertations devote a few pages to discussion of possible implications for practice and research, a dissertation that focuses substantively on implementation includes pertinent elements that need to be judged on their merit. These might include a detailed implementation plan, a business plan for an entrepreneurial initiative, or a policy paper, as suggested in the White Paper on the Future of the PhD in the Humanities.[14] When these components comprise part of the research itself, they require careful evaluation by expert examiners, broadening the task of the examination committee.

Other dissertations diverge from disciplinary norms in other ways. For example, a student at the University of Birmingham developed a community-engaged dissertation in Classics, Ancient History and Archeology.[15] The student worked with the Shakespeare Birthplace Trust to ask how practitioners involved in selecting, digitizing and using Shakespeare-related artefacts interacted with the artefacts. Practical implications were explored. Another example is a Computer Science dissertation at Virginia Tech, which described the design, construction, and validation of a physical model of a polypeptide chain.[16] One chapter tested how well it served as an instructional tool in a science museum. A teaching video was included.

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[13] Drawson et al (2017)
[14] Institute for the Public Life of Arts and Humanities, McGill University (2013)
[15] Hopes (2014)
[16] Chakraborty (2014*)*

II: Perspectives from the Academy

To better understand the conversations taking place in Canada, CAGS undertook and encouraged consultations across the country, designed to collect perspectives from students, faculty members and academic leaders, and to gauge the enthusiasm for and concerns over changes to the dissertation. Ultimately, the goal was to gather wisdom on how we can ensure scholarly quality and rigour in this already changing landscape.

To help frame and guide the conversation, a consultation document (green paper)[17] was produced by the task force and circulated broadly by CAGS in August, 2016. Deans and faculty were encouraged to hold discussion sessions within their institutions or disciplinary communities, and summaries of the discussions were forwarded to the task force. More than a dozen sessions were held across at least seven provinces, ranging from small groups in single graduate programs, to more formal institution-level workshops and discipline-based meetings. These were in addition to numerous discussions held prior to the task force's work.

The dissertation and the PhD

A common thread in most of the consultation sessions was an expressed need to ground the conversation in a common understanding of the core learning objectives of the PhD, situating the dissertation in that context. It was acknowledged that a PhD program is more than completion of the dissertation, and indeed, concurrent conversations on the comprehensive exam were also taking place, as were broader conversations on professional development and work-integrated learning opportunities. The dissertation was seen, though, as the defining element of the PhD, and its completion entails the deepest learning. Common expressions of the role of the dissertation included:

- Demonstrating thorough knowledge of an area of study
- Demonstrating rigour and methodological appropriateness
- Demonstrating ability to conduct independent research
- Making an original contribution to knowledge
- Including content that is suitable for publication in peer-reviewed venues

Most of these are reflected in the criteria outlined for dissertations on university websites (e.g., McGill, Dalhousie, Montréal, Alberta, Manitoba).

These conversations also referred to the centrality of the rigourous and scholarly dissertation to the value of the PhD as a credential. Above all else, participants were concerned to ensure that the rigour of the PhD not be reduced. At some consultations, the rise of the professional doctorate (such as the Doctor of Education, or Doctor of Business Administration) was noted, with some suggesting that research with a more practical or applied orientation might be better reflected in these degrees.

The content of the dissertation

There was invariably a rich, wide-ranging, and engaging exchange when the conversations moved to the core question of content. What form of research can or should a dissertation describe? Ultimately, the question usually boiled down to, 'Are approaches or forms of scholarship not traditionally associated with a particular discipline acceptable for a PhD in that discipline?' That is, is a pedagogical research question appropriate for (at least part of) a science dissertation; is action research acceptable in English, and so on. Opinions ranged from 'no, it's not legitimate scholarship' to 'it depends, perhaps', to 'yes, in

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[17] CAGS (2016)

fact it's essential'. Those with expertise in or commitment to interdisciplinary or more applied forms of research tended to fall on the more liberal end of the spectrum. We also found much more enthusiasm for change among students than with faculty.

It was clear that for many, this was a relatively new question. Some expressed concern about the potential for collapses in disciplinary traditions and boundaries, and felt that broadening scholarly approaches would further erode disciplines that are already under siege. Others placed a high value on breadth, and welcomed the lowering of human-made barriers to scholarly inquiry; some spoke of our current ways of knowing and communicating as 'privileged', and saw an ethical imperative in supporting more flexibility.

There were no uniform definitions of 'scholarship', or 'new knowledge', and many struggled to define them at all. In the sciences, for example, new knowledge was said to be usually defined as 'something about nature we didn't know before', but that it might also be new methodologies, new ways of thinking, new ways of applying what one knows, etc. A common sentiment about these questions was that 'you know it when you see it'.

I don't know…there is still a need for deep, rich, inquiry in the discipline. – faculty member

Every student should do [non-traditional scholarship]. – faculty member

When you think about the certification of the degree I'm thinking that we want to certify someone as having demonstrated the ability to create validated knowledge within their discipline. – faculty member

What defines scholarly work? Can someone clarify that? – PhD student

A unifying topic is important but it can be a sub-set of the theme of the work... I think our philosophy has softened to what constitutes a unified topic as the sandwich thesis has grown in popularity. - faculty member

My reason [for a unified topic] is pragmatic – it's necessary for a monograph and an academic job. - faculty member

The onus should be on the student to link the elements thematically. - faculty member

There was some discussion whether the traditional criterion of thematic cohesion was essential. In some disciplines, and/or individual examples in the disciplines, not all chapters or components are necessarily tightly linked thematically; in others, a single, overarching 'story' is considered critical. For those who felt cohesion was important, they felt it enabled depth, and/or was needed if a book was to be published from the work. Others didn't feel strongly that it was needed, but most agreed that there was pedagogical value in the students themselves making the connection between what might be somewhat disparate parts.

The form of the dissertation

It was evident that the form of the dissertation has evolved substantially in recent decades in many disciplines. The manuscript-based thesis has become the norm for some disciplines, and has gained considerable acceptance in others. Creative works accompanied by a critical analysis (or exegesis) are accepted in several disciplines (notably Creative Writing, Fine Arts and Music), and may show a path forward for technically-oriented disciplines in which a core component of the research involves an app or other invention created as part of the research process. A long list of possible scholarly products that could be integral to the dissertation emerged from the consultation:

- Written elements intended for non-academic audiences, including reports, policy papers, op-eds, museum curation material
- Other elements intended for non-academic audiences, including gigamaps, YouTube Videos, or descriptions of knowledge mobilization activities
- Oral histories
- Creative works, including performances, exhibitions, installations, murals, festivals, interactive digital works
- New curricula, teaching modules, or undergraduate course designs
- Blueprints or site designs
- Business plans
- Code

While some viewed products such as policy papers as appropriate material for an appendix (and therefore not assessed or necessarily commented on), others saw value in their integration as significant artefacts that merit the student's scholarly contextualization and analysis, and the examiners' assessment. There was little appetite expressed for allowing dissertations without some traditionally-structured, written critical analysis. One suggestion that had moderate support at the institutions where it was discussed was for a portfolio-style thesis that could include a compilation of products relating to the research project.

Benefits, concerns, risks and barriers

Among participants in various consultations, there was a shared sense of excitement regarding the potential for greater innovation surrounding the dissertation. Often, this took the form of telling stories of innovative or non-traditional research and dissertations already in preparation or successfully defended. Cross-disciplinary learning occurred at the consultations as colleagues became aware of how innovations had evolved and were evaluated in different disciplines.

In my discipline, applying the work gives you a deeper understanding of the concepts. – PhD student

You're not going to get buy-in from the sciences if depth is sacrificed. - faculty member

The thesis remains an archaic and insurmountable hurdle to progress…My field is often held back by narrow ontologies but we are rarely taught to discuss them, let alone engage and interact with them. – PhD student

Academia is contradictory in practice – we mandate 'specialized' but then are looking for individuals with broad skill sets who can adapt to multiple situations. – faculty member

Among the potential benefits identified were:

- **Intellectual gains**. Expanding the ways of thinking and communicating in the dissertation allows for enhanced creativity, transdisciplinary expertise, intellectual versatility, adaptability, and breadth of understanding in students.
- **Greater impact of research findings**. Whether through broader communication of findings or more immediate practical implementation, a broadened dissertation was seen to increase the likelihood that students' research will be impactful within and beyond the academy. Some felt that the ability to publicly engage should be an essential (and evaluated) objective of any PhD degree.
- **Better preparation for careers inside and outside the academy.** The growing changes reflect enhanced relevance to the work of the scholar outside the academy as well as to the changing environments and missions of today's research universities. Many saw that broadened

dissertations could promote and evaluate the abilities of students to collaborate, to communicate with diverse stakeholders, and to validate and effectively mobilize knowledge.

- **Better ability to tackle complex challenges**. All the above potential gains were seen to lead to graduates with expanded capacity to tackle complex challenges, both large and small.
- **Alignment with the motivations of many students**. Students repeatedly expressed a deep desire to make a positive difference with their research, and we know that the often narrow parameters of academic questions and approaches can deter outstanding individuals from attempting or completing a PhD. It was felt that expanded conceptions of the dissertation could empower students to satisfy these aspirations and to enrich their identities as scholars.

Numerous concerns about the evolving dissertation were also raised, including the potential for:

- **Reduced rigour***:* Across the various institutions, a common refrain was the need to ensure that we not 'dumb down' the PhD, and there was no appetite for altering the core learning objectives of the PhD. The academy is deeply committed to ensuring that the PhD represents a student's ability to make an independent and valuable contribution to knowledge in their field.

  For us right now it's the structure of the final defence [with external examiners having a veto] that is keeping us from exploring alternative scholarship.
  – faculty member

- **Reduced depth.** There was (and arguably always has been) a tension between the values of deep inquiry into a comparatively narrow question, and a breadth of exploration encompassing diverse areas and ways of knowing. Expanding modes of scholarship raised concerns about sacrificing depth for the sake of breadth (if we aren't to lengthen the dissertation and the time to degree), although some argued that the enrichment breadth brought to students was intellectually 'deep'.

  I'm worried that academic employers wouldn't value alternative format dissertations.
  – faculty member

  There is inevitably some fallout with early adoption; there will be people who don't get academic jobs – that's not a reason not to do something.
  – faculty member

- **Risk to students***:* Across the consultations, there were expressions of caution and concern, as it was seen as students who bear the risk associated with innovation. The first risk identified was failure of the thesis: examiners who are skeptical of or even unfamiliar with non-traditional dissertation forms might vote to fail the student. This conversation was often couched in discussions of ways of explicitly articulating norms and expectations, and communicating them to examiners (particularly external examiners) in advance of the evaluation of the thesis.

  It's difficult for us to figure out the edges of appropriate dissertation material – sometimes it's our own ego getting in the way, and fear about defending something new.
  – faculty member

  A second risk identified was to limit the future prospects of students: for the student who is pursuing an academic career, does a non-traditional dissertation provide adequate positioning? Does pursuit of a non-traditional dissertation create two 'streams' of the PhD: one intended to train future professors, and the other to prepare students for non-traditional careers?

- **Decreased faculty productivity***:* For those disciplines that depend on student labour for their research programs (often involving the investment of grant funds in students) does the time the

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student spends research or writing on subjects beyond the supervisor's research program take away from the productivity of the research team?

- **Inadequate mentorship and evaluation of non-traditional scholarship**: Faculty expressed discomfort in being responsible for mentoring and evaluating scholarship with which they are unfamiliar. Given that there is often disagreement even within a narrow field about definitions of quality, how will they ensure quality for research outside that field?

The way forward

The sense from most of the consultations was generally positive: change is occurring, and should be encouraged. As norms evolve, though, it is going to be important for each institution or program to articulate standards against which the dissertation should be evaluated in order to protect the rigour and prestige of the degree.

In moving forward, consultations suggested the following roles:

Graduate programs/disciplines: should determine the parameters and standards for assessment for dissertations in their field, and should articulate them where possible.

Graduate schools: should ensure that their rules are sufficiently flexible to allow for innovation (such as in supervisory or examination committee membership and in diversity of components and media in the dissertation); should develop resources to assist faculty and students in academic assessment; should guard the rigour of the examination; should communicate norms to examiners, particularly external examiners; should inform supervisors and students of the possibilities for innovation by profiling innovative dissertations; should encourage innovation through programs that support students to expand their approach to scholarship.

The report, the examples will be strategically important for students to convince their supervisors [to allow broadened dissertations].

– PhD student

Universities/ Senates: should ensure policies that permit innovation; should ensure that criteria for faculty merit assignments, including tenure and promotion, place value on scholarship that reaches and impacts broader stakeholders in society.

III: Recommendations

Based on the research undertaken for this project and the perspectives heard in our consultations, we make the following recommendations for scholars, graduate programs, schools of graduate studies, and universities. They are intended to help provide a framework for continued evolution of the dissertation as well as to address the potential concerns expressed by many who bear the responsibility for ensuring rigour and relevance of the doctoral degree.

1. Graduate programs and faculty are encouraged to broaden the conception of the dissertation. In the words of the CGS Future of the Dissertation workshop summary, there should be a move toward a perspective based on the 'actual anticipated needs of the student, the workplace, and society'.
2. As appropriate, supervisory and/or examining committees should be open to individuals from outside the academy. In some instances, this relationship is essential.
3. Especially for disciplines where there are limited opportunities to engage with collaborators outside the academy, programs and faculty should consider the possibility of allowing,

encouraging, or even requiring one dissertation chapter that differs from the remainder in terms of focus, research approach, scholarly products, discipline, or collaborators.

4. As appropriate, there should be some institutional learning support for broadened forms of scholarship.
5. Graduate schools are encouraged to broaden dissertation and supervision policies as necessary, and to provide resources for evaluation, examples of dissertations, and other support as needed.
6. CAGS should create a repository of resources on the subject and further discussion opportunities (this is already underway - https://cags.ca/rethinkingphd/).
7. Universities, disciplinary groups, and scholarly societies should continue the discussion on the purposes, structure, and content of the dissertation. Tensions inherent in what is a paradigm shift in many disciplines should be confronted.
8. Universities should ensure faculty reward systems value excellence in non-traditional scholarship.
9. Universities should be encouraged to hire faculty with diverse experience and creative, broad perspectives on research and the role of the university in society.
10. The academy should continue to value and pursue discipline-based, fundamental research, while also valuing and supporting more diverse modes of knowledge creation and mobilization.

What is required now is to demonstrate true courage - acting in the face of uncertainty or, as Meg Wheatley puts it, willingness to 'disturb our universe'. I have learned that all groups of stakeholders have amazing talent and capacity to do this…We need to trust ourselves, to rely on our personal and collective resilience to experiment and to learn and experiment again.

- The PhD: A Tapestry of Change for the 21st Century (Nyquist, 2002)

IV: Conclusions

Throughout its recent history, and reflected in almost all current guidelines and policies, the dissertation has been meant to communicate an *original and significant contribution to new knowledge*. There is strong support for this continued purpose. The more difficult questions, however, are to what extent the academy is willing to reconsider 1) the meanings of 'original' and 'new knowledge' within disciplines, 2) the legitimacy of ways in which this new knowledge is created, and 3) the forms in which this contribution is communicated. Although no consensus was reached in our deliberations, nor was one expected, there was widespread interest - and some excitement - in reflecting about these, and more broadly, about the purpose of the dissertation and doctoral education generally.

The task force strongly affirms the growing consensus articulated through numerous projects on the future of the doctoral education: that the academy must ensure its focus is student-centered and responsive to the needs of the 21st century. This will involve continuous, and sometimes difficult and perhaps risky, change, involving all those committed to nurturing the next generation of scholars. Continuing conversation, experimentation, and deployment of these ideas are crucial to the future of the academy and of society.

V: Bibliography & Further Reading

Andrews, R., Borg, E., Davis, S.B., Domingo, M. and England, J. (Eds) (2012) *The SAGE Handbook of digital dissertations and theses*. SAGE Publications.

Bartha, M. and Burgett, B. (2014) Why public scholarship matters for graduate education. *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition and Culture* 15 (1): 31-43

Bayazit, N. (2004) Investigating Design: A Review of Forty Years of Design Research. *Design Issues* 20:16-29

Bosque-Pérez, N. et al. (2016). A pedagogical model for team-based, problem-focused interdisciplinary doctoral education, *BioScience, 66,* 477-488.

Boyer, E.L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton: Carnegie Foundation for the Advancement of Teaching.

Britton, G. (2016) Bonfire of the Humanities. *Proceedings of the Future of the Dissertation Workshop*, *Council of Graduate of Schools.* http://cgsnet.org/ckfinder/userfiles/files/1_2%20Britton.pdf

Brodin, E. M., and Frick, L. (2011). Conceptualizing and encouraging critical creativity in doctoral education. *International Journal for Researcher Development*, *2*(2), 133-151.

Bywood, P.T., Lunnay, B. & Roche, A. M. (2008). Effective dissemination: A systematic review of implementation strategies for the AOD field. National Centre for Education and Training on Addiction, Adelaide.

Canadian Association for Graduate Studies (2016) The doctoral dissertation – purpose, content, structure, assessment. Consultation document. https://cags.ca/wp-content/uploads/2018/09/The-dissertation-consultation-document-FINAL-ENG2.pdf

Candy, L. (2006) *Practice-based Research:A Guide*. Sydney: Creativity and Cognition Studios, University of Technology.

Carpenter D, Nieva V, Albaghal T, et al. (2005) Development of a Planning Tool to Guide Research Dissemination. In: Henriksen K, Battles JB, Marks ES, et al., (Eds.). *Advances in Patient Safety: From Research to Implementation* (Volume 4: Programs, Tools, and Products). pp. 83-91. Rockville (MD): Agency for Healthcare Research and Quality (US)

Chakraborty, P.D. (2014*) A Computational Framework for Interacting with Physical Molecular Models of the Polypeptide Chain*. (Doctoral dissertation, Virginia Polytechnic Institute and State University) https://vtechworks.lib.vt.edu/handle/10919/47932

Cherwitz, R, Rodriguez, S and Sievers, J. (2003) Ethical commitments, professional visions, and intellectual choices: students call for changes in graduate education. *CGS Communicator* 36:1-2

Council of Graduate Schools (2005). *The Doctor of Philosophy Degree: A Policy Statement*

Council of Graduate Schools (2016) Imagining the dissertation's many futures. *GradEdge* 5:1-3

De Santis, N (2012) This dissertation will be comic. *The Chronicle of Higher Education*, 1 April

Diamond, RM (2002) Defining Scholarship for the Twenty-First Century. *New Directions for Teaching and Learning* 90:73-79.

Drawson AS, Toombs E, Mushquash CJ (2017). Indigenous Research Methods: A Systematic Review. *The International Indigenous Policy Journal* 8(2). https://ir.lib.uwo.ca/iipj/vol8/iss2/5

Ellison, J and Eatman, TK. (2008) *Scholarship in Public: Knowledge Creation and Tenure Policy in the Engaged University*. Syracuse, NY: Imagining America.
https://ccrec.ucsc.edu/sites/default/files/tti_final.pdf

Epstein, I. (2001) Using available clinical information in practice-based research: mining for silver while dreaming of gold. In I. Epstein and S. Blumenfield (eds) *Clinical Data-Mining in Practice-Based Research: Social work in hospital settings*. pp. 15-32. Binghamton NY: Haworth Press.

Etzkowitz, H. and Leydesforff, L. (2000) The dynamics of innovation: from National Systems and ''Mode 2'' to a Triple Helix of university–industry–government relations. *Research Policy* 29:109–123.

EURAXIND (2016) *Literature review of employers' needs in enhancing intersectoral mobility*.
https://www.vitae.ac.uk/vitae-publications/reports/euraxind-literature-review-of-employers-needs-in-enhancing-intersectoral-mobility.pdf

Gilvin, A., Roberts G.M. and Martin, C. (Eds) (2012) *Collaborative futures: Critical reflections on publicly active graduate education*. The Graduate School Press of Syracuse University: Syracuse.

Glassick, Charles E., Huber, M.T. and Maeroff, H.I. (1997) *Scholarship Assessed: Evaluation of the Professoriate*. San Francisco, CA, Jossey-Bass and The Carnegie Foundation for the Advancement of Teaching.

Gould, J. (2016) What's the point of the PhD thesis? *Nature* 535: 26-28.

Hedberg II, R.C. et al. (2017). Preparing geographers for interdisciplinary research: Graduate training at the interface of the natural and social sciences, *The Professional Geographer, 69*(1), 107-116.

Higher Education Commission. (2012). *Postgraduate education: An independent inquiry (the Spittle report)*. London, UK: Policy Connect.

Holliman, R. and Holti, R. (2014) *Defining Engaged Research at the OU.* The Open University.
http://www.open.ac.uk/blogs/per/wp-content/uploads/2015/04/RC-2014-02-12-Engaged-Research.pdf

Honan, E. and Bright, D. (2016) Writing a thesis differently. *International Journal of Qualitative Studies in Education*, 29(5):731-743

Hutchinson, M. (2011) Outside the margins: Promotion and tenure with a public scholarship platform. *J. Public Scholarship in Higher Education* 1:133-151

Hopes D (2014) *Being Objective: Communities of Practice and the Use of Cultural Artefacts in Digital Learning Environments*. (Doctoral dissertation, University of Birmingham).
http://etheses.bham.ac.uk/5344/1/Hopes14PhD.pdf

Institute for the Public Life of Arts and Humanities, McGill University (2013) *White paper on the future of the PhD in the humanities.* Montreal: McGill University. http://iplai.ca/wp-content/uploads/2015/04/white_paper_on_the_future_of_the_phd_in_the_humanities_dec_2013_1.pdf

Jacobs, D. T (2008). *The authentic dissertation: Alternative ways of knowing, research and representation.* London: New York: Routledge.

Jackson, D. (2013). Completing a PhD by publication: a review of Australian policy and implications for practice. *Higher Education Research & Development*, *32*(3), 355-368.

Jaeger, AJ, Tuchmayer, JB, and Morin, S (2014) The engaged dissertation: exploring trends in doctoral student research. *J. Higher Educ. Outreach and Engagement,* 18:71-96

Kemp, D.A. (1999). *New knowledge, new opportunities: A discussion paper on higher education research training.* Canberra: Commonwealth of Australia.

Lewin, K. (1946) Action research and minority problems. *J Social Issues* 2(4): 34-46.

Lovitts BE (2001*). Leaving the ivory tower: The causes and consequences of departure from doctoral study.* Lanham, MD: Rowman & Littlefield.

Maxwell, T.W. and Kupczyk-Romanczuk, G. (2009). Producing the professional doctorate: the portfolio as a legitimate alternative to the dissertation. *Innovations in Education and Teaching International*, 46(2) 135-145.

McGaghie, W.C. (2015) Varieties of integrative scholarship: Why rules of evidence, criteria, and standards matter. *Academic Medicine* 90(3):294-302.

Modern Language Association of America. (2014). *Report of the MLA task force on doctoral study in modern language and literature.*
https://www.mla.org/content/download/25437/1164354/taskforcedocstudy2014.pdf

Mulhere, K. (2015) Seeing in new dimensions. *Inside Higher Ed*, March 17, 2015
https://www.insidehighered.com/news/2015/03/17/comic-book-dissertation-demonstrates-capacity-picture-writing

Murphy B.L. (2011) From interdisciplinary to inter-epistemological approaches: Confronting the challenges of integrated climate change research. *The Canadian Geographer,* 55(4):490-509.

National Academies of Sciences, Engineering, and Medicine (2018). *Graduate STEM Education for the 21st Century*. Washington, DC: The National Academies Press.

Nowotny, H., Scott, P. and Gibbons, M. (2001). *Rethinking science: knowledge in an age of uncertainty.* Cambridge: Polity

Nyquist, J.D. and Woodford, B.J. (2000). *Re-envisioning the PhD: What concerns do we have?* University of Washington Center for Instructional Development and Research: Seattle.

Nyquist, J.D. (2002) The PhD: A Tapestry of Change for the 21st Century. *Change: The Magazine of Higher Learning*, 34:12-20.

O'Meara, K., and Jaeger, A. (2006). Preparing future faculty for community engagement: barriers, facilitators, models, and recommendations. *Journal of Higher Education Outreach and Engagement*, 11(4), 3-26.

Padró F.F., Green J.H., and Templeton R. (2018) Doctoral Program Types and Legitimacy of Models: Different Forms for Different Purposes. In: Padró F., Erwee R., Harmes M., Harmes M., Danaher P. (eds) *Postgraduate Education in Higher Education*. pp. 165-187. University Development and Administration. Springer, Singapore

Paré A. (2017): Re-thinking the dissertation and doctoral supervision / Reflexiones sobre la tesis doctoral y su supervisión. *Journal for the Study of Education and Development / Infancia y Aprendizaje* 40:407.

Paltridge, B., Starfield, S., Ravelli, L., and Nicholson, S. (2011). Doctoral writing in the visual and performing arts: Issues and debates. *International Journal of Art & Design Education,* 30(2), 242-255.

Patton, S. (2013). The dissertation can no longer be defended. *Chronicle of Higher Education*, Feb. 11, 2013, https://www.chronicle.com/article/The-Dissertation-Can-No-Longer/137215

Peker E., Phelps, J., Turan, S., and Porter, S. (2017*). Report on the Pilot Public Scholars Initiative (PSI).* UBC. https://www.grad.ubc.ca/sites/default/files/doc/pane/psi_report_2017_-_final.pdf

Petrarca, D. M., & Hughes, J. M. (2014). Mobilizing knowledge via documentary filmmaking – is the academy ready?. *McGill Journal of Education, 49*(3), 561-682.

Phelps, J. (2013). *Otherwise, elsewhere: International doctoral students in globalized, transnational spaces*. (Doctoral dissertation, The University of British Columbia);

Porter, S. and Phelps, J. (2014) Beyond skills: an integrative approach to doctoral student preparation for diverse careers. *Can. J. Higher Educ*. 44:54-67

Ravelli, L., Paltridge, B., Starfield, S., & Tuckwell, K. (2013). Extending the notion of 'text': The visual and performing arts doctoral thesis. *Visual Communication, 12*(4), 395-422.

Schiff, L. (2016) Creative Destruction: Open Access, Institutional Repositories and the Changing Dissertation. *Proceedings of the Future of the Dissertation Workshop*, *Council of Graduate of Schools.* https://cgsnet.org/ckfinder/userfiles/files/1_3%20Schiff%20cgs_ETDpaper_lschiff.pdf

Schön, D.A. (1995) The new scholarship requires a new epistemology. *Change* Nov/Dec 1995: pp. 27-34.

Scrivener, S. (2000). Reflection in and on action and practice in creative-production doctoral projects in art and design. *Working Papers in Art and Design* vol. 1 https://www.herts.ac.uk/__data/assets/pdf_file/0014/12281/WPIAAD_vol1_scrivener.pdf

Scrivener, S (2002). The art object does not embody a form of knowledge, *Working Papers in Art and Design*, vol. 2. https://www.herts.ac.uk/__data/assets/pdf_file/0008/12311/WPIAAD_vol2_scrivener.pdf

Sharmini, S., Spronken-Smith, R., Golding, C. and Harland, T. (2015) Assessing the doctoral thesis when it includes published work. *Assessment & Evaluation in Higher Education*, 40(1), 89-102.

Skains, L. (2018) Creative Practice as Research: Discourse on Methodology. *Media Practice and Education* 19 : 82-97 http://scalar.usc.edu/works/creative-practice-research/index

Smith, S. (2015). *Manifesto for the humanities: Transforming doctoral education in good enough times*. Ann Arbor, MI: University of Michigan Press.

Stanton, T.K. (2012) New times demand new scholarship II: Research universities and civic engagement: Opportunities and challenges. *J. Higher Education Outreach and Engagement* 16(4):271-303

Stephenson J & Weil S (1992). *Quality in Learning: A Capability Approach in Higher Education*, London: Kogan Page.

Sugimoto, C.R. (2016) Toward a Twenty-first Century Dissertation. *Proceedings of the Future of the Dissertation Workshop*, *Council of Graduate of Schools.* https://cgsnet.org/ckfinder/userfiles/files/1_1%20Sugimoto.pdf

Tushman, M and O'Reilly, C. (2007) Research and relevance: implications of Pasteur's Quadrant for doctoral programs and faculty development. *Academy of Management Journal* 50 (4): 769-774.

Van de Ven, A.H. (2007) *Engaged scholarship: A guide for organizational and social research*. Oxford University Press, Oxford.

Van der Meulen, E. (2011) Participatory and action-oriented dissertations: The challenges and importance of community-engaged graduate research. *The Qualitative Report* 16(5), 1291-1303

Walker, G. E., Golde, C. M., Jones, L., Bueschel, A. C., & Hutchings, P. (2008). *The formation of scholars: Rethinking doctoral education for the twenty-first century*. San Francisco: Jossey-Bass.

Walker, G. (2012) Lessons from the Carnegie Initiative on the Doctorate. *Conference Proceedings, Quality in Postgraduate Research 2012.* pp. 7-20. Canberra, Centre for Higher Education, Learning and Teaching, Australian National University.

Webb, J. and Brien, D.L. (2015) Examining the Creative Arts Doctorate in Australia: Implications for supervisors, *Educational Philosophy and Theory*, 47:12, 1319-1329.

Willetts, J. and Mitchell, C. (2017) Assessing transdisciplinary doctoral research: quality criteria and implications for the examination process. In Fam, D., Palmer, J., Riedy, C. and Mitchell, C. (eds), *Transdisciplinary Research and Practice for Sustainability Outcomes.* pp. 122-136. New York: Routledge.

Williamson, WJ (2016) Guest Editorial: Preface to 'A Strange and Earnest Client', Part One of the The Case of the Disappearing/Appearing Slow Learner: an interpretive mystery. *J. Applied Hermeneutics*, Jan. 2016. https://jah.journalhosting.ucalgary.ca/jah/index.php/jah/article/view/107

Wilson PM, Petticrew M, Calnan MW, Nazareth I. (2010) Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. *Implementation Science* 5:91. https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-5-91

Wilson T (2012) *A review of business–university collaboration.* Higher Education Funding Council for England (HEFCE) http://dera.ioe.ac.uk/13842/1/wilson.pdf

Wilson, V. (2013) Research Methods: Action Research*. Evidence Based Library and Information Practice,* 8(4):160–162.

Winter, R. and Munn-Giddings, C. (2002). *A Handbook for Action Research in Health and Social Care*. New York: Routledge.

Winter, R, Griffiths, M, and Green, K. (2000) *The Academic Qualities of Practice: what are the criteria for a practice-based PhD?* Studies in Higher Education 25(1):25-37.

World Health Organization (2014) Disseminating the Research Findings. Module 5 of *Implementation research toolkit, Facilitator's guide* http://www.who.int/tdr/research/malaria/facilitators-guide-5_030414.pdf

Woodrow Wilson National Fellowship Foundation. (2005). *The responsive PhD: Innovations in US doctoral education*. http://woodrow.org/news/publications/responsive-phd/

Ziman, J. (2000). *Real science. What it is, and what it means*. Cambridge: Cambridge University Press.

VI: Appendix - Definitions of Research

There are such varied approaches to research that it is challenging to define it more precisely than the systematic inquiry aimed at generating new knowledge, understanding, and/or practice. Even among the individual terms for research categories, there is often no consensus definition or understanding, and new ones continue to evolve. Among other attributes, research may be characterized by the methodologies used (e.g., qualitative, quantitative, action), the knowledge generated (e.g., new facts, new questions, new interpretations, new practice, new artifacts), or the epistemologies or philosophies underlying the inquiry (e.g., positivist, constructivist, pragmatic). There is, in a sense, a *continuum* of research and scholarship, united however by common standards of quality.[18]

> The term continuum has become pervasive because it does useful meaning-making work: it is *inclusive* of many sorts and conditions of knowledge. It resists embedded hierarchies by assigning *equal value* to inquiry of different kinds…[W]ork on the continuum, however various, will be *judged by common principles*, standards to which all academic scholarly and creative work is held.[19]

To illustrate the growing range of research practices, the following are a few examples of applied research categories that have emerged or have been defined within the past century. The definitions provided are samples only. The categories overlap, and are generally framed in terms of their intended outcomes, approaches, or both.

Practice research (includes the terms practice-led, practice-based, practice-centered):

(in Creative practice): Research in which "the creative artifact is the *basis* of the contribution to knowledge. This method is applied to original investigations seeking new knowledge through practice and its outcomes. Claims of originality are demonstrated through the creative artifacts, which include musical performances, musical recordings, fiction, scripts, digital media, games, film, dramatic performances, poetry, translation, and other forms of creative practice. The creative artifact is accompanied by a critical discussion of the significance and context of the claims, and a full understanding can only be achieved through the cohesive presentation of the creative artifact and the critical exegesis."[20]

(in other fields): "the use of research-inspired principles, designs and information gathering techniques within existing forms of practice to answer questions that emerge from practice in ways that inform practice."[21]

Action research: "the study of a social situation carried out by those involved in that situation in order to improve both their practice and the quality of their understanding"[22]. It involves actively participating in the change situation, usually using "a spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action."[23]

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[18] See, for example, Glassick (1997); further resources on quality and assessment will be compiled on the CAGS website over the coming months
[19] Ellison and Eatman (2008)
[20] Skains (2016)
[21] Epstein (2001)
[22] Winter and Munn-Giddings (2002)
[23] Lewin (1946)

Engaged research: "encompasses the different ways that researchers meaningfully interact with various stakeholders over any or all stages of a research process, from issue formulation, the production or co-creation of new knowledge, to knowledge evaluation and dissemination. Stakeholders may include user communities, and members of the public or groups who come into existence or develop an identity in relationship to the research process. Done well, engaged research will generate benefits, changes and/or effects for all participants as they develop and share knowledge, expertise and skills."[24]

Design research "Systematic inquiry whose goal is knowledge of, or in, the embodiment of configuration, composition, structure, purpose, value, and meaning in man-made things and systems"[25]

Knowledge Translation: "a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge…[In] **integrated knowledge translation**, researchers and research users work together to shape the research process by collaborating to determine the research questions, deciding on the methodology, being involved in data collection and tools development, interpreting the findings, and helping disseminate the research results. This approach, also known by such terms as collaborative research, action-oriented research, and co-production of knowledge, should produce research findings that are more likely be relevant to and used by the end users."[26]

Knowledge Dissemination: "active process to communicate results to potential users by targeting, tailoring and packaging the message for a particular target audience; strategies include: linkage and exchange events to share relevant research syntheses; developing a user driven dissemination strategy; media engagement; using a knowledge broker; developing researcher/knowledge user networks"[27]

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[24] Holliman and Holti (2014)
[25] Bayazit (2004)
[26] CIHR http://www.cihr-irsc.gc.ca/e/29418.html
[27] CIHR http://www.cihr-irsc.gc.ca/e/41953.html