



MONASH University

Changing assessment practices in higher education: Assessment literacy, culture and significant social interactions

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Abstract

Purpose

This thesis examined assessment change in higher education through a sociocultural lens. The need for improvements to assessment was underwritten by collective international movements targeting the clarification of skills, attributes and behaviours desirable for university graduates. While higher education courses and programs commonly articulate learning outcomes, academics still struggle to achieve valid, reliable, criterion-based assessments of those skills, attributes and behaviours. This thesis hypothesised that assessment change could be enabled through relationships built on trust and shared experience, with significant interactions encouraging academics to overcome potential barriers and improve assessment practice.

Methods

Episodic narrative interviews utilising graphical network representations were conducted with 35 academic staff from higher education institutions in Australia, Canada and Sweden. The narratives were thematically analysed to explore thresholds for change and methods for supporting changes toward outcomes-based teaching and assessment. Analysis of the graphical representations, combined with the narratives, established the value of significant interactions within social networks for supporting criterion-based assessment improvement activities.

Findings


Synthesis of findings from this research, published in four attached articles, led to the development of an assessment change framework. The four interrelated findings in the framework were (1) assessment culture influences teaching and assessment practices and the behaviour of change leaders; (2) assessment thresholds, such as constructive alignment and differentiation of standards, are bound by attitudes and experience and underscore the capacity of academic staff to make quality changes to assessment; (3) significant social interactions support individuals in trialling new assessment strategies, gaining experience and reframing attitudes; (4) change mechanisms require institutional leadership and support to reach a collectively derived vision for change.

Significance

This thesis adds a new dimension to the literature on building assessment literacy in higher education and the empirical demonstration of assessment microcultures. The thesis also contributes significantly to the extant literature for facilitating change in higher education, with a focus on assessment, support for communities of practice and significant interactions as change mechanisms.

Declaration

This thesis is an original work of my research and contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature: 

Print Name: Natalie Simper

Date: 8th September, 2022

Thesis including published works declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.


This thesis includes four original papers published in peer-reviewed journals. The ideas, development and writing of all the papers in the thesis were my principal responsibility, under the supervision of Nicoleta Maynard (Chemical Engineering, Monash University), Amanda Berry (Education, Monash University), and Katarina Mårtensson (Higher Education Development, Lund University Sweden). The inclusion of co-authors reflects that the work came from active collaboration between researchers and acknowledges input into team-based research. In the case of chapters 7-10, my contribution to the work involved the following:

Table 1. Published works included in this thesis

Chapter	Title	Status	Nature and % of student contribution	Co-author name(s) Nature and % of Co-author's contribution*
7	<i>Assessment Cultures in Higher Education: Reducing barriers and enabling change</i>	Published	70% Research design; interviews, transcription; data analysis; preparation of the manuscript	Katarina Mårtensson 10% Amanda Berry 10% Nicoleta Maynard 10%;
8	<i>Assessment Thresholds for Academic Staff: Constructive alignment and differentiation of standards</i>	Published	100% Concept; preliminary literature review; research design; interviews; transcription; data analysis; preparation of the manuscript	None
9	<i>Informal academic networks and the value of significant social interactions in supporting quality assessment practices</i>	Published	70% Research design; interviews, transcription, data analysis; preparation of the manuscript	Nicoleta Maynard 15%; Katarina Mårtensson 15%
10	<i>Engaging academics and the role of SoTL in Assessment Change</i>	Accepted	70% Research design; interviews, transcription, data analysis; preparation of the manuscript	Nicoleta Maynard 10%; Amanda Berry 10%; Katarina Mårtensson 10%

I have renumbered sections of submitted or published papers in order to generate a consistent presentation within the thesis.

Student name: Natalie Simper

Student signature: 

Date: 8th September, 2022

I hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisor name: Prof. Nicoleta Maynard

Main Supervisor signature: 

Date: 1/12/2022

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I have been very fortunate during my PhD journey to have had so many people support me. My husband Dave gave me the confidence to believe that I was capable of further education. During my PhD studies he patiently listened to my frustrations and enabled me to talk through my thinking. I love the way he thinks, especially because it is quite different to mine. Working full-time and studying part-time externally, meant that the time I spent on my studies was time I wasn't spending with my children. I am very grateful for my children, Hayden, Xavier and Zak, and step children Kaylyn and Liam for their understanding that I needed space and time for my studies. I distinctly remember my youngest saying, "hey mum, didn't you tell you were nearly finished your thesis?" That was two years before I submitted.

I have had three amazing supervisors who generously shared their expertise and guidance. To my main supervisor, Nicoleta, I would not have enrolled without your enthusiasm and encouragement. I know it was a bumpy road in places, but I'm so glad you stayed on the road with me. To Mandi, your energy and attention to detail were invaluable, thank you. To Katarina, you were my inspiration for starting my PhD and you've been my trusted mentor throughout. You always knew how much to push, and when to leave me to my devices. You knew how much feedback I needed and when I needed to get there on my own. You were my confidant and I am proud to call you my friend. I will keep that candle burning in times of need.

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As I have neared this journey's end, I reflect on my experience, the influence of researchers before me, the encouragement of my family, the inspiration of my supervisors, and the kindness of my colleagues and friends. I rest my grateful appreciation with the words of the great John Dewey, "such happiness as life is capable of comes from the full participation of all our powers in the endeavour to wrest from each changing situations of experience its own full and unique meaning" (Dewey et al., 1931, p. 27).

Candidate statement of research motivation

This statement summarises my previous assessment research to provide context and explain the reason behind the thesis topic of changes in higher education assessment practices. My prior work at Queen's University in Canada provided the source of my passion and commitment to this topic. In 2013, I began as a research project manager at Queen's University. I conducted an experimental design research study for my Master of Education. Still, it barely prepared me for the research undertaken across four projects over the following eight years in my project manager position. I hit the ground running, charged with managing a mixed-methods assessment intervention research project funded by the Higher Education Quality Council of Ontario (HEQCO) Simper et al. (2018). The project utilised three different assessment instruments with a sample of 2000+ students tracked over four years. It was a valuable and pragmatic induction for me regarding the complexities of higher education educational research and assessment practices. The assessment instruments focused on four skills: critical thinking, problem-solving, written communication and lifelong learning. I worked with academics to align teaching, learning, and assessing cognitive skills. What excited me about the job was improving the quality of learning and assessment. I was able to work first-hand with academics on assessment design and strategies. The study's results quantified longitudinal achievement of student learning outcomes, and in those four years, I saw the attitudes and assessment practices of academic staff change.

The second project, the Postsecondary and Workplace Skills (PAWS) project (Weingarten & Hicks, 2018), was initiated by HEQCO as they were looking for a more quantifiable way to compare student performance across institutions. The PAWS project involved testing the critical-thinking skills of a sample of first-year and final-year students using a standardised test. The academics who taught these students were curious about the comparative performance of their students. Still, as the test did not relate to their disciplinary subject matter, the results were less relevant for informing any course-based improvement. During this time, I concurrently managed a third project, backed by the Organisation for Economic Co-operation and Development (OECD) (*Education Skills Online*, n.d.). Again, this was a standardised test to assess numeracy and literacy worldwide. By 2018, I had established credibility as an assessment researcher at my institution, with HEQCO and across the Province. The fourth project at Queen's University was of my own design. I was successful in attracting CA\$312,000 in funding from HEQCO. The project was called the Cognitive Assessment Redesign (CAR) (Simper et al., 2019). It was an institution-wide, network-based initiative aimed at developing and assessing cognitive skills and

endeavoured to provide relevant evidence for academics to make evidence-based improvements to their courses. I led a research team that evaluated course assessments against external assessments and provided targeted feedback to academics. There was also an assumption that the project would build capacity toward the long-term sustainability of cognitive-based assessment techniques, but the investigation of sustainability was not within the scope of the funded research.

Reflecting on my work throughout these projects, I became fascinated by the *aha* moments that academics had about the value of assessment in their students' learning and the social aspects of assessment change. I searched literature about the phenomenon to learn more but found little empirical investigation explicitly focused on assessment change. The thesis presented here was motivated by each of the projects and endeavoured to fill a gap in the literature around assessment change processes and initiatives. I had the opportunity to leverage my prior knowledge and experience for cohesive exploration of assessment change in higher education.

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Summary

This thesis consists of four peer-reviewed articles and the exegesis. Three articles are included in their published form; the fourth is accepted, pending publication so it appears in manuscript format. The thesis begins with an introduction providing the rationale for the research and the declaration of assumptions observed (Chapter 1), followed by an overview of the theories underpinning the work (Chapter 2). The following section describes the research questions and considerations for the various methods employed (Chapter 3). The results from the articles are summarised in Chapter 4), followed by a general discussion (Chapter 5) which concludes with an assessment change framework (Figure 1) encapsulating the main findings and implications from the thesis and demonstrating the interrelated facets of the four appended articles. The overall conclusions, limitations and opportunities for future work are presented in Chapter 6, with the articles following in Chapters 7- 10.

The overarching research question of this thesis is, how can change leaders in higher education affect changes in assessment practices? The goal is to achieve change in assessment to improve the validity and reliability of judgements about student performance. Synthesis of findings from this research, published in the four articles, led to the development of an assessment change framework. The four interrelated findings presented in the assessment change framework were (1) assessment culture influences teaching and assessment practices and the behaviour of change leaders; (2) assessment thresholds, such as constructive alignment and differentiation of standards, are bound by attitudes, experience and the capacity of academic staff to make quality changes to assessment; (3) significant social interactions support individuals in trialling new assessment strategies, gaining experience and reframing attitudes; (4) change mechanisms require institutional leadership and support to reach a collectively derived vision for change.

This thesis addresses the contextual implications for realising assessment change in higher education. The need for improvements to assessment was supported by collective international movements targeting the clarification of skills, attributes and behaviours desirable for university graduates. While higher education courses and programs commonly articulate learning outcomes, academics still struggle to achieve valid, reliable, criterion-based assessments of those skills, attributes and behaviours. This thesis hypothesised that assessment change could be enabled through relationships built on trust and shared experience, with significant interactions encouraging academics to overcome potential barriers and improve assessment practice. The thesis was informed by socio-cultural theoretical perspectives, investigating the context and

cultures around assessment in higher education and delved into the role of significant social interactions involved in changes to assessment practices. Episodic narrative interviews utilising graphical network representations were conducted with 35 academic staff from higher education institutions in Australia, Canada and Sweden. The narratives were thematically analysed to explore thresholds for change and methods for supporting changes toward outcomes-based teaching and assessment. Analysis of the graphical representations, combined with the narratives, established the value of significant interactions within social networks for supporting criterion-based assessment improvement activities.

This thesis adds a new dimension to the literature on building assessment literacy in higher education and the empirical demonstration of assessment microcultures. The thesis also contributes significantly to the extant literature for facilitating change in higher education, with a focus on assessment, support for communities of practice and significant interactions as change mechanisms. The data for this thesis were collected from academics who had previously engaged in assessment changes. Further work would be needed to determine how robust the above recommendations are for academics who have not previously engaged in a substantial assessment change.

1 Introduction

This chapter introduces the key principles and concepts upon which the thesis is built, beginning with the need for assessment change and the assessment of learning outcomes. Following this is the introduction of threshold concepts, communities of practice, significant interactions and networks as mechanisms for acquiring assessment knowledge.

1.1 The need for Assessment Change

There have been collective international movements toward identifying and clarifying the skills, attributes and behaviours desirable for university graduates (Barrie et al., 2011; Beneitone et al., 2007; Drezek-McConnell & Rhodes, 2017; Harris, 2009; Jankowski et al., 2013; Tremblay et al., 2012). In 2008, the Organization for Economic Co-operation and Development (OECD) launched a global investigation that focused on the feasibility of assessment, with a growing recognition of the importance of learning outcomes (Tremblay et al., 2012). This resulted in the Assessment of Higher Education Learning Outcomes (AHELO) project (Tremblay, 2013), where participating members from across the world trialled standardised tests to assess student learning with mixed results. In the Bologna Tuning Process in Europe (González, et al., 2003), over 40 countries worked together to define standards for quality education identify learning outcomes and other processes to promote transparency, mobility and employability. A similar project in Latin America (Beneitone et al., 2007) worked on developing comparable and comprehensible qualifications, including developing professional profiles and educational structures. A common thread throughout was the recommendation for using evidence of learning standards, positioning learning outcomes and performance indicators as central to quality education.

The efforts of “Tuning USA” led to the development of The Degree Qualifications Profile (DQP), a competency framework designed to align curriculum and pedagogy (Jankowski et al., 2013). More recently, the Association of American Colleges and Universities (AAC&U) coordinated a large-scale Valid Assessment of Learning in Undergraduate Education (VALUE) rubric assessment project in the United States (Drezek-McConnell & Rhodes, 2017). In addition, there was a process of standard-setting in Australia (Harris, 2009), followed by the Assessing and Assuring Graduate Learning Outcomes (AAGLO) project (Barrie et al., 2011). The intent was to move Australia toward assessing threshold learning outcomes (Tudge, A., 2021). It is now relatively common in higher education for learning outcomes to be identified, but the challenge remains in implementing quality processes for outcomes assessment (McGrath, Barman, Stenfors-Hayes, Sillén, & Roxå 2016). Consistent measurement of student learning across different courses is difficult to achieve (Ewell, 2013), and it is further problematic to apply

common standards across an institution (Popham, 1999). As noted by Kuh et al. (2015), institutional assessment reform has been “mired in a culture of compliance, student learning outcomes assessment has had an embarrassingly modest impact on student and institutional performance” (p. 8).

Despite the breadth of policy recommendations, cultures around assessment have remained somewhat unchanged. There are many possible reasons for this. Perhaps, meeting the recommendations and requirements for assessment is considered too big a task, requiring governmental or institutional intervention, and too onerous for individual instructors to take on (Bates, 2010)? Or, academic ideology, values or beliefs influencing their approaches to teaching, learning and assessment may conflict with institutional goals (Trowler, 1998)? Perhaps there is confusion about the difference between criteria and standards (Sadler, 2005, 2014)? While this Thesis does not directly seek an answer to why policy recommendations have had limited impact, these possible questions are speculated upon within the context of this research and discussed in Chapter 5. A more straightforward rationale for why assessment cultures have remained somewhat unchanged could be a lack of clarity about criterion-based assessment and what it implies for practice.

Rowntree (1987) provides a framework for the purpose of assessment, anchored in five key dimensions: (1) deciding why assessment is carried out; (2) deciding what to assess; (3) choosing an assessment method that is truthful and fair; (4) how to interpret the assessment outcome; (5) finding appropriate ways to respond to the person concerned. These are all key decisions that are made overtly or by default by academics in higher education. The following section picks up Rowntree’s points 3 and 4, introducing the assessment of learning outcomes.

1.2 Assessing learning outcomes

There is little doubt about the need for assessment change in higher education but it takes time, effort and expertise to ensure valid, consistent assessment of learning outcomes (Boud, 2000). Assessment in higher education is arguably the most significant prompt for learning (Boud, 1995; Brown, 2004). The word assessment is used in differing ways, commonly as a label for an activity, such as an exam or high-stakes test or used interchangeably with the word assignment to describe a product that a student submits. The word evaluation is sometimes used in place of assessment, but more generally for determining teacher or program effectiveness (Popham, 1974). Assessment is used for different purposes, such as diagnostic assessment implemented at the beginning of a course of study to prompt prior learning or establish what the students know. Formative assessment is used during a course of study to provide feedback and

promote learning, or summative assessment is implemented at the end of a course of study to determine the level of performance (Andrade & Cizek, 2010).

For summative assessment, higher education institutions typically used norm-referenced forms of assessment, providing guides for the percentage of A's, B's, and C's awarded in a course. The problem with this was that comparing a student's performance against their peers meant that differences in cohorts could result in a different quality of work awarded an A from semester to semester (Lok et al., 2016). In response to international movements toward identifying graduate skills, attributes and behaviours, higher education institutions have slowly progressed toward criterion-based assessment, which "involves identifying appropriate standards and criteria and making judgements about quality" (Boud, 2000, p. 151). With criterion referencing, each student is judged against predetermined standards or criteria. If there is the capacity for consistent interpretation of criteria, criterion-based assessment can support the consistent judgement of student performance across cohorts. Coates (2015) provides an overview of assessment phases, requiring planning, development, implementation, analysis and reporting. The analysis phase includes marking, collating data and results, and cross-validation. While consistency is important case by case, the need for reliability during the analysis phase becomes essential when an institution needs to provide student performance metrics across an institution (Kuh, Jankowski, Ikenberry, & Kinzie, 2014).

Criterion-based assessment assumes that outcomes are specified, appropriate and achievable for the intended learning (Biggs, 2014). Learning outcomes must be observable. For example, it is difficult to observe the level to which a student 'understands' a concept. That is why it is suggested that learning outcomes begin with an action verb such as define, explain, or analyse (Kennedy, 2006). Assessment rubrics (or criteria sheets) are a method for identifying criteria to assess learning outcomes and communicate expectations to students. There are different types of rubrics, analytical rubrics provide a score for each cell within the rubric, and holistic rubrics (sometimes called grade descriptors) offer an overall description of performance at a grade level (Dawson, 2017). By using rubrics, academics can articulate what they intend students to demonstrate at differing performance levels (Wiggins & McTighe, 2005).

Achieving a valid and reliable assessment of learning outcomes depends on the academic's assessment knowledge and capacity, defined as assessment literacy (Medland, 2019). Reimann (2018) described assessment literacy as understanding the language, purpose and systems of assessment and the ability to work with guidelines and illustrate standards. In many cases, building academic assessment literacy also involves a conceptual shift in thinking and also

involves a conceptual shift in thinking. One way of investigating this further is to refer to Meyer & Land's (2006) work on threshold concepts.

1.3 Threshold concepts

The investigation in this thesis adheres to the notion that threshold concepts are “conceptual gateways that lead to a transformed view of something” (Meyer & Land, 2006, p. 19). Further, threshold concepts require knowledge attainment and are observed through a change in attitudes or behaviour. Threshold concepts are core concepts within a discipline or paradigm that, once understood, provide a new perspective on a subject, phenomenon or experience (Meyer & Land, 2006). They are exemplified within students’ learning and relevant for academics’ learning about assessment. Threshold concepts are described as a portal to new ways of thinking and revolve around the idea of liminality as a fluid state of understanding where individuals work through stages of uncertainty (liminal space) (Meyer & Land, 2006). Threshold concepts are considered to be troublesome, transformative, integrative with an irreversible transformation in understanding, bounded (explore the edges of conceptual knowledge), discursive and reconstitutive. Threshold concepts involve an ontological and a conceptual shift in that they present a new belief, idea or way of thinking about a concept or the relationship between concepts.

The articulation of learning outcomes differ from discipline to discipline and academics learn how to assess students’ outcomes through their disciplinary norms and traditions, which also differ from discipline to discipline (Jawitz, 2009). Thus, building or developing assessment literacy is not only a conceptual shift but may also be a sociocultural shift in norms and practices. Just as students benefit from peer discussion when applying concepts in complex situations, academics can learn from their peers by discussing teaching and assessment concepts and issues (sharing tacit knowledge). Lave & Wenger (1998) suggest that communities of practice are an effective mechanism for professional learning, such as academic’s acquisition of assessment thresholds.

1.4 Communities of practice

This thesis builds on professional communities of practice because, as Wenger et al. (2002) put it, they can be “the ideal social structure for ‘stewarding’ knowledge” (p. 12). Wenger (1998) defines a community of practice along three dimensions:

- “What it is about—its joint enterprise as understood and continually renegotiated by its members
- How it functions—the relationships of mutual engagement that bind members

together into a social entity

- What capability it has produced—the shared repertoire of communal resources (routines, sensibilities, artifacts, vocabulary, styles, etc.) that members have developed over time” (p. 2).

Communities of practice (CoP) enable social learning (transmission of tacit knowledge) through informal learning processes (such as storytelling, conversation, coaching, and apprenticeship), which are said to be “key to success in a global knowledge economy” (Wenger et al., 2002, p. 6). The sharing of tacit knowledge through communities of practice is one way for academics to build professional knowledge, but there are fewer formal opportunities for professional learning. (Rienties & Kinchin, 2014). Roxa and Mårtensson (2009) suggest that the benefits are found in conversations with “critical friends” and learning through significant conversations in higher education.

Boud (2009) points out that the changing nature of professional practice in higher education involves a collective focus and greater emphasis on multidisciplinary teams. In this situation, “practitioners of different specialisations come together to address problems that do not fall exclusively in the practice domain of any one discipline” (Boud, 2009, p. 32). The collaborative nature of CoP is essential, as evidenced in (Price, 2005), where a CoP was trialled as an avenue for generating consensus in Higher Education outcome standards. Findings suggested that the members of the CoP spent much of their time venting frustrations. There were participation issues, as “meetings were not seen as a forum for discussion of standards but as a way of disseminating them” (Price, 2005, p. 220). Perhaps one of the issues was that “the community of judgment may vary for any given subject matter. What is judged to be an appropriate level and type of mathematical knowledge, for example, may vary between engineers who use mathematics and mathematicians who may have a role in teaching it” (Boud, 2009, p. 39). However, CoPs can be effective for the collective determination of assessment criteria and standards if the exercise aims to illustrate that assessment criteria can be shared and understood, and a genuine and ongoing consensus of the standard is required (Elwood & Klenowski, 2002). In this case, it is the conversations within CoPs that genuinely achieve consensus. These conversations require trust and respect between members (Lee et al., 2011). This thesis explores trust and respect as aspects of significant social interactions within professional networks.

1.5 Significant social interactions and networks

Evidence suggests that most teachers have a small number of significant others they rely upon for support (Roxå & Mårtensson, 2009). The principles of significant networks built from Becher

and Trowler's (2001) work on academic tribes and territories recognises that higher education is changing in nature, with new fields of study and interdisciplinarity practices becoming more common (Trowler, 2019). Small significant networks are informal and involve interactions between a small number of trusted individuals (Poole et al., 2018). Bonds in small significant networks that form when individuals share similar characteristics and beliefs are called homophily, resulting in attitudes co-evolving over time (McPherson et al., 2001). It is said that academics “rely on a small number of significant others for conversations that are characterised by their privacy, mutual trust, and intellectual intrigue” (Roxå & Mårtensson, 2009, p. 547). Roxå & Mårtensson (2013) explore academic microcultures with differing levels of shared responsibility and trust. They refer to an academic microculture called the *Commons*, built around trust and shared responsibility, whereby “culturally formed structures influence academics and their understanding of teaching and learning” (Roxå & Mårtensson, 2015, p. 196). The trust and shared responsibility within significant conversations and networks may support the academic acquisition of assessment knowledge and skills but, more importantly, have the potential to affect attitudes toward assessment and change.

1.6 Chapter summary

This chapter introduces the key principles and concepts upon which the thesis is built, beginning with the rationale for why higher education institutions need assessment reform, and the next point describes the valid, consistent assessment of learning outcomes. The idea of threshold concepts was introduced to highlight a change in thinking about assessment, and communities of practice were outlined as a mechanism for professional learning, augmented by significant conversations and networks. Chapter 2 presents the socio-cultural theoretical foundations of the thesis.

2. Theoretical Foundations

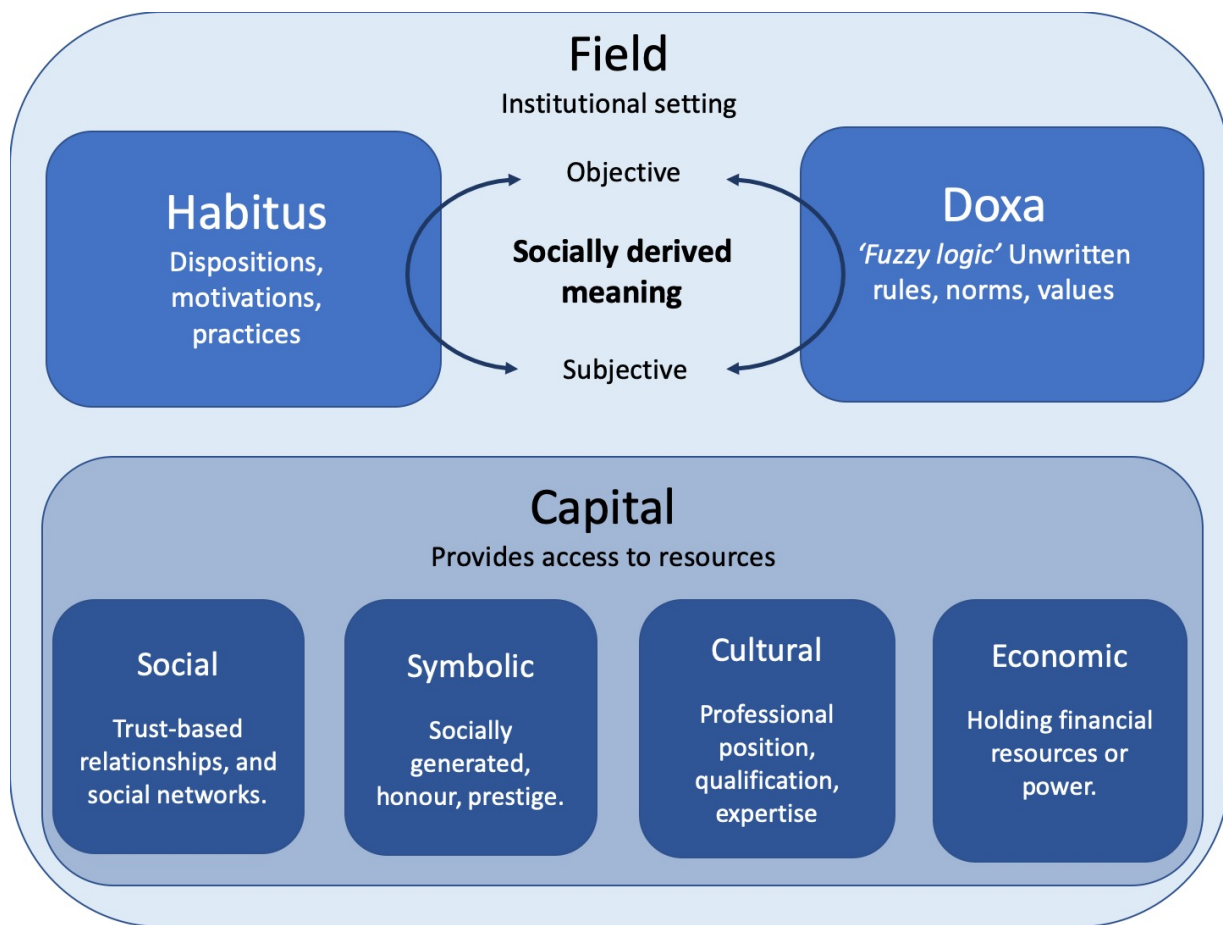
This chapter explains the theories, ideas and principles framing this thesis. Firstly, an explanation is provided about the socio-cultural lens (Bourdieu & Wacquant, 1992). This framing suggests that all learning and knowledge are contextualised; hence, the following section contextualises assessment change in higher education. The third section explains assessment culture because it involves “deeply embedded values and beliefs collectively held by members of an institution who influence assessment practices on their campuses” (Banta, 2002, p. 29). The last two sections provide theoretical perspectives on models for change and leadership in higher education.

The design of the thesis was initially informed by Bandura's (1977) Social Cognitive Theory, based on the idea that humans are social beings, learning through interactions with others, the environment, and reflection. Bandura (2011) characterised determinants for motivation and behaviour through triadic reciprocal causation: intrapersonal, behavioural and environmental, with the premise that social agents drive motivation, affect and behaviour. The social-cognitive theoretical influence led to a keen focus on the research's social aspects and a recognition of the strong ties to socio-cultural theory.

2.1 Socio-cultural theories

Sociologists study learning in the context of society and social interactions. Socio-cultural theories are based on the power of knowledge, socially derived meaning and the value of relationships. This thesis presents a socio-cultural perspective described by Pierre Bourdieu, investigating how cultures influence actions, development, and compliance with social norms (Bourdieu & Passeron, 1964). Bourdieu's concept of habitus indicates the collection of techniques and beliefs formed from experience and socialisation. These elements are central to Bourdieu's (1977) Theory of Practice, where societal structures and personal dispositions influence the circular relationship between objective and subjective knowledge; social expectations and obligations where through social practice, “retrospective necessity becomes prospective necessity” (p. 9). Figure 3 presents a graphic overview, developed to encapsulate the main concepts of Bourdieu's socio-cultural theory. Like a sporting ground, the field is the socio-cultural arena, in this case, the university setting. Habitus is actively constructed in a circular process between objective and subject views leading to socially derived meaning. Habitus embodies social structures and how the individual perceives and acts in the world. Doxa is formed by previous events, where there are mutually understood conditions for success- how to play the game. Over time these become norms or “modus operandi”.

Figure 1. Graphic representation encapsulating the conceptual principles of Bourdieu's (1977) Socio-cultural theory



Actions (such as assessment practices) are said to be structured by “fuzzy logic” (learned through objective experience), which in turn influences subjective motivations and dispositions (Bourdieu 1977). Capital situates individuals within the field, as people are socialised by their interactions and environment to respect the social “power” of others. People within the organisation who hold capital are capable of resisting or implementing change (becoming change agents). This area of socio-cultural theory had the most substantial relevance to the investigation of assessment change in higher education.

Over the years, theorists have interpreted capital in different ways. Bourdieu (1993) described capital in terms of economic (holding the purse strings), social (generated through relationships, with trust and respect), cultural (institutionalised through educational qualifications) and symbolic (honour and prestige). However, Hanson (2001) defined intellectual and human capital (holding hard and soft knowledge) and suggested that individuals holding capital can challenge existing assumptions and lead to institutional change through evolutionary environmental shift (rather than environmental regression or shock). Those with human capital have a lot of context-specific knowledge; if they leave an organisation at short notice, the

organisational memory goes with them (Gaskell & Hayton, 2015). Jawitz (2009) built on the concept of *Habitus* in the context of assessment in higher education, suggesting that when new academics join an institution, “habitus generates strategies to ‘maximise their capital’ and ensure their continued participation in the field. But the field imposes limits on what strategies and actions a newcomer may successfully adopt without resistance” (Jawitz, 2009, p. 603). New academics learn how to ‘play the game’, particularly concerning assessment practices.

Theories of action (Argyris & Schön, 1974) proposed that individuals have a particular theory they champion (their stated beliefs and values) and another that they actually use, which is evident sometimes only through their actions and behaviours. Argyris & Schön (1974) described the above as *single-loop learning*, where individuals adjust their actions according to their existing beliefs to fit a system. Theories of action advocate for *double-loop learning*, which involves questioning the role of the system, modifying goals and adjusting strategies toward a new model because the single-loop model does not challenge underlying assumptions. Jonassen & Rohrer-Murphy, (1999) refer to the need to accommodate competing views and “continuously alter our beliefs to adjust to the socially mediated expectations of different groups. Conflicts between our roles in the various communities often arise, leading to transformational activities required to harmonise those contradicting expectations” (p. 66).

Lave and Wenger's (1991) Situated Learning Theory maintains that professional learning is a social process whereby new members of a situated community interact and learn from those with greater experience. Holland & Lave (2019) reframed Bourdieu's Social Practice Theory, providing the foundation for communities of practice (CoP) (Lave & Wenger, 1998). Wenger and Snyder (2000) describe CoPs that involve a sustained integration between self-selected members who share common interests to share knowledge (tacit, explicit or dynamic) and collective problem-solving. In these communities, mutual trust is a critical feature (Wenger, McDermott, & Snyder, 2002). CoPs differ from operational teams (such as working groups) because the project teams cease to exist when team objectives are met. There are no formal roles and responsibilities, but CoPs have a focus on specific topics where members have a common interest in improving practices within a particular field (Probst & Borzillo, 2008). Hutchings, Huber, & Ciccone (2011) suggest a similar approach. Their *teaching commons* is “a conceptual space in which communities of educators committed to pedagogical inquiry and innovation come together to exchange ideas about teaching and learning and use them to meet the challenges of preparing students for personal, professional, and civic life” (p. 26). However, given current incentives for improving practice, generating a teaching commons or CoPs depends on the academic staff's intrinsic

motivation (Murphy, 2015). It is also suggested that effective CoPs require strategic institutional support that maintains their participants' autonomy (Beatty et al., 2020; E. Wenger, 2000).

The discussion above refers mainly to Bourdieu's habitus concept, which explores society's influence on dispositions and actions. The other aspects of Bourdieu's socio-cultural theory central to the thesis are field, which is the arena for this social exchange, and doxa, the beliefs and values of individuals, and how values are formed. The concepts of field and doxa play an important role in assessment practices and changes; therefore, the following section explores these concepts in the context of higher education.

2.2 The higher education system

Clark (1986) ascribes three elements to the higher education system, its organisational structure (disciplines and enterprise), beliefs (norms and values), and authority (the distribution of power and the actors within). The dual role of universities is that of research and teaching. Modern universities were historically organised into disciplinary groups with hierarchical structures (McGraw & Biesecker, 2014). Proponents for a horizontal structure suggest that they are more conducive to collaboration and collegial relationships but are problematic when funding and policy development are managed centrally (Keeling et al., 2007). Bak & Kim (2015) discuss the increasing commercialisation of academic science, with university reputations riding on the quality of research output, "at the same time, a number of critics have expressed their concern that faculty members pay inadequate attention to education, especially undergraduate teaching" (p. 844). Hattie & Marsh (1996) explain that conventional wisdom says "research performance is a prior condition for good teaching" (p. 519). Yet, their comprehensive meta-analysis found little or no relationship between the two (Hattie & Marsh, 1996). Time spent on research and teaching were negatively correlated, as were personality qualities of teaching and research, and they are motivated by different reward systems. For example, tenure ensures long-term job security and provides academic freedom. The higher education sector is socialised to understand tenure as the marker of an academic professional (Tierney & Rhoads, 1993). In contrast, "assumptions paint a deficit model or picture of non-tenure track faculty" (Kezar & Sam, 2010, p. 1422).

Governance structures in higher education have become increasingly complex, and some argue that "higher education has become bigger, more expensive, less elitist, politically more visible and economically more strategic" (Enders et al., 2013, p. 8). It is said that these "challenges are requiring institutions to take a more pragmatic economic stance and engage more closely with external stakeholders" (Jones & Harvey, 2017, p. 129). The requirement for

performance indicators and quality assurance is intended to improve students' practice and outcomes. Still, accountability requirements can reduce freedom for academic staff and institutions to assert individual preferences. This presents an ongoing tension between accountability and autonomy.

Freedom from control is sought at the academic and institutional levels, with freedom for self-determination of institutional goals and the institution's power to determine how its programs are managed (Altbach et al., 2011). Stensaker & Vabø (2013) discussed shared governance, suggesting that “increasing autonomy for universities mean that institutional leadership is given greater autonomy in their management of academic, organisational and financial issues, (yet) more autonomy for leadership does not necessarily mean more personal autonomy for academic staff” (p. 261). Management of academic and organisational issues has the potential for increasing demands and academic staff, with the perception of impinging academic freedom (Akerlind & Kayrooz, 2003). Academic freedom is a long-standing point of contention, with some suggesting that “the concept of academic freedom needs to be re-examined because of the balance between rights and responsibilities inherent in the idea” (Cameron, 1996, p. 1). The institutional level of academic autonomy impacts change-management models. The higher education system is built around organisational structures, norms and values, and power distribution. These factors affect the institutional cultures around assessment (Fuller, 2013). The following section introduces factors influencing assessment culture.

2.3 Assessment cultures

Assessment culture is the deeply embedded values and beliefs collectively held by members of an institution who influence assessment practices on their campus (Banta, 2002). Assessment culture should not be confused with a culture for assessing academic excellence (in teaching) (Beckwith et al., 2010). In comparison, assessment culture involves the purposes, approaches and attitudes toward assessing student performance. There have been few empirical studies investigating assessment culture, apart from research conducted by Fuller and associates. Fuller (2013) suggested that there was “an increasingly complex relationship between institutions and governing bodies, faculty, and administrators, campus leadership must refine and reiterate messages about the importance of student learning in institutional operations and accreditation” (p. 25). This initial research found that assessment culture falls into two categories: (a) institutional practices suggestive of a culture of assessment and (b) conjectural elements hypothesised as fundamental to a culture of assessment. Fuller et al. (2015) utilised the Delphi method to develop an administrator’s survey of assessment culture. The survey was implemented

with a sample of institutional leaders from across the United States to establish the purpose of assessment and characterisation of assessment cultures (Fuller et al., 2016). Holzweiss et al. (2016) presented a follow-up investigation of the open-ended responses in the survey resulting in two meta-themes: organisational structures and organisational culture. Organisational structures comprised themes of procedures, accountability and data usage. Organisational culture comprised themes of traditions, rituals, artefacts, discourse and values. None of the research conducted by Fuller and associates directly sought responses from academic staff. Instead, institutional leaders made generalisations such as “too many faculty members are fearful that the whole assessment movement will expose them for being ineffective” (Holzweiss et al., 2016).

Skidmore et al. (2018) developed a parallel survey instrument to identify different assessment culture profiles within their institution. Their results suggested that assessment cultures are highly context-dependent and bound between cultures of fear, compliance and student learning. Fear and compliance stem from drivers relevant to each setting and sector. For example, in Ontario, Canada, 1.4% of provincial funding has historically been based on quality metrics. In 2020, the Ontario government announced that by 2024, 60% of higher education funding will be based on ten performance metrics (*Promoting Excellence*, 2020). One of these metrics is student achievement of skills and competencies, meaning that a university's existence will be dependent on being able to reliably demonstrate the ‘value-add’. The value-add metric requires institutions to reliably report of difference between the first and final-year student performance of skills and competencies. This accountability requirement directly opposes assessment cultures oriented at student learning because of the problematic nature of consistent assessment across a university. Institutions frequently use standardised tests to demonstrate value-add metrics (Klein et al., 2007; Liu, 2011). These are generic tests that have little or nothing to do with the course or disciplinary-based student learning.

For example, researchers faced difficulties coordinating technical and logistical requirements for standardised testing in a longitudinal study of standardised measures (Simper et al., 2018) that was conducted ahead of Ontario's compliance requirements. The tests were conducted separately from course-based learning, so students put minimal effort in, impacting reliability, and there was a lack of shared purpose impacting assessment culture in terms of valid assessment of student learning. Quality-oriented assessment cultures are said to be developed by empowering stakeholders and establishing a shared purpose for assessment (Eastberg, 2011; Meyer-Beining, 2020; Seagraves & Dean, 2010). These are elements that change initiatives can influence. Models for change are explored in the next section.

2.4 Models for change in higher education

Models for change address such topics as “organisational life-cycles, the major phases of organisational change, transformational change, organisational change, leaders, teams and individual workers” (Cacioppe & Edwards, 2005, p. 86). Fisher & Henderson (2018) contrasted prescribed strategies (Kotter, 1996, 8-stage process) versus emergent strategies (complexity leadership theory). They described prescribed strategies as leader driven and authority-based. A leader recruits others and creates a coalition to implement planned changes—contrasted with emergent strategies, or *middle-out* approaches, as innovation-based, adaptive, and promoting institution-level learning. Kezar (2013) encapsulates the above strategies within a comprehensive review of institutional change in higher education, summarised in Table 2.

Table 2. Summary of Theories of institutional Change summarised from Kezar, 2013.

Theory	Assumption	Features and indicative references
1. Scientific management (Organisational development)	Organisations are purposeful and adaptive, leader driven and rewarded.	Change is rational, linear, goal-driven, and positive: Leaders, change agents, and others see the necessity of change (momentum overcomes resistance). Cross-functional teams are involved from the beginning. (Brill, 2013; Golembiewski, 1989; Goodman et al., 1982)
2. Evolutionary (survival)	Organisations are interdependent with interrelated structures.	Change is deterministic and happens over time due to external pressures, circumstances and situations in the environment. (D. Cameron, 1993; Hrebiniak & Joyce, 1985; Kieser, 1989)
3. Social cognition	Cognitive dissonance can be a prompt for change. People change their views if they receive feedback that challenges their prior beliefs.	Facilitating interaction- change through individuals (double-loop learning). Helping people to re-examine their understanding- Changes in the minds of individuals. (Argyris, 1982; Collins, 2005; Weick, 1995)
4. Cultural	Changes aligned to institutional culture (professional norms, individual values, history and environment).	Anchored in values and assumptions and happen naturally through changes to the environment. Meaning constructed through experience- non-linear, unpredictable changes. (P. M. Dawson, 1994; Morgan, 1998; Schein, 2010)
5. Political	Institutions as political entities- dominant coalitions institute power.	Leaders are central- interest groups with a particular agenda to bargain for Change: A new belief system is instituted. (Bolman & Deal, 2000; Rajagopalan & Spreitzer, 1996)
6. Institutional	Isomorphic Change: External conditions creates a new norm.	Agency-based change- such as funding, accreditation, or imposing consequences.(Levy & Merry, 1986; Van de Ven & Poole, 1995)

Approaches to change management are dependent on change leadership. Hannah and Lester (2009) suggest that “leaders focus less on what their organisations should learn, but rather on how to set the conditions for collectives to effectively learn and share knowledge” (p. 35). The following section discusses change leadership roles, approaches and challenges for leading assessment change.

2.5 Change leadership

Institutional leaders are responsible for handling “mounting expectations of government, the fluctuating requirements of industry and the diverse needs of communities and individuals” (Coates et al., 2013, p. 825). Change leaders face resistance to change, which is related to institutional readiness for change (Holt, Armenakis, Feild, & Harris 2007). It is the challenge of change-leadership to overcome resistance. McGrath et al. (2016) suggest that resistance can be overcome through bargaining, identifying significant others, ensuring clear communication and feedback, and breaking territorial boundaries. Kezar (2013) asserts that unconscious assumptions drive analysis, choices, and strategies and contests that individuals are not always aware of their assumptions. Leaders in higher education need to know why they are directing improvement efforts in the way they are. They need to be mindful of how their assumptions underlie their choices and conscious that others may have alternative viewpoints so that they can navigate processes to reach an intended goal.

The study of leadership offers a wide range of perspectives on leadership styles; for example, Szeto, Lee, & Hallinger (2015) group leadership styles as instructional, transformational, distributed and shared leadership, authentic or value-driven leadership, and social justice leadership. These leadership styles refer to power dynamics and how leaders interact with others. While it is beyond the focus and scope of this thesis to develop perspectives on leadership styles, this Thesis recognises the relevance of power dynamics to different levels of leadership. Hannah and Lester's (2009) multi-level approach focuses on behaviours of change leaders with macro-level, meso-level and micro-level leaders. Hannah & Lester (2009) identify change leaders as catalysts for change and advocate integration between these levels with the diffusion of leadership strategies for the “absorption of internal and external complexity and ongoing adaptive learning” (p. 45).

Macro-level leaders need to consider the broad perspective, exerting influence as a shaker and mover or culture-builder (Nicholls, 1988). According to Hannah & Lester (2009), they scan for emergent knowledge, identify infrastructure and resources, provide vision and reinforcement and balance exploration and exploitation. Their role also involves management of the timing and

stages for the diffusion of interventions. Meso-level leaders affect change from the middle-out; “these champions may be staff in support units, such as Teaching and Learning Centers, Libraries, Quality Units, or Information Technology Services groups, who have sufficient autonomy and resources to establish change management projects within their sphere of responsibility, or where several managers are involved across a wider area of responsibility” (Cummings et al., 2005, p. 11). Hannah & Lester (2009) suggest that their role is to create or improve network structures or functions and embed knowledge catalysts. Meso-level leaders influence pathways for information and conversations within hubs or academic clusters such as a community of practice (Roxå et al., 2011). Micro-level leaders influence change from the bottom up, building developmental readiness and targeting developmental learning experiences (Hannah & Lester, 2009). They are actors whose “verbal and non-verbal visible conduct and interactions with their followers are likely to affect followers’ attitudes and behaviour” (Meyer et al., 2016, p. 775).

Efficacy for change is dependent on integrating catalysts for change. A macro-level leader who instigates a policy change is only likely to effect meaningful change through consultation and engagement at the other levels. For example, Mårtensson et al. (2014) found that the policy implemented to address the European Bologna reform was adopted in some microcultures but not in others. Where discussion and collaboration were undertaken between group members, the syllabi and learning outcomes were reviewed and re-written. Still, little was changed in another case because its members perceived an administrative formality about what was allowed and what was not.

2.6 Chapter Summary

The above sections in Chapter 2 have described the principles and theories that informed this thesis research design and analysis and demonstrated the relevance of Bourdieu’s Theory of Practice, *habitus*, *field*, and *doxa*. That is, the higher education landscape, historical context, and social communities influence individuals’ dispositions, actions, beliefs, values, and behaviours. The chapter then provided an overview of models for change and change leadership in higher education. The genesis of this thesis embraced these elements in the research questions and methodology, explained in Chapter 3.

3. Research Questions and Methods

Chapter Three presents the research questions, methodological choices, participant recruitment and sampling, interview protocol and analytical techniques employed. These methods were used to elicit responses to investigate assessment cultures, assessment thresholds, significant social interactions and an assessment network and answer the overarching question: **How can change leaders in higher education affect changes in assessment practices?** The hypothesis was that relationships built on trust and shared experience overcome potential barriers, improve assessment practice, and enable assessment change. Each article in the thesis contains specific research questions listed below. The first set of questions address the investigation of assessment culture, the second set of questions are designed to investigate assessment thresholds, the third set of questions support the investigation of significant social interactions, and the last questions are aimed at investigating an assessment change project.

3.1 Research questions

Article 1 (Simper et al., 2021):

- What similarities and differences are there in assessment cultures?
- What factors hinder or facilitate change?

Article 2 (Simper, 2020):

- What troublesome areas triggered academic staff to change their assessment practices?
- What thresholds were apparent in the conceptual understanding of assessment principles for academic staff?

Article 3 (Simper et al., 2022)

- What value is found in small significant networks?
- How do participants define significant social interactions?
- How do significant social interactions within the network support changes to assessment?

Article 4 (accepted for publication)

- In what way did the project design engage academics in implementing assessment changes?
- What was the relationship between academic engagement, sustained adoption or propagation of strategies?

3.2 Methodological considerations

There are social, cultural and structural implications related to assessment change. Exploring meanings constructed within the context of assessment change is based on complex interactions between these domains. Narrative inquiry (Clandinin, 2006) enables the exploration of lived experience (of assessment change) through story-telling, where “we can present what we’ve

learned from our narrative inquiries so that each of us contributes to the overall story with a particular voice” (Clandinin, 2006, p. 147). It is also important to consider how people learn when making methodological decisions. Varpio et al. (2017) suggest that research investigating the construction of knowledge as shaped by lived experiences “depends heavily on naturalistic methods (e.g. interviewing, observations, etc.) conducted in situ; requires sufficient interaction between the researcher(s), participant(s), and the research phenomenon (p. 42). The open-ended questions used in this thesis were constructed to objectively reveal participants’ experiences, thoughts and attitudes related to assessment change. This thesis also used an additional device (network drawing exercise) to delve into social networks and significant social integrations. The interview protocol was trialled and refined before implementation.

3.3 Recruitment and Sampling

Participants were recruited from the home universities of the PhD candidate and supervisors (Curtin University in Australia, Queen’s University in Canada, and Lund University in Sweden). The primary ethics application was submitted at Curtin University, and a secondary application was submitted at Queen’s University. With ethical approval granted, there was no requirement at Lund University to submit an additional application. Malterud et al. (2016) suggest that a sample needs to be large enough to provide ‘informational power’, whereby additional participants would not significantly add to the knowledge derived. Studies with narrow aims that are highly specific require fewer participants than general studies with broad aims. Additionally, studies informed by theory, capture quality dialogue and apply to a formulated analysis strategy require fewer participants than those with opposing characteristics (Malterud et al., 2016). The target sample at each institution was set at 12. Recruitment was focused on academic staff who had engaged in improving their assessment because investigating assessment change meant that the informants needed to have experience in changing assessment. Sampling was designed to facilitate representation from early-, mid-and late-career academics from various disciplinary backgrounds. Lists were created of academics who had received teaching awards or were involved in assessment activities. The lists were reviewed to select individuals aligned with the sampling strategy. Potential participants were contacted by email and sent a research information letter and invitation to participate. If academics were unable or unwilling to participate, alternative candidates were selected.

The previous sections have articulated the thesis's narrow aim, specific sample, and theoretical basis. The following sections demonstrate how the quality dialogue was captured and describe the analytical strategies.

3.4 Interview protocol

The interview protocol was designed to explore social, cultural and structural elements of assessment change. During the interview process, the importance of cultural elements became apparent. As such, a socio-cultural lens also informed the analysis of data. The interview protocol comprised three sections firstly, establishing the setting and context, secondly, exploring assessment change, and thirdly drawing the network diagram.

3.4.1 Setting and context (Part one)

This section comprised five questions designed to encourage the interviewees to feel comfortable, establish the participant's level of experience in assessment in higher education, and the norms of practice in their setting. The questions were:

- Tell me a little about yourself and your role at X University
- How would you describe the typical way of assessing your faculty/ department?
- Is that generally the way you assess your students?
- In your Faculty/department, how do academic staff or lecturers get inducted into assessment?
- If someone wanted to change an assessment, how would they go about it?

3.4.2 Assessment change (Part two)

This section provided the following as prompts to elicit a narrative response describing a significant example of assessment change:

- Please think about a time when you changed the way you assessed student learning. The following list of examples was provided (it was made clear that the list was not exhaustive):
 - moving to use rubrics,
 - change in task type (to align with intended outcomes),
 - adoption of peer assessment,
 - change in the structure of an exam (not changes in content),
 - involving students in assessment (self-assessment),
 - training teaching assistants (TAs) to make consistent judgments.
- Please describe your experience of this assessment change, providing as much detail as possible, including the context of the unit, the approximate number of students, the year group, the needs of the students, and explain the reasons behind the change and whether it turned out the way you thought it would.

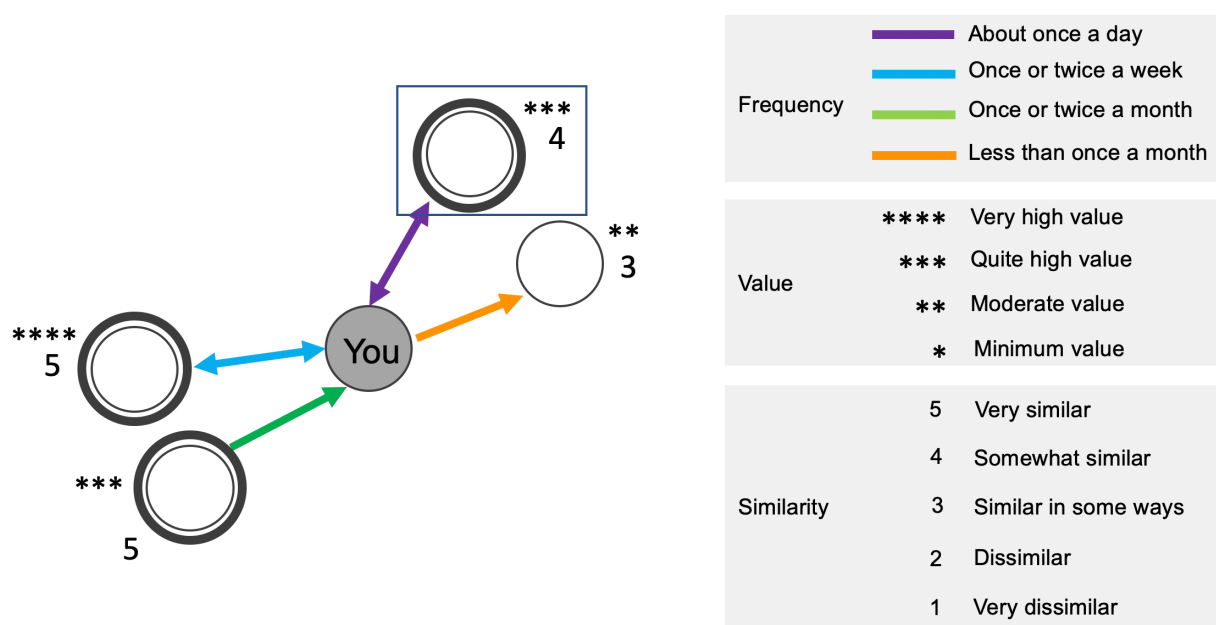
3.4.3 Social network diagram (Part three)

Participants were provided with paper, coloured markers, and the six prompts to guide them in drawing a social network diagram:

- Think of the people you interact with professionally and draw circles to represent them
- Draw a second circle around those people with whom you have conversations that involve literature or research (related to pedagogy/ teaching/ assessment).
- How frequently do you interact with each of these people? Use the colour markers provided (as per the key in Figure 3), and draw arrows connecting them, putting arrows at both ends if the conversation is two-way.
- How valuable are/were each of these people to you? Use check marks to represent the value of the network members to you?
- How similar is that person to you (write a number between 1 and 5) in terms of the beliefs they hold about teaching and learning?
- How would you define a significant social interaction? In what way, if any, did your significant social interaction(s) play a role in this assessment change? Please explain, and mark where they are on the diagram with a box.

In the participant's social network diagrams, the word node was used to represent the people in the network, and the relational ties referred to the nature of the interactions (frequency, direction of interaction, similarity between individuals, the discussion of literature, and perceived value of the interactions).

Figure 2. Protocol key for the frequency, value and similarity of network connections



3.5 Analysis

3.5.1 Assessment culture

There were three parts to the interview protocol. Part one was a semi-structured interview (see section 3.3.1). The analysis of part one of the interview was based on cultural factors that affected change in assessment culture (article 1)¹. This was undertaken to unpack the culture of each of the three institutions. The research approach was built on the socio-cultural framing of cultural themes from Holzweiss et al. (2016). Data were analysed thematically, using the Braun & Clarke (2006) six-step process: Data familiarisation, initial semantic coding (informed by socio-cultural framing), searching for themes (analysing for overlap), reviewing, defining and naming, and reporting on themes to connect them logically.

3.5.2 Assessment thresholds

The second part of the protocol gathered evidence to investigate assessment thresholds. Ambiguity surrounds the nature of threshold concepts, as they are difficult to pinpoint. Simply asking participants whether they could identify thresholds in assessment presented a threat in terms of reliability or accuracy of information. Many strategies have been used to navigate this constraint within the discipline-specific research on threshold concepts; the relative benefits depend on the situation. A review of methods for observing assessment thresholds was presented in article 2, resulting in the selection of the *Critical incident* technique (Flanagan, 1954) for part two of the interview (see section 3.2.2). Participants were asked to recall a meaningful situation where they changed their assessment and explain the reasons for change and the change process. The thematic analysis revealed data related to the forms of Meyer and Land's (2003) threshold concept principles, deriving themes by identifying 'stand out' experiences that were troublesome, transformative, integrated, utilised specific assessment language and indicated a repositioning in thinking.

3.5.3 Significant social interactions

The third part of the protocol involved a sociometric technique to draw network relationships (Poole et al., 2018) to explore social interactions. Participants were also asked to explain their interpretation of the term *significant social interaction*. The responses to the significant social interaction question were analysed separately, using Bandura's (2011) determinants for motivation and behaviour to code the phrases, synthesising them to form a definition.

[1] Investigation of cultures continued throughout the duration of the PhD, but article 1 was only finalised in 2021.

During the trial of the protocol, it was observed that the process of explaining how social interactions related to assessment changes resulted in a think-aloud (Fonteyn et al., 1993) scenario. Think-aloud methods are generally used to unpack problem-solving processes, as people are often unaware of the strategies they apply to solve a problem (Somerén et al., 1994). Similarly, the think-aloud approach provided insight into meta-awareness of social relationships and their relevance to assessment practices. With two sets of evidence, a decision was made to adopt collocation analysis (Mello, 2002). Both data sets were related, so they were reconciled “based on the functions and operations of the narrative” (Mello, 2002, p. 231). The descriptive responses were coded to a value framework (Van Waes et al., 2016) and analysed thematically. Then a sociometric technique (Avramidis et al., 2017) was used, converting the diagrammatic representations to numeric data for quantitative analysis. Pearson’s correlations were calculated and analysed in relation to the qualitative themes derived. The findings were then discussed in the context of significant social interactions and network ties supporting changes to assessment.

3.5.4 Assessment network

Article 4 reported on a sub-set of participants from Queen’s University with data from all three sections of the protocol. These were participants who had been involved in a university-wide assessment network change model. Interviews took place one-year post-implementation. Thematic analysis of data from the sample sub-set (n=9) utilised all aspects of the interview protocol. Analysis of the assessment network leveraged the researcher’s first-hand experience, drawing on evidence from project reports and related publications. The analysis was informed by principles of sustainable change presented in Henderson (2017) to illustrate themes related to sustainable assessment change.

3.6 Chapter Summary

This chapter listed each of the research questions in the attached articles. Across the four articles, there were nine questions, all contributing to answering the overarching research question: How can change leaders in higher education affect change in assessment practices? The methodological choices led to a semi-structured interview protocol that included a network drawing device. Recruitment, sampling and analytical techniques were discussed regarding the investigation of assessment cultures, assessment thresholds, significant social interactions and an assessment network. Chapter 4 presents a summary of the findings.

4. Findings

This chapter summarises findings from each of the four included articles.

4.1 Article 1: *Assessment Cultures in Higher Education: Reducing barriers and enabling change*

This article presented an exploration of assessment cultures and provided the context for investigating interactions between people, the culture of their workplace and assessment change. Thematic analysis of data from part one led to identifying five themes: Tribes, Habitus, Motivation, Barriers, and Enablers for Change. Disciplinary *Tribes* (Trowler, 2001). These themes were evident in common characteristics of assessment forms and practices within disciplines across institutional settings. The other themes were not broken down by discipline because there were no discernible disciplinary differences. Table 3 summarises the institutional culture (and sub-cultures) for each of the themes.

Table 3. Summary of assessment cultures by institution and theme

Theme	Discipline	Australian university	Canadian university	Swedish university
Tribes	Engineering	Unified agreement that assessment should have a rubric and clearly describe the minimum performance to ensure students had achieved the minimum competency.		
	Health Sciences	Assessment was split between theory and practice, with evidence emerging from each institution that there was a recent change in thinking about the role of assessment in student learning		
	Sciences	The dominant forms of assessments were lab reports and exams, with limited evidence from any of the institutions in the use of criterion-based rubrics.		
	Social Sciences	Recent adoption of authentic assessments and evidence of grappling with the interpretation of rubric criteria for consistency of marking.		
Habitus	All	Expectations were passed on by departmental peers and faculty leadership. Attitudes were perpetuated by word of mouth—peer induction of new staff into current assessment practices. There were no discernable differences between settings.		
Motivation	All	Implementation of a new assessment policy at the Australian university provided extrinsic motivation for change.	There was considerable freedom to change assessment, and the Canadian University sample found that agency was empowering.	There was a collaborative approach to assessment; teaching teams met regularly and discussed. Agency for change was apparent for the course examiner.

Theme	Discipline	Australian university	Canadian university	Swedish university
Barriers	All	Entrenched practices and historical resistance to change; Logistical constraints (lack of time and requirements for technology). There were no discernable differences between settings.		
	All	Constraining approval systems and timelines for change.	Institutional requirements (E.g., Teaching Assistant's maximum hours for marking)	Academic roles and responsibilities (only the course examiner can make changes)
Enablers for Change	All	Collaboration; peer support.	Collaboration with peers; Individuals holding social capital.	Academic community; Individuals holding social capital.

4.2 Article 2: *Assessment Thresholds for Academic Staff: Constructive alignment and differentiation of standards*

This article focused on assessment knowledge and abilities as a precursor to assessment change. Results indicated areas of assessment that were troublesome, transformative, involved integration of knowledge, the use of assessment language and demonstrated a repositioning in thinking. In this thesis, “troublesome” was operationalised as instances of new concepts that were unfamiliar, alien and presented difficulties impacting assessment change. Troublesome areas of assessment for participants were; a mismatch between student and academic expectations, lack of consistency in assessment, difficulty in differentiating performance levels, time constraints, workload, and logistical or university system-based constraints. Transformative experiences involved understanding student needs and tailoring assessment to those needs, working with peers to apply assessment criteria to student work, constructively aligning assessment of intended outcomes for meaningful learning, and embracing constraints. Transformational experiences resulted in growth in assessment literacy. Reflection of practice led to integrating knowledge into the participant’s assessment practices and was magnified through collaboration with peers. The adoption of assessment vocabulary was evident, with a gain in confidence in using assessment-specific language. To be defined as assessment thresholds, there needed to be collective evidence toward each threshold aspect (troublesome, transformative, integration of knowledge, assessment language, and repositioning in thinking). Assessment thresholds were identified as constructive alignment (Biggs, 1996) and differentiation of student performance based on criteria and standards.

4.3 Article 3: *Informal academic networks and the value of significant social interactions in supporting quality assessment practices*

This article focused on the value of social interactions in supporting assessment practices and derived a definition of significant social interactions. Synthesis of responses resulted in the following definition:

A significant social interaction is an engaged exchange between people who trust and respect each other, around topics that hold common value, leading to an emotional response, promoting reflection, and resulting in action and/or a shift in thinking (Simper et al., 2022, p. 10).

Pearson's correlational analysis found strong positive correlations between the value of interactions, conversations involving literature, frequency and direction of interactions, and the similarity of individuals. An additional variable identifying the nodes (people in the network) had a meaningful influence on changing assessment. Multivariate analysis of variance suggested that there was a significant difference between relational ties of the nodes that influenced change and those that did not (Wilks' Lambda= .91 $F(5,338)=8.54$ $p<.001$). The variables with the most significant differences in relational ties are listed in Table 2.

Table 4. Differences in relational ties between people that were significant to the assessment change versus other people in the network.

Relational ties	Change nodes n=94		Other nodes n=339		Effect size $d = \frac{m2 - m1}{Pooled\ SD/2}$
	Mean	SD	Mean	SD	
Value of the interaction	3.1	.88	2.4	1.0	.64
Similarity between individuals	3.98	.94	3.5	1.0	.50

The value of relational ties was coded in the six categories of Van Waes et al. (2016) value framework. *Immediate value* resulted from personally beneficial interactions, frequently between peers who taught together. There was immediate value in venting about a situation or being reassured about an approach. *Potential value* was seen with interactions where others' knowledge was leveraged or through idea-sharing. Interactions were coded as *applied value* when they were practical or logistical, such as interactions with students when their direct feedback led to changes. Interactions with an observable outcome were coded as *realised value*, such as those with Teaching Assistants when marking student work or with peers when

collaboratively building a rubric. *Reframing* interactions prompted reflection, as they were interactions when ideas were challenged, or theories were debated, and future opportunities for collaboration suggested *aspirational value*.

Synthesis of quantitative and qualitative findings resulted in six recommendations for utilising significant social interactions and networks for facilitating assessment change. These recommendations were to build diverse networks, appreciate reciprocity, create time and space (for frequent mutual interactions), recognise the benefits of academic communities, and change the culture (through socialisation). A diverse network could be considered as comprising members who hold different values and beliefs. However, in this thesis, diverse networks refer to diversity of the members' roles. The recommendation means that we should seek out people who occupy different roles but who might think much like us.

4.4 Article 4: *Engaging academics and the role of SoTL in Assessment*

Change

This article presented a network change model and factors related to a sustainable change to determine whether an assessment network could support sustainable assessment change in higher education. The change model employed four strategies for success: mini-grants, awarded for successful proposals to aid the academics in achieving their goals for improvement; the use of embedded experts – *assessment facilitators* who worked with academics to achieve mutual goals; a community of practice to build the theoretical basis of assessment knowledge, develop consistency in assessment, to clarify terminology and provide an avenue for collective problem-solving; and social networks for peer-support, and knowledge-sharing. Thematic analysis suggested four themes. Firstly, assessment change was fostered by *intrinsic motivation* to engage students in meaningful learning, clarify criteria, and consistent assessment. Secondly, assessment change was evident in response to *extrinsic motivation* to meet accreditation requirements for the mini-grant award and in response to student feedback. Thirdly, assessment change was achieved through *support* from peers and assessment facilitators and finally, the engagement in *SoTL* was demonstrated by participants who had sustained or propagated assessment strategies.

4.5 Chapter Summary

This chapter presented a summary of findings in each of the attached articles. In article 1, Assessment cultures were evident in the following five themes: Tribes, Habitus, Motivation, Barriers, and Enablers for Change. The findings in article 2 suggested assessment thresholds were bound in constructive alignment (Biggs, 1996) and differentiation of student performance

based on criteria. The findings in article 3 suggested that the value of interactions and similarity between individuals were significant social factors for assessment change. The findings in article 4 suggested that assessment change was fostered by *intrinsic motivation* to engage students in meaningful learning, clarify criteria, and for consistency in assessment. There were also *extrinsic motivators* to meet accreditation requirements, for awards and to address student feedback; assessment change was achieved through *support* from peers.

5. Discussion

This thesis hypothesised that assessment change could be enabled through relationships built on trust and shared experience, with significant interactions encouraging academics to overcome potential barriers and improve assessment practice. This chapter presents a discussion targeted at assessment change leaders, firstly recognising differences across higher education sectors, secondly exploring community and significant social interactions and thirdly discussing the facilitation of assessment change. The chapter concludes with a framework that emerged through the work of this thesis, directed at changing assessment practices in higher education. This framework is developed based on the findings from each article and demonstrates the interrelated nature of assessment culture, assessment literacy, significant social interactions and mechanisms for change.

5.1 Recognising differences across higher education sectors

The thesis assumed the need for assessment reform to meet sector recommendations and requirements. In Australia, the Higher Education Standards Framework (Threshold Standards) 2021 imposes conditions for institutional registration. Australian universities must specify learning outcomes for each course consistent with the AQF level and field of education for the award and demonstrate how these are informed by national and international comparators. Further, that assessment methods are congruent with the learning outcomes, that institutions are capable of confirming that all specified learning outcomes are achieved and that grades awarded reflect the level of student attainment (*Higher Education Standards Framework (Threshold Standards) 2021*, n.d., Section 1.4). The same level of scrutiny was not apparent in the Canadian or Swedish contexts at the time the study was conducted. The development and implementation of the new assessment policy in the Australian university were swift. According to participants, the assessment policy was implemented without much consultation, with a hostile response from academics accustomed to more freedom. Nonetheless, the institutional requirements did provide an effective stimulus for change. However, Holzweiss et al. (2016) suggest that in such a climate, assessment is commonly conducted for compliance purposes, thus undermining the assessment culture.

In article 1 (Simper et al., 2021), the assessment culture at each institution was evident in their institutional policies, practices, unwritten rules and attitudes and behaviours of individuals. Boud (2000) also reminds us that assessment reforms “must be considered within overall curriculum thinking alongside teaching and learning strategies and changing disciplinary content” (p. 1). “Assessment cultures are intertwined between organisational and disciplinary

cultures” (Simper et al., 2021, p. 11). There were considerable freedoms to change assessment in the Canadian and Swedish universities. Still, entrenched disciplinary practices were seen as barriers to change. Individuals needed to leverage their social capital and convince others of the merits of change. Through a process of socialisation, participants actively shared their understanding. Without the stimulus of policy driving change, the positive effects of small significant networks could influence the adoption of quality assessment practices. Whether or not these changes align with the goals of senior leadership is another matter. Article 1 presented the proposition that creating an influential assessment culture lies in the balance between rigid processes and systems and broad academic freedom. Either way, academics need assessment literacy to make informed changes to assessment, address specified learning outcomes, and reliably ascertain the level of student achievement.

Article 2 (Simper, 2020) focused on assessment literacy; assessment thresholds were bound to a new understanding, belief or attitude and a shift in thinking. The acquisition of assessment thresholds (assessment literacy) suggested an understanding of criterion-based assessment and the implications for practice. This understanding provided the impetus for making informed changes to the assessment of student learning. On the other hand, the data analysis in article 1 suggested that in the perpetuation of current practice there was limited opportunities for change (Simper et al., 2021). Before the widespread implementation of learning outcomes in higher education, academics had more autonomy in deciding the processes for grading students. They could make a subjective judgement about what constituted an A grade and did not need to communicate criterion-based expectations to their students. In article 2, when participants encountered a troublesome problem, such as lack of consistency and the perception of unreliable judgements about student performance, they collaborated with peers and discussed the assessment criteria. The discursive nature added to their assessment vocabulary, and “transformational shifts in understanding occurred through engaging conversations with peers or students, or in some cases, through consulting educational literature” (Simper, 2020, p. 11). Direct support was available from teaching centres, with advice or help to draft rubrics and professional development to build an understanding of assessment foundations. With knowledge of the assessment system and the rationale for assessment change, academics can be active in developing an assessment culture (Webb, 2002). Simper et al. (2021) suggested a belief in the importance of learning outcomes, yet assessment literacy was needed to adopt constructive alignment strategies, articulate criteria and reliably assess levels of student performance.

5.2 Community and significant social interactions

A focus on building positive assessment cultures might be found in significant social networks (Roxå & Mårtensson, 2009). They are less formal than CoPs but have similar goals for improvement activities. The benefit of significant social networks is that they happen organically and do not require strategic institutional support. The recommendations presented in article 2 (Simper, 2020) were aimed primarily at academics: to forge trust, build diverse networks, appreciate reciprocity, and create time and space to engage with others. Significant social networks were bound in trust, enabling effective communication, idea-sharing, and facilitating risk-taking and innovation. Bourdieu construes social and cultural capital as being a kind of invisible currency. It can be earned, spent or exchanged, and it is evident in the respect that individuals command. The theory implies that those with social or cultural capital can ask for favours or get away with things others cannot. An example of this was reinforced in the example of change to a long-standing assessment practice in the medical field. When asked how they managed to instigate the Direct Observation of Practice, the participant said, “oh, well, it was sort of a coup. I just said, okay, no OSCE this semester, we’re going to do this - and deal with it” (Simper et al., 2021, p. 9).

Interactions with specific stakeholders were valuable for discussing issues or supporting practical matters, such as teaching assistants marking student work. When it came to longer-term benefits, evidence suggested that it was beneficial to have diverse networks, for example, spanning inter- or intra-institutional boundaries. Network diversity was developed through interdisciplinary collaboration or in settings such as teaching conferences. Valuable interactions had an exchange of ideas and time committed to the conversation. Time limitations in higher education are ever-present, highlighting the need to make time to develop and foster significant social networks. All of the significant interactions reported in article 2 (Simper, 2020) were two-way exchanges. Appreciating the reciprocal nature of the exchange was essential for significant social interactions. The final recommendation in article 2 was aimed at institutional leadership, and that was to recognise the benefits of peer support and the strength of significant social interactions. There were no institutionally recognised rewards or recognition in tenure and promotion metrics for these informal networks or assessment improvement initiatives. However, more than half of the participants had gained tenure following their assessment improvement activities. The suggestion for institutional leadership was to find a way to make this connection more overt.

5.3 Facilitating change in assessment practices

The assessment change project endeavoured to provide a practical example of how assessment change was sustained through networks. In Canada, Higher Education compliance and performance indicators are provincially determined. The Ontario recommendations were directed at consistent methods for assessing agreed-upon outcomes (Lennon et al., 2014). The Higher Education Quality Council of Ontario targeted the development and assessment of employability skills, in this case, critical thinking and problem-solving. In the Canadian context, academic freedom is heavily protected, making it difficult to mandate changes to assessment.

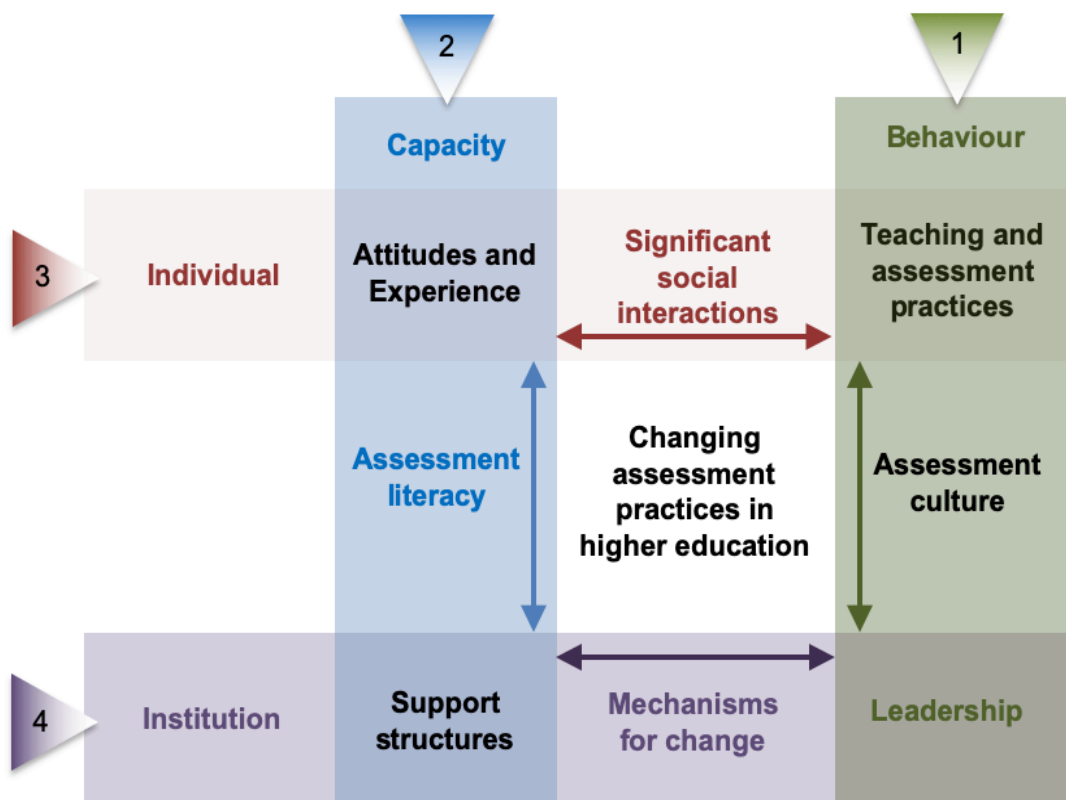
The change model investigated in article 4 closely resembled a scientific management approach (Kezar, 2013) in that the change was goal-driven, utilising cross-functional teams, with clear messaging about the necessity of change. The mini-grants support personnel and provided incentives, but comments more commonly mentioned intrinsic drivers for change. Their main inspiration for change came from wanting to engage students in meaningful learning or the need to clarify criteria. There were cases where changing assessments presented the risk of negative teaching evaluations from students. Assessment methods that allowed students to memorise the lecture content and get high marks on a multiple-choice test were preferable for some students. Moving to the authentic assessment of critical thinking meant that students needed to apply knowledge and apply a theory into practice rather than just identifying the characteristics of that theory. Article 4 reported that the new version of the assessment task (involving critical thinking) was far more complex, thus presenting a problem for some students. When students are unhappy with the course assessment, teaching evaluations can suffer. Student evaluations of teaching are essential at this institution because they form part of the basis for academic tenure or promotion.

A key finding from investigating the assessment change project was the link between engagement in SoTL and sustained change. SoTL is known as an effective tool for evidence-based approaches to improving teaching practice (Openo et al., 2017; Trigwell, 2013). Teaching and assessment are inextricably linked, so it makes sense that the same holds for improving assessment. Normandeau et al. (2020) discuss joining the SoTL conversation with a dual meaning. They suggest exploring and reflecting on the body of knowledge and having conversations with others throughout the SoTL journey because “writing for SoTL goes beyond expectations of form and style, and ... that the SoTL community (the receiver or audience) is multi-disciplinary” (Normandeau et al., 2020, p. 1). This suggestion aligns directly with building diversity of significant social networks.

5.4 Assessment change framework

Figure 4 presents a synthesis of the four research components of this thesis in response to the overarching research question: How can change leaders in higher education affect the change in assessment practices? The answer is presented in the form of a framework for assessment change in higher education. The number in the columns and rows refers to articles 1, 2, 3 and 4. Firstly, assessment culture influences the behaviour of change leaders and teaching and assessment practices. Secondly, assessment literacy involves assessment thresholds that are bound by attitudes and experience. With appropriate support structures, assessment literacy enhances the capacity of academic staff to make quality changes to assessment practices. Thirdly, significant social interactions support individuals in trialling new assessment strategies, gaining experience and reframing attitudes that strengthen teaching and assessment practices. Lastly, change mechanisms require institutional leadership to form a collectively derived, clear vision for changes and support structures, such as aligning change with SoTL initiatives. Each institution has its own culture, as do the disciplines, so there is no single best-practice method for assessment change. As indicated by the arrows, each cell in the framework plays a part. This framework is intended to engage stakeholders in conversations for collaborative solutions to improving assessment practices.

Figure 3. Socio-cultural framework for changing assessment practices in higher education



5.5 Chapter Summary

The discussion in this chapter addressed each of the elements in Figure 4. Implications lead to questions for institutional leaders, such as how assessment literate are we, and what support mechanisms do we need to improve assessment literacy? How do we make time for interactions that matter so that we can build diverse significant social networks? There are also considerations for the institutional assessment policy. Does it clearly indicate the need for reliable, consistent use of assessment criteria? These questions are not meant to be rhetorical; they are a call to action. Change leadership is not the sole responsibility of the senior institutional leaders; it should be a shared responsibility for all. The conclusions from the findings are presented in Chapter 6.

6. Conclusions

This thesis investigated assessment cultures across multiple settings to answer the overarching research question, how can change leaders in higher education affect change in assessment practice? There are four main conclusions, one from each of the included articles. The following conclusions are presented in this chapter. To affect change in assessment practices, leaders must actively shape assessment culture, build academic assessment literacy, utilise significant social interactions to fuel assessment change and lead and support the assessment change efforts. This chapter includes limitations and opportunities for future research, a statement of the significance of the Thesis to the body of knowledge, and concludes with a collective reference list.

For change leaders to affect change in assessment practices and improve the validity and reliability of judgements about student performance, they need to:

6.1 Actively shape the assessment culture

Article 1 reported that assessment cultures formed through a combination of existing disciplinary practices, institutional systems, expectations and the value academics place on assessment. Habitus changes over time as academics conform to or push back on assessment norms and adapt to expectations and policies in place. Those holding social capital can influence the thinking and perspectives of others through discourse and action. Assessment culture influences the behaviour of change leaders and teaching and assessment practices, making it a key aspect in changing assessment practices.

6.2 Build academic assessment literacy

The findings in article 2 suggested that assessment thresholds are bound by attitudes and experience and enhance the capacity of academic staff to make quality changes to assessment. Academics build their understanding of assessment over time through learning from peers, more professional development activities, and teaching and learning scholarship. The assessment thresholds of constructive alignment and articulating standards are essential. Unless academics understand and believe in these values, wide-scale change efforts are likely to stall.

6.3 Utilise significant social interactions to fuel assessment change

Data analysis from article 3 demonstrated that significant social interactions support individuals in trialling new assessment strategies, gaining experience and reframing attitudes. Peer support is enabled through trust-based relationships, sharing ideas, and engaging in reflective practice to build assessment literacy. Strong positive correlations between the network

variables and the value framework led to six recommendations for utilising significant social interactions and networks to facilitate assessment change. These were to build diverse networks, appreciate reciprocity, create time and space (for frequent mutual interactions), recognise the benefits of academic communities, and change the culture (through socialisation).

6.4 Lead and support assessment change efforts

Article 4 concluded that assessment change mechanisms require leadership and support to reach a collectively derived vision for change, with a connection drawn between sustained assessment change and the scholarship of teaching and learning. The recommendation for assessment change initiatives is to balance systems and communities to alleviate barriers and leverage enablers for change. As assessment change is context-specific, the findings from this research need to be applied with respect to the institutional culture. Distributed leadership models and targeted professional development mean that anyone can be an assessment change agent. There needs to be trust and respect built through assessment, knowledge-building and reciprocal exchange. Assessment policies or guidelines can be effective in garnering change. Still, the academic community need to believe in the underlying purpose and have the scope for individual freedom to work within those guidelines. Academics need to join the collective conversation to be part of the solution. Time and workload constraints are ever-present, but including students in the conversation may be one way of combining goals for authentic assessment strategies while managing student expectations.

6.5 Limitations

There are limitations in all research. It is essential to recognise the limitations and strive to minimise their impact. Some readers may hold differing views on how human beings learn and interact and thus disagree with socio-cultural framing. Individuals' viewpoint may limit their acceptance of the findings presented. There are also limitations relating to the sample. It may be argued that views from 35 academics are not adequate for the generalisability of findings. Malterud et al. (2016) suggest that "the size of a sample with sufficient information power depends on (a) the aim of the study, (b) sample specificity, (c) use of established theory, (d) quality of dialogue, and (e) analysis strategy (p. 1754). The sample included in this thesis ensures specificity of responses, thus providing "informational power". The interview techniques are robust and provide quality dialogue explicitly targeted at the aim of the research, with theoretically applied analytical processes. However, utilising a specific sample of university academics who had already engaged in assessment change means that further investigation would be needed to test whether significant social interactions are effective in an alternative

context. For example, supporting change in other higher education sectors (such as Colleges or Technical and Further Institutions) or those more reluctant to change. Further research in these areas is suggested to expand our understanding of significant social interactions and assessment change.

6.6 Significance

This thesis enhances the body of knowledge on building assessment literacy and facilitating change in higher education. The original aspects that this thesis adds to research and practice are:

- Providing the first empirical investigation of assessment culture with data drawn from multiple international sites with evidence demonstrating assessment micro-cultures,
- Establishing thresholds in assessment concepts; the key areas that are essential for academics to understand and believe in,
- Demonstrating the value of social networks for achieving change in assessment practices,
- The creation of an assessment change framework to inform ongoing and future work in assessment change in higher education.

In the current regulatory climate, academics must understand how to assess student learning reliably. Covid-19 disrupted the status quo in higher education (Kumar, 2020). The disruption not only highlighted issues in assessment practices but also presented a necessary opportunity for change. The worldwide shift to remote and hybrid teaching modes during the COVID-19 pandemic demonstrated that academics are capable of adapting their teaching and assessment of student learning. However, with the widespread use of online examinations came issues of academic integrity (cheating), technological issues (access and equity), and the need for academic upskilling in designing questions that target higher-order thinking (Tuah & Naing, 2021). Assessment is a significant prompt for student learning but not if student efforts are misplaced, for example, on strategies for cheating. Institutions are now presented with an opportunity to help academics address assessment challenges while building an assessment culture aligned toward criterion-based assessment of constructively aligned outcome standards.

6.7 References

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7. Assessment Cultures in Higher Education: Reducing barriers and enabling change

This article explores assessment cultures within and across institutions. As the research is framed from a socio-cultural lens, it is important to observe the context, the history and the values of the individuals, disciplines and institutions. These things shape the perspectives provided. As stated in the introduction, the research assumes that there is no such thing as decontextualised learning or knowledge. The institutional structures were similar in that they were all governed through a hierarchical structure, with disciplines grouped into Faculties. However, they differed in the level of autonomy offered to their academic populations.

Little prior research had been conducted on assessment cultures in higher education, and the existing work was based primarily on surveys of institutional leaders. To the author's knowledge, the following article represents the first empirical exploration of assessment cultures from the perspective of academics across multiple international settings. The article adds to the extant body of knowledge in providing evidence demonstrating assessment cultures and supports concurrent validity to previous studies of assessment culture from institutional leaders.



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Assessment cultures in higher education: reducing barriers and enabling change

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ABSTRACT

A series of worldwide projects concerning assessment, student outcomes and quality in higher education has revealed the need for a change in how higher education institutions assess student outcomes; however, many academics remain unconvinced. The success of assessment change arguably depends on the assessment culture within the institution. This qualitative investigation of assessment cultures draws on the perspectives of 35 academics from Australia, Canada and Sweden. Data were analysed through a socio-cultural lens, with results supporting assessment cultures related to institutional structures and collegial relationships. The results also suggest the existence of assessment microcultures embedded in disciplines. This study provides concurrent validity to previous studies of assessment cultures, evidenced from institutional leadership perspectives, through the analysis of academic practitioners' viewpoints. Synthesis of findings observed that a combination of agency for change and policy levers effectively stimulated change. Included are suggestions to address the perceived barriers of entrenched disciplinary practices, institutional systems and logistical constraints. There is limited empirical research on the impact of assessment culture on assessment practices; this study addresses this shortcoming and provides a new aspect to add to the literature on assessment cultures in higher education.

KEYWORDS

Assessment culture;
quality;
policy;
agency;
change

Introduction

The higher education sector faces continued pressure to raise and measure academic quality and performance (Ewell 2012). A series of worldwide projects around student outcomes and quality assurance processes underlined the need for change (González and Wagenaar 2003; Harris 2009; Barrie et al. 2011; Hénard and Roseveare 2012). A typical response to the recommendations has been for government agencies to provide frameworks and impose institutional accountability measures (Salto 2018). Recommendations focused on assessment of employability skills (Gallagher 2010), and concerns were raised around disenfranchising discipline communities, and issues of inconsistency of standards in the assessment of student learning (Barrie et al. 2011). In some sectors, these measures include reporting of student learning outcomes, yet assessment conducted for accountability purposes has been known to undermine meaningful learning (Boud et al. 2010; Rhodes and Finley 2013).

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Addressing recommendations and issues often requires academic upskill and change leadership (Armstrong 2016), but change management in higher education has historically been met with resistance (Kezar 2011), especially when academics are unconvinced about institutional aspirations for meeting recommendations (Baas, Rhoads, and Thomas 2016), and 'relevant professional capability and capacity is required to change assessment practice, which in the field of higher education is in short supply' (Coates 2015, 408). Research suggests that the success of assessment change initiatives depends on the assessment culture within the institution (Magruder, McManis, and Young 1997; Gorran Farkas 2013; Tutko 2018), but further work is needed to investigate relationships between assessment cultures, policies and practices (Ndoye and Parker 2010; Holzweiss, Bustamante, and Fuller 2016). This article explores this area through an empirical study across three contexts internationally and examines how findings relate to the extant literature.

Assessment culture

Assessment culture is 'the deeply embedded values and beliefs collectively held by members of an institution who influence assessment practices on their campuses' (Holzweiss, Bustamante, and Fuller 2016, 20). It is said that assessment cultures are connected to quality (Kalu and Dyjur 2018; Ylonen, Gillespie, and Green 2018; Cardoso et al. 2019), continuous improvement (Goncalves et al. 2018; Stanny 2018) and accountability (Weiner 2009). The empowerment of stakeholders and shared purpose have been common recommendations for developing a quality-oriented assessment culture and navigating the tension between assessment for learning and assessment for accountability (Seagraves and Dean 2010; Eastberg 2011; Meyer-Beining 2020). For example, Hong (2018) highlighted the importance of administrative support, the need for advocates within faculties to shift the assessment culture, and the investment in academic development 'to shift from a culture of compliance towards a culture of assessment with a focus on improving student learning' (p. 116). Other researchers have advocated shared governance approaches to shift assessment culture, for example, through adherence to a set of commonly agreed-upon regulations, procedures and approaches (Beckwith, Silverstone, and Bean 2010; Ndoye and Parker 2010).

Evaluation of assessment culture

There have been few empirical studies focused on evaluating assessment cultures, with the most sizable body of work conducted by Fuller and associates. Utilising a Delphi process, Fuller (2013) surveyed institutional leaders to pilot an assessment culture instrument. In the following research, Fuller, Henderson, and Bustamante (2015) suggested that research on cultures of assessment falls into two categories: (a) institutional practices suggestive of a culture of assessment and (b) conjectural elements hypothesised as fundamental to a culture of assessment. Further work from the research team found meta-themes of organisational structure (linked to accountability) and organisational culture (Holzweiss, Bustamante, and Fuller 2016). Organisational culture was broken into themes of the value of assessment, evolving cultures of assessment, discourse, the value of student learning, and artefacts, traditions and rituals. Additionally, assessment cultures were found to be highly context-dependent, with Skidmore, Hsu, and Fuller (2018) empirically demonstrating that institutional cultures of assessment were bound between cultures of fear, compliance and student learning. To examine the tension between assessment for accountability or assessment for learning, we step back to visit the larger accountability debate related to assessment and assessment culture.

Authority versus autonomy

The focus on performance indicators and quality assurance is intended to improve practice and outcomes for students. Still, accountability requirements have the potential of reducing academic freedom for individuals and institutions in asserting preferences for assessment (Mollis and Marginson 2002). Universities historically upheld academic freedom for their members (Tight 1988). Craig, Amernic, and Tourish (2014) described an audit culture that undercuts autonomy over assessment choices; freedoms being challenged by external forces for accountability (Altbach, Gumpert, and Berdahl 2011; Cole 2017). There is little chance of avoiding accountability in the current landscape, but institutions are in control of how their situation is framed. For example, evaluation of assessment culture found that institutions reporting student learning as their primary purpose of assessment scored significantly higher on the assessment culture instrument than those with accreditation as their primary purpose for assessment (Fuller et al. 2016).

The context of assessment culture

In their literature review, authors found no empirical studies of assessment cultures spanning international settings and speculated that cultures were thought to be specific to an institution. The concept of 'academic tribes and territories' describes disciplinary subcultures in higher education, with disciplinary traditions, practices, rules, collaborations and terminology (Becher and Trowler 2001). Academic tribes are explained in terms of disciplinary knowledge, for example, the hard knowledge of pure sciences versus soft knowledge in the social sciences. Yet, authors hypothesise that contextual specificities of the discipline are suggestive of assessment subcultures. Research on academic tribes draws on Bourdieu's theory; *habitus*, the embodiment of systems of structures (traditions over time) and behaviours conditioned by unwritten rules, *doxa* (Bourdieu 1977). It is suggested that to characterise institutional support for assessing student learning outcomes, 'one must look at the attitudes and behaviours of individuals within that institution' (Weiner 2009, 28). Bourdieu's work refers to *agents* who hold cultural or social capital and can influence others. Advocates for the assessment of student learning outcomes might be referred to as agents. Cultural capital is generated through institutionalised knowledge, and social capital is built through relationships and trust (Bourdieu and Wacquant 1992). Against this background, there appears to be a need to investigate the contexts (of the discipline and institution) related to assessment culture and change.

Research questions

1. What similarities and differences are there in assessment cultures between disciplines and across institutions?
2. What factors hinder or facilitate assessment change?

Methodological approach

This research was inspired by narrative methodology (Clandinin 2006), with assessment culture and change explored through a socio-cultural framework (Bourdieu 1993), based on in-depth interviews to understand the particular experiences of participants. Building from the author's

previous study (Simper 2020), this paper presents an investigation of assessment cultures across institutions and disciplines, explores changes made to assessment, and provides insight into factors that present barriers or enablers for changing assessment.

Method

The primary researcher conducted individual semi-structured interviews with 35 participants from three medium-sized, doctorate-granting, research-intensive universities in Australia ($n=12$), Canada ($n=12$), and Sweden ($n=11$). Interviews comprised three sections. The first section included questions about: (1) the participant's role, (2) their teaching experience, (3) the typical way of assessing student learning within their discipline or faculty, (4) whether their practices differ from the norm, and (5) the processes for changing assessment practices at their institution. In the second section, participants were asked to explain a significant assessment change they had made. In the third section, they were asked to describe their interactions with colleagues related to teaching and assessment. This article focuses on the first section of the interview; see Simper (2020) for results from the second and third portions of the interview. Participants provided informed consent, consistent with the ethical guidelines at each of the institutions. Interviews lasted approximately one hour and were audio-recorded and later transcribed. Participants were assigned a letter to indicate their institution and a number for anonymity.

A purposeful sampling of participants was employed (Patton 1990) to target academics with first-hand experience of assessment processes and departmental and institutional change mechanisms. The sample (Table 1) was limited to those in an academic teaching role, targeting those who had been recognised in their departments or institutions for engaging in assessment improvement activities. Participants were also selected from a range of disciplines to provide diverse perspectives and support potential comparisons between disciplines across the universities.

Analysis and findings

The lead author conducted the initial investigation, which included only the samples where there was a minimum of five participants from each of the institutions (initially excluding education, business or humanities participants). Interview data were coded to a socio-cultural framework (Bourdieu 1993) and analysed thematically (Braun et al. 2018). The exploration of data was undertaken 'to examine the underlying ideas, assumptions, and conceptualisations and ideologies' (Braun and Clarke 2006, 78). A subset (15%) of all quotes were independently coded by another member of the research team, with an initial agreement of 76%. Differences were related to interpretations of categories, and some quotes were found to be applicable to multiple categories. The research team conferred on the coding of comments in categories and made refinements based on discussion and mutual agreement.

The next step was to observe similarities between disciplines. The research team noted that disciplinary differences were only evident in assessment norms and practices. Therefore, the remainder of responses (from education, business or humanities participants) were included.

Table 1. Disciplinary and institutional distribution of the sample.

University (national setting)	Business ²	Education ²	Engineering	Health sciences	Humanities ²	Sciences	Social Sciences	Total
A (Australia)	2	1	4	0	2	2	1	12
B (Canada)	0	0	4	3	1	1	3	12
C (Sweden)	1	1	2	2	0	2	3	11
Total	3	2	10	5	3	5	7	35

²Disciplines with fewer than five participants were not included in the analysis for the themes of Tribes and Habitus.

The analytical process was repeated, and results were included in the sections on habitus, motivations, barriers and enablers for change. Findings across each setting were discussed, and comparisons were drawn between institutional cultures, with resulting themes compared to the assessment culture themes from Holzweiss, Bustamante, and Fuller (2016) and mapped in Table 2.

Tribes

It was common for participants to point out that there was no single way of assessing student learning, but all were able to describe general assessment norms in their discipline. These differed between disciplines, but there was a striking similarity in assessment practices for the same disciplines across universities. The following sections present disciplinary evidence of assessment culture tribes.

Engineering disciplines

There were 10 participants from engineering who all initially focused on forms of assessment (such as examinations and group projects). When asked to explain how they assess student learning, they all described criterion-based assessment rubrics to determine the level of competence for a range of articulated attributes. For example, *everyone has marking criteria* (A4), or *there were people who had real experience putting together rubrics* (B11), or *you set up your criteria and figure out a way of defining levels of performance* (C10). Engineering is an accredited field, meaning that industry bodies set professional competencies and audit the program to ensure they are met. Six of the participants spoke about professional or accreditation requirements as a driver for creating assessment rubrics. Two of the participants were sceptical about the effectiveness of rubrics in determining student competence, for example, *it doesn't matter if it's mechanical, biomedical, chemical, there's a particular technical skill ... but it's subjective on whether they have achieved some level of competence in that area* (B4); or, *the rubric, will totally focus students into, well, all I have to do are these things, and if I do these things then I will pass my assignment* (C10).

Health sciences disciplines

There were five participants from health sciences who all focused on the differences between assessment of knowledge versus skills. The assessment norm was to test theoretical knowledge in examinations, and practical skills in an applied way. As this participant put it, *assessment of knowledge is done by means of knowledge tests, and with very few exceptions, it's a final written exam. Practical procedures are assessed in various ways* (C2). Half of the participants mentioned team-based learning, two identifying challenges that it posed for evaluation of individual

Table 2. Themes of assessment culture and change – mapped to Holzweiss, Bustamante, and Fuller (2016, Assessment Culture).

Themes	Findings	Holzweiss, Bustamante, and Fuller (2016) Assessment Culture	
		Organisational structure	Organisational culture
Tribes	Embedded disciplinary practices	Organisational structure	• Artifacts, traditions/rituals
Habitus	Peer induction		• Evolving cultures of assessment
Motivations	Policy and agency		• The value of student learning
Barriers	Readiness, systems and logistics		• Evolving cultures of assessment
Enablers	Capital, academic community and peer support		• The value of assessment
			• Discourse

assessment. For example, *yes, well, that's formative (C6)*, meaning they provided feedback but did not include these in the numerical calculation of grades.

A shift in assessment culture was suggested from a participant at each institution, such as, *that's how it's been until now, but it's beginning to change (C2)* and *there started to be a change in how people are thinking about assessing students (B12)*. Participant C2 questioned the effectiveness of testing medical skills in isolation and spoke of a preference for authentic assessment. The example spoken about was describing a change to the OSCE (objective structured clinical examination). OSCEs have been used since the 1980s for the assessment of skills in medical and allied health fields. Historically, they have been implemented at the end of a course, separate from student's clinical practice. The participant remarked that the environment for changing this long-standing practice required reverting to the *wild west*. The participant instituted a change to an embedded method of assessing skills, called the Direct Observation of Procedure Skills (DOPS).

Science disciplines

The five participants from the science departments suggested that there had been little change in forms of assessment in the sciences; *the dominant paradigm still exists; it's experimental, so laboratory reporting, exams and tests (A1)*, or, *we have a course syllabus that's ten years old, but they are written in a way that doesn't become old... So, we do written exams much the same way as they did when I was a student (C5)*. Individual assignments and reports were referred to, but as one participant mentioned, *the biggest way of assessing is in exams and mid-terms (B8)*, and much of the assessment was weighted to the end of the semester. Even when prompted, there was very little mention of assessment methods from the sciences participants. Two participants mentioned rubrics, but as this participant said, *it was not rubrics that I necessarily would have chosen (with a) focus on the syntax and the spelling, and things like that (C5)*, the other described marks being based on the correctness of the answer, but not explained in terms of quality (as they would be in a rubric). Marks were quantified, for example, *in chemistry if they drew the right structure, they get a mark, or if they forget a significant figure, they lose half a mark (A6)*. This type of assessment presented problems with students cheating. One participant suggested that it was difficult to change things, saying, *when we aren't worried about every answer being google-able in four seconds, then we can have more creative ways of assessing things (B8)*.

Social science disciplines

There were seven participants from the social sciences; four described their assessment as traditional, but all suggested there was a reshaping of approaches. For example, *we have seen a move away from the traditional assignments to more authentic assessments over time (A5)*, and there had been a concerted effort to focus on *conceptual and applied questions rather than just spinning out the definitions (B5)*. Written and oral assessments were mentioned to allowing students to argue their position; *we want them to develop their own knowledge and (understanding in) their own role (C7)*, and formative assessments methods were reported to make use of oral and written feedback for improvement. Assessment methods considered the quality of achievement, with six of the seven participants mentioning either criteria, descriptions of expectations or rubrics specifically. However, two commented on challenges in the application; for example, *it's not always that easy to follow these criteria (C7)*.

Overall, the evidence supported the proposition of disciplinary tribes, differences in norms and practices within each institution, but consistent in disciplines across settings. The evidence also suggested that some of the disciplinary norms were in an evolving state.

Habitus

Uniformly across participant comments was the suggestion of inducting academics into their disciplinary practice to maintain the existing assessment practices. While different strategies were used (such as peer teaching, buddy system, line manager passing on curricula documentation), the intent appeared to be the same across universities in perpetuating current practices through socialisation. Examples of this were noted in comments such as, *they'd be buddied with someone more experienced and they'd get to learn the ropes and understand what's possible* (A1); *There are a lot of unwritten practices that have been passed on from previous instructors* (B7); *We have to just follow this road map that is already laid out* (C5). Habitus also pertained to the perpetuation of attitudes and dispositions, such as the minimal value historically placed on student learning suggested in this comment; *the advice from my then department head was, 'just be sure not to waste too much time on your teaching because tenure depends only on research'* (B3).

Motivations

Within the participant responses, there were intrinsic and extrinsic motivations for change that appeared to be influenced by institutional contexts. Intrinsic motivation was found in the academic's freedom to reach their own goals for improvement. This was more apparent at universities B and C; for example, *I think that that's a charming part of this job is that one, 'here's your room, here's your course, and really do it as you like'. Take help from your colleagues if you want, and can, and need to* (C9). At University B, there was considerable freedom to change assessment. As this participant put it, *there's no prescribed, institutional way of doing things. It's up to individuals* (B8). Another comment, *the undergraduate teaching role is basically a collective agreement to provide the instructors with a lot of flexibility and freedom as to what they want to do* (B7). The freedoms afforded at Institution B also led to initiatives such as this one: *A kind of critical friends concept. I've actually done that with a colleague; she went to my course, and I went to her course and then we sat down together to develop how we can assess what we're doing* (B6).

The extrinsic motivation was most evident at University A. There was some resentment from academics at this university about the new assessment policy's implementation procedures, but it did provide motivation for change.

We've got an almost singular focus here; curriculum is assessment. That is the view that's held by a number of bureaucrats through the higher education quality standards framework. You'd better agree on a set of outcomes, the outcomes have to be developed as a consequence of the student's experience, and they must be assessed and moderated. We're supposed to do moderation pre, inter and post. It's expected that it's referenced to your intended outcomes. (A1)

Some participants reported novel ways to manage the demands of working within the policy: *with the new assessment policy, you can have three assessments. So, the way I've gone, is I have one that is cumulative; I call it 'professional practice portfolio', where I embed the lab component and the theory into the one portfolio* (A6). Some participants found a way to use the new policy in a constructive way. For example, *would we have gone down this path if we didn't have that extrinsic motivation? Probably not. So, we're making the best use of what we can* (A7).

It was apparent that the universities had different cultures around freedom or control, but whether the drive was intrinsic or extrinsic, there was an underlying motivation to change assessment.

Barriers to change

Participant responses suggested that there were three main barriers to change: (1) historical resistance, (2) university systems, and (3) logistical constraints. While these were similar across

universities, there were some contextual differences. Firstly, resistance to change, based on historical expectations was evident in each setting. For example, a participant describing a change to the final assessment explained the nature of resistance: *they (his peers) were so irritated and confused by this at the grass-root level. That's where the main resistance was. And I think the resistance was mostly that teachers needed a final exam because if they didn't have a final exam, they couldn't say whether a student was fit or not, so in the mind of the teacher, the final exam was the only thing that was valuable* (B2).

Secondly, university systems presented constraints that were contextually specific to each institution. Ten of the 12 participants at University A referred to the approval systems or time-lines required as a barrier to assessment change. For example, *if you want to do something bold, and particularly to shift the proportions of assessment, that would have to happen months ahead* (A1). The following participant indicated that they were working on strategies to navigate this constraint:

They're (administration) not particularly agreeable to doing different assessments, they have to be the same, or relatively equivalent. There's all these rules and regulations, so I'm trying to work out how I can sail close to the wind and over the top of these things. (A3)

At University B, there was considerable freedom, yet, directives passed on without consultation (such as academic regulations) were seen as constraining by half of the participants (from three disciplinary areas). For example, *we have been very much stultified by the requirements that have been coming out centrally* (B5). Another participant spoke of the imposed constraints undermining student learning, saying: *we don't have exams, and we've been told that everything has to be marked for a particular student within an hour, and if it's not, then you have to shorten the assessment so that it can be marked within the hour* (B3). At University C, 7 of the 11 participants reported that they had little opportunity to make changes because of their teaching role. As explained by this participant, *the form of system is that you have different types of roles, and the examiner is the one who signs all the papers and is the one who gives the final word on things or actually decides how things are done, basically* (C3).

Thirdly, there were logistical constraints that presented barriers to change, such as limited time and issues associated with technology. There were five comments from different universities about not having enough time for assessment activities, like *part of that wedge* (for conducting moderation) *was the workload component* (A1), or this explanation as to why they have not made as many changes to assessment as they would like to have because *it takes a lot of time to prepare and do it well* (B13). In addition, three participants mentioned technological constraints, one from each institution. One mentioning assessments for an online course that required access to software, to become *more flexible concerning time and so forth, and maximise the use of those resources that we were given* (C3). Another participant (B8) spoke about needing software for peer reviews, and participant A7 mentioned that the assessments she was implementing would not be possible without utilising software for simulations.

Enablers for change

Social and cultural capital

When considering a change, participants sought advice from individuals they trusted and respected. For example, *one of the things that I quickly picked up on way back when I first started was, 'okay, these are the key decision makers'. They may not necessarily have an official title, but I talk to them and get their opinion* (B4), and *our department manager who is also our Undergraduate Chair. She's important because she knows all of the policies* (B12). It appeared that change was easier for some participants to implement. A participant who had been teaching for 20+ years and identified himself as an innovator, *I pretty much don't go a semester where I'm not doing*

something new (B2). There were also those who led by example, such as the change of the OSCE to DOPS. When asked how they managed to instigate such a change, *Oh, well it was sort of a coup. I just said, okay, no OSCE this semester, we're going to do this [swipe sound effect] and deal with it* (C2). Those participants held enough capital to make the change. On the other hand, when newcomers tried to force change, there was evidence of resistance. Like this example, *she came with all these new-fangled ideas to us... she didn't understand the culture here, and she alienated everybody* (B3).

The academic community and peer support

Participants from all institutions mentioned that they had peers with whom they discussed teaching and assessment. For example, *my colleague next door, we've been working very close in tandem* (A12), *a very good friend of mine in the department; we do talk about teaching and learning, she also teaches a big course, and we also talk about our frustrations and support each other in that way* (B5). Another mentioned, *she is the expert on distance learning, so if it's something related to that, I would talk to her* (C4).

Collegiality was actively encouraged at each university, but with varying cultures around uptake. At university A, a firm system was in place for making changes to the curriculum or assessment, with *a broad level of consultation around change. There'd be proposals put to teaching and learning management committee, and those changes would be reviewed within the broader context of the curriculum itself* (A1). Teaching teams discussed matters related to their course, or committees met with an agenda; *we're trying to get mapping of our assessments across the undergraduate program, we tend to discuss it in the undergraduate team* (A5).

At university B, there were efforts to facilitate discussion, but comments suggested that organised events were not very frequent. One participant recalled, *the year before last, we hosted a teaching brown bags, yesterday we were going to hold one where people would just brainstorm about what you're doing in your course* (B6). One of the discipline leaders cited time pressures as a limitation: *we encourage them to talk to others about teaching and assessment, but everyone's so busy, they don't have time to do it* (B8). It was not part of the culture at university B to discuss teaching and assessment, and it seemed that few academics valued the opportunity. For example: *personally, I don't like (attending meetings to discuss teaching)... it's the banal conversations that often go on* (B4). However, all but one participant mentioned that they had informal conversations about teaching and assessment.

A collective community was more evident at university C, where participants from all disciplines prided themselves on their collegiality. In addition to informal gatherings, there were regular teaching team meetings (including student representation) where decisions were democratically made. As this participant said: *it is very often you have someone to discuss the grading and so forth. So, in this way, we are socialising our norms* (C7). Another participant spoke about group consensus and minimum standards for students; *they were trying to decide 'what's a fail' and 'what's not a fail?' 'does this mean it's a fail, or not?'... So, we've been having a big practice that everyone can participate in and agree on* (C3).

Across the three settings, the most commonly mentioned factor in relation to assessment change was collaboration with peers. The sub-text to these socially-driven enablers for change was the appreciation of assessment demonstrated by participants, with discourse as the avenue to discuss viewpoints on assessment.

Discussion

Looking across all of the data, it was apparent that disciplinary assessment norms and attitudes transcended institutional boundaries. Ylonen, Gillespie, and Green (2018) argued for the effects of disciplinary assessment cultures, and we support their argument in the form of academic

tribes. Becher and Trowler (2001) refer to territories shaped by practices with distinct characteristics discernible within disciplines. These ideas have been carried in the field of academic development, with the investigation of academic microcultures (Roxå and Mårtensson 2015). This converging research, together with findings from the current study, support the assertion of assessment microcultures. Academics being inducted into the systems of assessment appeared to create stability in the form of socialisation into a collective *habitus* (Bourdieu 1977). Bourdieu and Wacquant (1992) suggest that people have a practical sense or a fuzzy logic informing their behaviours. Their strategies are based (consciously or unconsciously) on their perceived probability for success. Collectively, we see assessment culture characteristics that align with the artefacts, traditions/rituals and evolving themes from Holzweiss, Bustamante, and Fuller (2016).

There were institutional influences on assessment cultures, manifested through structures and policies. Previous assessment culture research saw a breakdown between organisational structure and organisational culture (Fuller et al. 2016). Similarly, in this research, we saw these changes happen from the system (for example, external recommendations and deployment of policies). It is recommended that assessment cultures be built through the empowerment of stakeholders and shared purpose (Beckwith, Silverstone, and Bean 2010; Ndoye and Parker 2010; Seagraves and Dean 2010; Eastberg 2011). In the current study, a shared purpose was evident between peers but notably absent at the institutional level. Unwritten rules and situational factors, such as limitations in technology or resources, stymied change. Participants demonstrated readiness for change, but their institutional change mechanisms needed to be more flexible to enable prompt implementation. The implementation of a new assessment policy at institution A was not welcomed. It was seen as constraining and not in the students' best interests; nonetheless, it did create a stimulus for change, echoing Ndoye and Parker's (2010) comments related to the need for regulations and procedures.

The argument for the balance between structure and agency in higher education is not new (Ashwin 2008). Debating this in context of assessment culture, we look to Hong (2018), who suggested that advocates within faculties could facilitate a shift from a culture of compliance to a culture of assessment. Sociologists use the term *agency* to describe the capacity of a person to act according to their wishes (Emirbayer and Mische 1998). Bourdieu and Wacquant (1992) suggested that *agents* who hold cultural or social capital are in a position to influence others. Participants from Universities B and C were motivated by the freedom to change facets of their assessment that they felt improved student learning, and an active discourse of assessment was enabled through community and peer support.

Figure 1 presents a synthesis of findings, suggesting a balance between policy and agency. We have extrapolated on findings to present a symbolic representation of the barriers weighing down change, and the enablers, balancing the load.

Limitations

This study's total sample size was 35, but the initial analysis was conducted on the 27 participants from disciplines with minimum representation. The nature of research question one required disciplinary representation across multiple universities focused on data from participants in engineering, health sciences, sciences and social sciences. Results from the whole sample allowed for modest institutional representation. A larger sample would have been preferable but was limited by the number of participants who could commit the time for the interview. While the sample comprised a range of participants, they were all actively involved in teaching and assessment improvement activities, potentially biased towards change. Further research is needed to determine how academics reluctant to change would respond to the suggestions made in the current study.

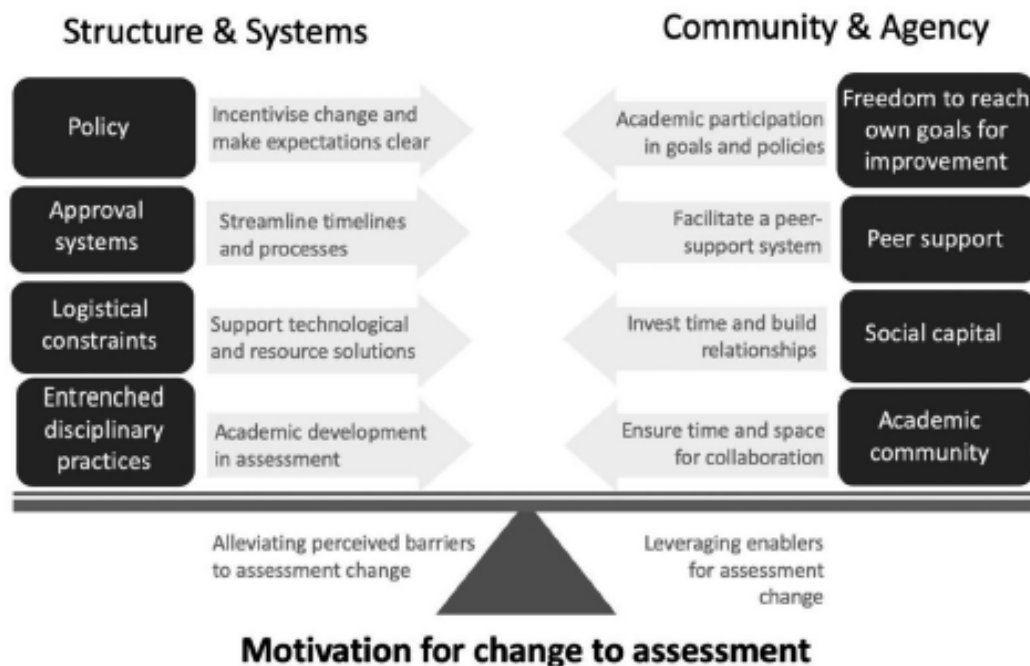


Figure 1. Suggested strategies for facilitating assessment change.

Conclusions

This study explored assessment cultures across multiple settings to observe factors affecting assessment change. Investigation of data from narrative interviews with 35 academics from three universities (in Australia, Canada and Sweden) suggested that assessment cultures were shaped by disciplinary practices, institutional systems, expectations and the value academics place on assessment. Assessment practices were dependent on disciplinary traditions, perpetuated when new academics were inducted into disciplinary norms. The results in the current study add to previous findings that assessment cultures are intertwined between organisational and disciplinary cultures. Evidence suggested that habitus changes over time as academics build their own understanding of assessment principles and adapt to policies in place. Barriers to change were evident where disciplinary practices had become entrenched, where there were logistical issues, and when systems were inflexible. The freedom to act was found to be a motivator for change and was heightened by policy levers. People who held social capital were more readily able to make changes, and peer support was more evident where there was an institutional collegial climate.

As we have seen recently, the COVID-19 situation presented the need for an almost overnight shift to remote delivery and wide-scale changes to assessment. Institutions are now presented with an opportunity to help academics address assessment challenges while building a positive assessment culture. For institutional leaders and others wanting to affect change in assessment, the recommendations are to invest in the community and peer support mechanisms; change agents need to be respected and trusted. Secondly, utilise extrinsic motivation through assessment policies or guidelines that describe requirements for quality assurance while safeguarding academic agency for change. Processes should include the scope for individual freedom to work within the guidelines, thus leveraging intrinsic motivation for quality improvement.

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No potential conflict of interest was reported by the authors.

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8. Assessment Thresholds for Academic Staff: Constructive alignment and differentiation of standards

Research investigating assessment change assumes first that change is necessary and second that there is the institutional capacity to do so. Assessment change requires an understanding of the purpose of assessment. Assessment thresholds are dependent on assessment literacy, which was explored through episodic narratives to unearth the situation where a shift in thinking or behaviour occurred. Threshold concepts are figurative gateways (called liminal space) through which a permanent change in thinking or behaviour is traversed. The theory suggests that they are evident through the following indicators: meeting troublesome knowledge, experiencing transformative learning, integrating new knowledge, moving beyond boundaries, a discursive shift (adoption of new language or terms), and repositioning views or beliefs. Thresholds are identified in concepts where all of these factors are found. For example, while there were many troublesome areas, many were procedural and not transformative. Assessment thresholds were found in an understanding, belief in, and ability to constructively align learning and assessment, and differentiate performance standards. Without acquiring these assessment thresholds, efforts for assessment change in higher education will be challenging.



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Assessment thresholds for academic staff: constructive alignment and differentiation of standards

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ABSTRACT

This qualitative study utilized episodic narrative interviews to investigate assessment thresholds involved in the development of assessment literacy. The goal of the study was to inform efforts toward quality improvements in higher education. Thirty-five academic staff from universities in Australia, Canada and Sweden shared stories of significant changes they made to their assessment practice. Thematic analysis found troublesome aspects to include instructor expectations, lack of consistency, differentiation of performance, student expectations, time constraints/workload, logistical/technological constraints and assessment policy. A belief in meaningful learning, embracing constraints and the desire to meet the needs of students, added to other enablers for assessment change, such as resources, support and strategic use of technology. Findings suggested assessment thresholds of *constructive alignment and differentiation of standards*. Reflection, collaboration and professional development were found to support the integration of assessment knowledge and build conceptual understanding of assessment thresholds. Authors recommend that higher education institutions provide academic staff with a foundation of conceptual understanding of these key areas to promote moves toward quality assessment practices.


KEYWORDS

Assessment literacy;
constructive alignment;
performance criteria;
collaboration; professional
development

Introduction

Over the past decade, a great deal of attention has been paid to assessment of student learning in higher education, led by guidance and regulatory publications from various agencies (González and Wagenaar 2003; Harris 2009; Barrie et al. 2011; Hénard and Roseveare 2012; Jankowski et al. 2013; Tremblay 2013). Assessment has been positioned as central to efforts for quality improvements in higher education, yet academic support and development have been primarily focused on teaching practices (Steinert et al. 2006), and there has been limited evidence directly linking improved teaching with specific assessment practices (Baird et al. 2017). There is also debate about the effectiveness of different types of assessment on student learning (Falchikov and Boud 1989; Briggs et al. 2012).

Research around assessment literacy suggest that academics require expertise beyond their disciplinary knowledge, incorporating specific knowledge and skills in education and assessment (DeLuca, LaPointe-McEwan, and Luhanga 2016); including the language of assessment, the purpose and systems of assessment, ability to work with guidelines on standards, and the ability to illustrate the way standards are communicated (Abell and Siegel 2011; Medland 2019). This a tall

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order for academics in higher education. Meeting requirements for quality assurance has generated a culture of compliance when it comes to assessment, but not necessarily improved outcomes (Stensaker 2003; Brown 2004; Shah and Jarzabkowski 2013). The use of assessment for accountability has been known to undermine meaningful engagement in quality practices (Boud and Dochy 2010; Rhodes and Finley 2013; Biggs 2014).

Assessment

Confusion can stem from the use of the word assessment, so defining terminology is an important step in facilitating discussion of quality assessment practices. It is commonly used as a label for the type of activity, such as high-stakes assessments, pre-assessments, formative assessments or summative assessments ("Assessment Definition," 2013). However, the practice of assessment "involves identifying appropriate standards and criteria and making judgements about quality" (Boud 2000, p. 151). The word evaluation is sometimes used in place of assessment, but more generally for determining teacher or program effectiveness (Popham 1974). To confuse things further, assessment is also used interchangeably with the word assignment to describe a submitted product, as in, *students are penalized if they hand their assessment in late*.

Assessment literacy

The lack of clarity in terminology and limited understanding of assessment more generally has prompted research in the area of assessment literacy. Medland (2019) suggested that key areas for assessment literacy were the ability to apply basic principles, provision of feedback and the use of constructive alignment. Constructive alignment is "an outcomes-based approach to teaching in which the learning outcomes that students are intended to achieve are defined before teaching takes place" (Biggs 2014, p. 5). Reimann (2018) described assessment literacy as having an understanding of:

- the language of assessment,
- the purpose of assessment,
- the systems of assessment,

Further, the ability to:

- work with guidelines on standards, and
- illustrate the way standards are communicated.

The above knowledge and traits allude to thresholds in understanding or application when it comes to assessment. To date there has been no empirical research around threshold concepts for assessment.

Threshold concepts

Threshold concepts have had increasing appeal since their conceptual origins (Hounsell et al. 2005). Described as *a portal* to new ways of thinking (Meyer and Land 2003), but ambiguity in their properties have led authors to understand them in different and sometimes incompatible ways (Rowbottom 2007). Threshold concepts revolve around the idea of liminality as a fluid state of understanding or being. The liminal space is where individuals work through stages of uncertainty, referred to as "receptivity, recognition and grieving, in which an established pattern of meaning is no longer tenable or valid for future practice" (Land et al. 2005, p. xiii).

Threshold concepts include the following characteristics, they are:

- Troublesome because they move from the familiar to unknown territory. Troublesome knowledge is characterized as inert; ritual; tacit; counter-intuitive; alien; conceptually difficult knowledge; or related to troublesome language. This 'troublesomeness' is what triggers or instigates the threshold concept 'journey' (Meyer and Land 2003, 2006)
- Transformative: Involving a cognitive shift in understanding, or a change in ontological position (Land et al. 2005; Atherton, Hadfield, and Meyers 2008; Irvine and Carmichael 2009; Walker 2013).
- Integrative: The learner becomes aware of the inherent interrelatedness of threshold concepts as they move toward expert knowledge. (Meyer 2010; Meyer and Timmermans 2016).
- Irreversible: A transformation in understanding makes it difficult to go back to a novice of naive view of concepts (Cousin 2006; Davies 2016).
- Bounded: Arguably pertaining to a specific domain, but helping learners explore the edges of conceptual knowledge (Walker 2013).
- Discursive: A shift use of language provides a new way of talking about the concept (Meyer and Land 2003; Carmichael 2012)
- Reconstitutive: Integration can also entail a shift or repositioning in the learner's position (Land et al. 2005).

Although there is conceptual similarity, threshold concepts should not be confused with the frameworks for discipline-specific standards in Australian higher education, called Threshold Learning Outcomes (Tertiary Education Quality and Standards 2015) or the benchmark statements in the U.K. (Quality Assurance Agency for Higher Education 2018). These standards cover specific and general knowledge, skills and application in the context of disciplines, but there has been no direct assertion that these are threshold concepts.

Methodologies for research on threshold concepts in academic development

A search for the term *threshold concepts* in the abstracts of publications in the last 10 years found 725 results encompassing 56 different disciplinary fields. Despite the breadth of investigation, there are inherent difficulties with empirical exploration of threshold concepts (Rowbottom 2007; Barradell 2013; Basgier and Simpson 2019). For example, "what if a concept is troublesome and integrative but not transformative, is it still a threshold concept?" (Barradell 2013, p. 266). Threshold concepts are themselves proposed to be a threshold concept for academic staff (Basgier and Simpson 2019).

Threshold concepts have been primarily studied to develop discipline-specific understanding. Of the 725 threshold concept search results, only 11 of the publications related to *faculty or academic development*. Figure 1 plots the frequency of publications with *threshold concept* mentioned in the abstract, sourced from books, book chapters, journal articles, reports, theses or dissertations. The sub-set of publications that include the *subject* of faculty or academic development are indicated with triangle markers.

Thresholds experienced by academic staff have been studied through interpretative phenomenology by investigating the lived experience using various methods such as "assessed dialogue" (Pilkington 2019), case studies (Quinlan et al. 2013; Timmermans 2014), critical incident interviews (Shinners-Kennedy and Fincher 2013; Basgier and Simpson 2019), semantic networks (Walker 2013), semi-structured interviews (Quinlan et al. 2013; Wilcox and Leger 2013; Rodger, Turpin, and O'Brien, 2015; Reimann 2018), survey/focus groups (King and Felten 2012; Webb 2015; Kilgour et al. 2018), or reflective narrative inquiry (Carmichael 2012; Timmermans et al. 2018).

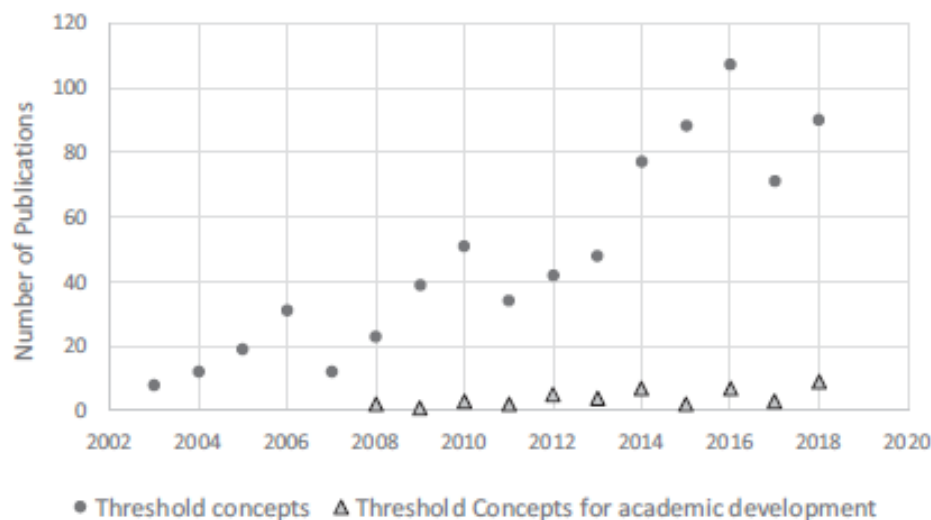


Figure 1. Increasing frequency of publications featuring threshold concepts.

The *critical incident* technique (Flanagan 1954) stood out as a way of navigating the ambiguity surrounding the transformative nature of thresholds. It was suggested that thresholds can be qualified as ‘stand out’ experiences of profound learning, and that “acquisition of a threshold concept is described as an emotionally laden event that can have the effect of altering the learner’s view of themselves” (Shinners-Kennedy 2016, p. 257). In the critical incident interview, experts are asked to provide the contextual background and circumstances surrounding a situation of critical significance to their role, with multiple perspectives contributing to a broad understanding.

The goal of the current study was to explore threshold concepts related to assessment in higher education, adding to the limited literature around thresholds for academic staff. The current study explored changes in assessment, seeking to uncover the point at which a symbolic threshold was crossed, with an irreversible change in knowledge, perception or behaviour.

Research questions

1. What troublesome areas triggered academic staff to change their assessment practices?
2. What thresholds were apparent in the conceptual understanding of assessment principles for academic staff?

Method

The critical incident technique (Flanagan 1954) was adapted to create an episodic narrative interview protocol (Flick 2000) for the purpose of uncovering the perspectives underlying assessment thresholds. The interview involved participant’s description of a significant change they made to assessment. It is theorized that episodic memory can (among other things) be accessed flexibly, expressed symbolically and used as a basis for inferences (Terrace and Metcalfe 2005).

Procedure

Interviews ran for approximately one hour, conducted in a private location of the participant’s choosing. Ethical consent was obtained, and interviews were audio recorded to produce transcriptions. There were five introductory questions asking about participant’s role, teaching

experience and assessment at their institution. Following that, participants were asked to think about a significant time when they changed the way they assessed student learning. A list of ideas was provided for reflection, but the responses were not constrained to these: adopting rubrics or quality frameworks; change in assignment or intended outcomes; student self or peer assessment; change in assessment structure; moderation or training for consistent judgments. After sufficient time to reflect, participants were asked to explain the situation, providing as much detail as possible. Prompts included the context, details of the student group, size, year and needs. They were also asked to explain the reasons behind the change, and the result or outcomes from the change.

Participants

In seeking rich accounts of the phenomena of thresholds for assessment in higher education, purposeful sampling was employed (Patton 1990). Participants were recruited from medium-sized, doctorate granting, research intensive universities, one in Australia ($n = 12$), one in Canada ($n = 12$) and one in Sweden ($n = 11$). The sample was delimited by academic teaching role, active involvement in assessment improvement activities or recognition of teaching excellence. To improve generalizability, participants were sampled from a range of learning areas. The sample comprised academic staff from business (9%), education (6%), engineering (29%), health sciences (14%), humanities (9%), sciences (14%), and social sciences (20%). There was an array of seniority: graduate teaching fellows accounted for 9% of the sample, adjunct/sessional lecturers, 9%, assistant professor/lecturers (continuing appointment), 17%, associate professor/senior lecturers, 46%, and heads of department 20%.

Analytical approach

A reflexive thematic analysis process was followed (Braun and Clarke 2006), observing the centrality of researcher subjectivity in identifying data that related to classified forms to generate overarching patterns. The state of mind or moment prior to change was of particular interest for the qualification of a 'stand out' experience. The seven characteristics of threshold concepts were reduced to four topics to encompass the overarching principles:

- troublesome aspects for assessment;
- transformation (irreversible cognitive or ontological shift);
- integration and bounded knowledge;
- specificity and the use of assessment language and repositioning.

Following a close reading of the transcripts, the data were grouped into these areas, then themes were generated and relationships were drawn. A synthesis of the themes is represented in Figure 2.

Results

Participants spent differing amounts of time selecting an assessment change example that was meaningful for them. Some participants referred to changes in the type of activity used to evaluate student learning and others to changes in methods for determining the level of performance. Participants who had been teaching for longer generally spent longer sorting through their recollections and sometimes started with one example and then changed to an example that was more relevant or meaningful to them. When asked about the reason for the change, participants

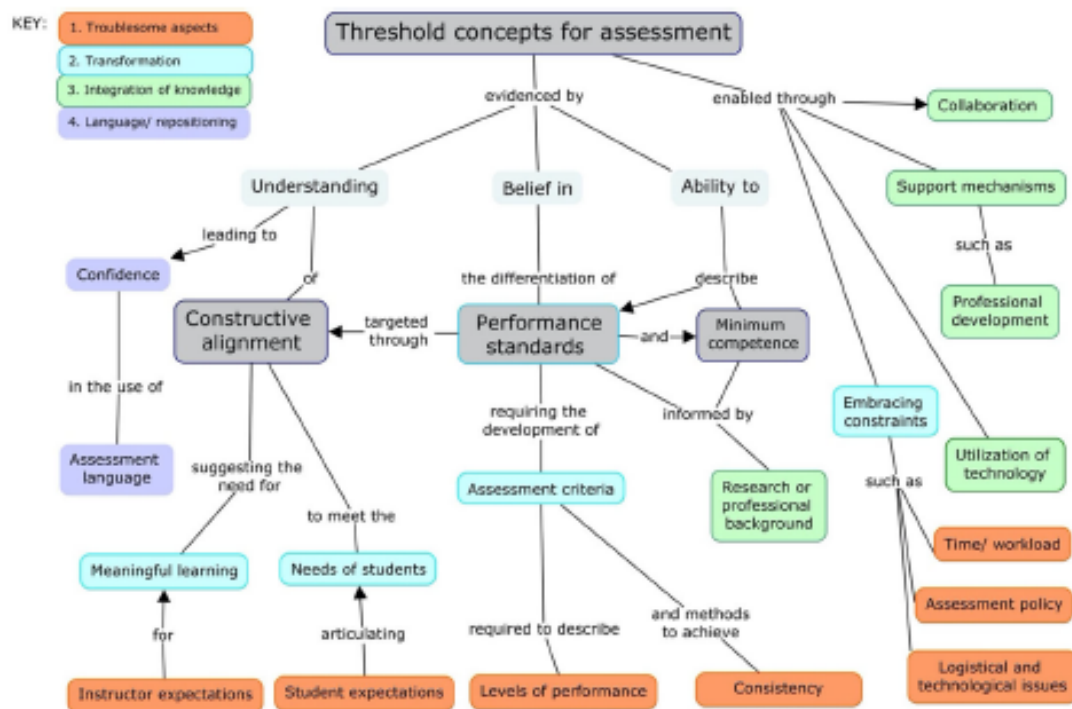


Figure 2. Mapping of derived themes and evidence of threshold concepts in assessment.

recounted an issue or problem that they had encountered; troublesome areas that had prompted change.

Troublesome aspects for assessment

The themes resulting from these problematic areas are displayed in Table 1, with the frequency they were observed at each institutions and indicative quotes. Comments were coded as:

- A. instructor expectations, when academic staff wanted their students to engage in a more meaningful way with the content.
- B. Lack of consistency was troublesome because of the perception that judgements about student performance were not reliable or fair.
- C. Differentiation between levels of performance was cited as troublesome because of difficulties describing the quality of performance.
- D. When students vocalized their concerns, student expectations prompted academics to make changes to the type of evaluation activity or the method of assessment.
- E. Time constraints and workload were mentioned as problematic to the point that changes were made to practices.
- F. Logistical or technological constraints were troublesome for individuals across all three sites.
- G. At site three there had been recent, sweeping changes to the assessment policy, leading to difficulties in dealing with implementation. A participant from site three struggled to find a way to circumvent to new system, *"it's not difficult to make changes that fall within the assessment policy. It remains to be seen how easy it is to get an exemption"* (311).

Table 1. Troublesome aspects for assessment.

Themes	Number of cases				Example quotes
	Site 1	Site 2	Site 3	% Total	
A) Instructor expectations	1	4	5	29%	<p><i>I wanted them to go outside their comfort zone, I wanted them to think about social responses, social impacts, political repercussions, or something (203).</i></p> <p><i>I'm finding that they're just not getting it. It would be better to work on an engineering project within their own community. That they can tackle, and take on board (308).</i></p>
B) Lack of consistency	5	2	2	26%	<p><i>So, in order to make sure we're consistent, the marking guidelines need to be clear. Even with quite a detailed marking guide. I find that there's still ambiguity (306).</i></p> <p><i>We have various assessors, in various cities, and one assessor is having a bad day, that means a lot of students (can) fail. From a psychometric point of view, it doesn't make sense what we do (102).</i></p>
C) Differentiation between levels of performance	4	2	2	23%	<p><i>... So, I asked myself what are we looking for, what defines 'good'? (101).</i></p> <p><i>(We had a) barrier to how we assess using the rubric, we decided that if we could put specific examples of a top mark response, what exceeds expectations looks something like this, the next category response looks something like this (212).</i></p>
D) Student expectations	0	2	6	23%	<p><i>After the feedback was released we had so many requests for re-marks because the students couldn't understand why they got the mark they did, even though there was rubric that was very clear (212).</i></p> <p><i>It (100% exams) was just too much pressure for the students (202)</i></p>
E) Time constraints/workload	2	3	1	17%	<p><i>We don't have that much lecture time, or much teacher time either. It would be ideal to have a whole week just to sit and work with this task (108).</i></p> <p><i>You know, to be brutally honest, self-preservation was part of that. Last year there were one-hundred and thirty-six students (204).</i></p>
F) Logistical/technological constraints	2	1	2	14%	<p><i>There were major logistical problems ... you have to set up an arena with a lot of rooms and they have to be linked. (102).</i></p> <p><i>There are 75- 150 students so it's hard for them to really communicate with their peers directly (210).</i></p>
G) Assessment policy	0	0	4	11%	<p><i>We're still struggling with the new assessment policy ... we've got a long way to go, particularly around assessment (301).</i></p>

Transformation

Transformative experiences resulted in profound learning leading to growth of understanding and changes in behavior or attitudes. There were transformational shifts related to the areas of assessment criteria, constructive alignment, constraints and student needs.

Assessment criteria

Academic staff found it difficult to develop or apply assessment criteria to evaluate student learning, and recognized that they still had much to learn when it came to developing assessment criteria, “so I’m probably still in the midst of that” (203). Difficulties articulating assessment criteria often resulted in transformative experiences, *“the very first time that I developed a rubric I was aware that I am not capturing the holistic nature of assessment here, I knew it. It turned out to be a huge learning experience”* (302). This learning experience happened when the participant first thought deeply about criteria for the intended learning. It was also transformative to work with peers to make consistent judgements of student performance. In the process of moderation, common work samples were shared between markers and discussed to develop an understanding of the criteria. *“We did moderate across the group because they (multiple classes) ran at the same time, so it was really helpful”* (303).

Constructive alignment for meaningful learning

Lack of constructive alignment can mean that assessment criteria can target skills of little importance to the underlying intention for learning, as in this example, where the participant had been using an assessment rubric focused on things like numerical commands rather than concept attainment, *“it turned out she was failing on pointless details ... things we really don’t find interesting for people to memorize”* (109). The shift in understanding happened because the participant engaged in a conversation with the student, and found that they were able to explain the concepts and how they were applied, yet because of the way the marks were allocated, the student had actually failed. There were multiple occasions when participants realized that their assessment rubric had been working against their intention for deep learning, such as, *“students were looking at those marks rather than looking at what needed to be done”* (304), or *“I wanted to focus on student learning, rather than ‘did they memorize the content the hard way’ ... like surface learning”* (106).

Embracing constraints

Not all of the assessment change examples had positive outcomes. As educators we know that some of the most profound learning experiences happen when we make mistakes. *“I’d started to wonder what the value was of too much coursework, too many deliverables. When I tried to get them to do that in an assignment, it was a disaster. I did one year get them to do little mini-projects and that was a disaster too”* (203). Workload can be just as much a barrier for academic staff as it is for students. The following comment referring to being beyond capacity *“I said ‘this is nuts, I need help’”* (204). The recognition of time constraints in this case led to the first-time adoption of peer assessment practices.

The assessment policies at site three dictated a maximum of three assessments per course.

“We know it works against the principles of learning, which is timely, frequent feedback. If you’re only getting three pieces of assessment then you’re not getting that immediate reinforcement... so this is what we do to get around that” (305).

By embracing this constraint, the participant re-framed the assessment as a journal that was handed in on continuous basis, with comments and interim marks provided back to the student at certain points during the term.

Meeting the needs of students

Participants in the study spoke keenly about the desire to provide effective learning experiences for students. Some became aware of limitations within their practice and were motivated to adjust their practices. For example, *"I didn't have the iteration, giving the time and letting the students re-write based on the feedback from those peer reviews and then hand it in"* (208). This was seen by the participant as a flaw and once they realized this they felt compelled to re-design the form of the assessment. Another participant re-designed their assessment specifically to de-escalate student anxiety, *"It wasn't just about assessment. It worried them (students), because it's inquiry and problem-based learning. There's a whole lot of anxiety that goes with that"* (303). The resulting assessment scaffolded into manageable chunks for the students.

Integration and bounded knowledge

It was evident through the interviews that reflection on teaching and practice was an initial step toward integrating knowledge bounded within a discipline into the wider educational context. The process of reflection was seen to indicate receptiveness in the liminal space. From there, understanding was found to be facilitated through collaboration, professional development or leveraging their professional (disciplinary) background.

Collaboration

Working with peers was a particularly integrative activity, for example:

We took their work and looked at it and thought, can we adapt it and make it fit us? The working group; bringing people together to sit and discuss our criteria. How we put words on what we look for when we evaluate thesis (101).

Participants typically built from the understanding of others, as indicated by comments such as *"I didn't do it from scratch for sure, because I did it in consultation with two other faculty members which was really helpful. Together we developed the rubric. I feel like I wanted that, I needed that, chatting with them"* (211).

Professional development

The majority of participants regularly participated in professional development activities related to learning and teaching. These activities ranged from seminars, workshops or short-courses on site to attending education-based conferences. Participants recounted cumulative experiences, and it was difficult for them to specifically pinpoint how activities influenced their teaching or assessment practice. Comments related to the benefits of professional development in building expertise. Such as *"these kinds of workshops ... these are special times"* (202), or *"I learned when it came to pedagogical matters"* (107).

Educational research provided the springboard for adoption of new understanding or practices in assessment.

Last year, based on some input from a conference where somebody had talked about peer assessments ... It's something that had not crossed my radar, but I went to this conference and somebody had mentioned it, and I thought 'oh, that sounds interesting' and so I did some more research; how does it work, what do you do. And I thought 'okay' (204).

This participant went on to redesign the assessments for a course to revolve around peer assessment to alleviate the time pressures while providing formative peer feedback. Some of the participants were actively engaged in scholarship of learning and teaching, and worked with others to present or publish in educational forums.

Leveraging professional background

Comments suggested that disciplinary professional knowledge could provide a basis for the definition of learning goals and aid in recognizing quality performances. *"I know there's many different ways to solve a problem. You need discipline expertise to recognize a correct answer that isn't reflected by the marking rubric"* (310). Academics with professional backgrounds utilized their professional knowledge to inform assessment practice, such as, *"I'm from organization theory, so that's where my background management comes in. So, I had a quite clear picture of that... and what we consider to be a pass"* (103).

Specificity, assessment language and repositioning

Participants primarily demonstrated confident use of assessment specific language. Some recalled a time when their language around assessment had been lacking. For example, a participant described a situation where they were providing feedback to a student who was disappointed with their 'B' grade, and realized a shortfall:

I was kind of stuck and said to the student 'well it doesn't sparkle.' What is 'sparkle?' What does it mean? I remember being very excited about because it helped me define what 'sparkle' was. (Prior to that) I didn't have any of the language (202).

By utilizing the Ideas, Connections, Extensions (ICE) framework (Fostaty Young and Wilson 2000), they were able to articulate the key components of learning involved in the activity.

Knowledge of terminology enabled participants to describe certain conventions or strategies for assessment, or recognize that others used terms with less specificity, such as: *"I wouldn't even call it a rubric, though X (peer) seemed to think of it as a rubric. It's not a marking rubric but a set of expectations for putting it together"* (204). While examining the quotes, it was important to recognize that some of the participants were non-native English speakers, thus language was sometimes impaired by translation. For example, *"what do you call them in English? Ah, yes examinations, we call them tenta"* (108).

Assessment thresholds

There were a range of conceptual gateways for assessment, but in coming to conclusions, cumulative evidence was sought for all the characteristics of threshold concepts. Figure 2 maps the evidence to define the concepts that could be conclusively described as threshold concepts.

Constructive alignment

Prior to their conceptual understanding that assessment should be aligned with learning goals and activities, participants tended to focus on content rather than outcomes. The following comment was made when queried about their initial views on assessment, *"it really comes down to the textbook... usually it comes with a whole set of assessment material that is relevant to the topics they're working on"* (207). We can assume that the text book assessments were aligned with the content, but it was content driving the assessment. If principles of constructive alignment were adopted, the intended learning goal would have come first. Once this concept was internalization, it was readily apparent when an assessment fell short of its intended outcome:

The learning outcomes were all geared towards tolerance for ambiguity, decision making under those circumstances, and then using a multiple choice-based format where you've got to come up with the right answer, it was counter to the purpose of the learning outcome (201).

There were many comments referring directly or indirectly to constructive alignment, such as, *"It's very interesting because you have to 'design-up'. So, deciding what it was and then working backward and forward to make sure they (outcomes) lined up"* (303).

Differentiation of standards (and minimum competence)

Before this threshold was crossed, the tendency was for academics is to make on-balance judgements about performance based on their own expectations. Such as this participant who was an early-career academic, *"It's like you have to make an estimation. I think it's hard, too difficult to do explicit criteria, I kind of have this in my head of 'what is important?'"* (111). When an individual is receptive to the concept they adjust their practice, even if it moves away from the norm:

This was way before they started using assessment criteria, but I tried to distinguish, communicate to the students what they needed to perform to get a certain grade when it came to certain aspects I would look for, and so on (107).

The notion of differentiation of standards was something that was irreversible, as suggested by the comment *"So the move to the pass/fail system, was a 'lightbulb' or milestone moment for me personally"* (201), identifying the liminal moment when minimum competency became an essential component of assessment.

Additional observations

Factors limiting change were listed as troublesome, but there were a number of factors discussed that facilitated or enabled changes in practice. These were not directly attributable to assessment thresholds, but relevant as enablers for change. These enablers were related to resources, support or technology. There were six cases (17%) where changes were enabled through the provision of financial resources or formal allocation of time. In five cases (14%) participants referred to direct help from a teaching support unit, such as assistance from an instructional designer or from a peer in realizing the intended change, and four (11%) of the changes were technology enabled.

Discussion

Many of the participants maintained the status quo and followed existing assessment practices when they began at their institutions. By casting back to a critical episode of assessment change, the pre-liminal space became apparent. Early in their careers many participants were not conscious of the need for transparent, objective assessment of student learning. Troublesome aspects were relatively easy to examine through the narratives, transformation was harder to pinpoint. Observing individuals with different levels of assessment capabilities made conceptual transformations easier to observe. Rowbottom (2007) questions what makes the concept attainment 'significant', implying that there are degrees of transformation. Participants spoke about the purpose and rationale for their changes, the liminality observed through their action taken. Transformations generally aligned with troublesome areas; getting stuck with a problem prompted action such as going and researching an assessment technique, working collaboratively to develop performance criteria or processes for consistency in assessment. Transformational shifts in understanding occurred through engaged conversations with peers or students, or through consulting educational literature.

As shown in Figure 2, thresholds in assessment were evidenced by new understanding, beliefs or attitudes. There was a close relationship between expectations for meaningful learning and the importance of constructive alignment. Participants found the development of performance criteria to be troublesome, especially when it came to articulating standards for minimum competence in requisite outcomes. Standards have implications for accreditation in professional programs and require a more complex understanding of the systems of assessment and being willing to working with guidelines on standards (Abell and Siegel 2011). There has been strong opposition to performance standards, as they have also been intertwined with accountability

(Deming and Figlio 2016), and can be worrying when attached to things like performance-based funding (Brown 2004; de Boer et al. 2015).

The quality agenda in higher education demands a level of accountability not previously experienced in the sector, but changes forced through implementation of policy led to push-back from some participants. Academics need assessment literacy; the skills and orientations as readiness for changes to policy, as well as practical support to overcome logistical or technological constraints. By focusing on key areas to build a foundation of understanding it may be easier for institutional leaders to communicate the purpose and intention of assessment and minimize push back. Direct support can involve expert advice, help drafting or providing feedback on documentation. It is equally importantly however that professional development focuses on changing hearts and minds, thus changing institutional culture through building an understanding of the reasons behind and rationale for quality assessment.

Limitations

There are known difficulties in determining threshold concepts. Participants were asked to think back to an experience to uncover the thresholds in question. The episodic narrative method was chosen to avoid the pitfall of asking for speculation, but it is possible that there were gaps or embellishments when participants re-told their stories. It is also important to recognize the interpretations that were made to derive the themes. The author had worked in academic support and assessment for many years, informing the interpretations about the nature of the comments.

Academics fulfil dual roles, they facilitate learning and at the same time make judgements about achievement, like being both coach and referee. Myyry et al. (2020) suggest that this can be problematic and provoke both positive and negative emotions in academics. There were participants who spent much of the introductory section of the interviews venting about things that they were generally unhappy about, such as not having enough time, specific challenges that they faced in their work and administrative expectations that they felt were unfair. The resulting data were not fully explored due to constraints of word limits. Further research is needed for a full investigation of institutional culture as it relates to assessment.

Conclusions

In the current regulatory climate there is little doubt that academics need to understand how to effectively assess student learning. The current study utilized episodic narrative interviews at universities in Australia, Canada and Sweden, to explore thresholds in assessment knowledge and attitudes. Troublesome aspects prompted changes in assessment practices. These were observed when there was a mismatch between instructor expectations and student performance, when there was a lack of consistency in assessment and difficulties differentiating performance. There were limiting factors that were troublesome, such as how to deal with constraints in time, workload, logistics or technology. Student expectations and assessment policies were particularly problematic at one of the institutions. A belief in meaningful learning, embracing constraints and the desire to meet the needs of students promoted changes to assessment. Findings suggested assessment thresholds of *constructive alignment* and *differentiation of standards* as necessary in promoting quality assessment practices. It is recommended that higher education institutions provide professional development in these key areas and recognize the benefit of collaborative processes and the role of educational research alongside disciplinary expertise for integrating knowledge toward threshold capabilities in assessment.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributor

Natalie Simper has a senior-secondary teaching background with experience in curriculum development, large-scale assessment and evaluation. She managed research in teaching and learning outcomes assessment at Queen's University in Canada, with a focus on meta-cognition, the development of cognitive skills and teamwork. Natalie is currently managing curriculum development at Bond University while completing a PhD in Higher Education externally through Monash University.

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9. Informal academic networks and the value of significant social interactions in supporting quality assessment practices

The previous article established the need for academics to acquire assessment literacy; the next step is understanding mechanisms for achieving that. Peer support from significant others was a crucial mechanism in that regard. A network drawing exercise was included in the data collection protocol as a method to investigate the relationship between significant social interactions and assessment change. Participants recounted an assessment change example and then went on to draw their network related to teaching and learning. People have many different networks for various activities and purposes; the network they drew was related to assessment change. Participants mentioned that the exercise of drawing and explaining their small significant networks very engaging. It prompted a metacognitive process whereby participants questioned why they valued interactions with certain people more than others. The key findings were based on the significance of the relational ties to the assessment change example.



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Informal academic networks and the value of significant social interactions in supporting quality assessment practices

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ABSTRACT

This research investigated social interactions within small significant networks across a range of higher education settings to determine their role in supporting improvements to assessment. Thirty-four academic staff from three higher education settings (Australia, Canada and Sweden) provided assessment change examples and drew network diagrams to explain their interactions. Significant social interactions were defined as engaged exchanges between people who trust and respect each other, around topics that hold common value. They led to an emotional response, promoted reflection and resulted in action and/or a shift in thinking. Significant social interactions were demonstrated to be effective in supporting changes in assessment practices. The qualitative findings were supplemented with quantitative investigation of the relational ties within the networks. The most significant relational ties related to changes in the assessment were the value of the interactions ($d = .64$) and the similarity between individuals ($d = .50$). Authors recommend that leaders in higher education heed lessons learned about how value was generated within networks and utilized for improvement activities. It is suggested that the following positive change-oriented behaviours be developed and actively encouraged: Building of diverse networks; appreciating reciprocity; forging trust; creation of time and space for significant social interactions; and external recognition of the shift toward quality assessment practices. This study builds on existing literature for improving teaching and assessment in higher education, and particularly highlights the benefits of informal academic networks and the potential for significant interactions as a mechanism for change toward a quality agenda.

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Introduction

In the past few decades there have been sweeping reforms across the world aimed at improving the quality of higher education, led by groups such as the Organization for Economic Co-operation and Development (OECD), pushing recommendations for quality changes through policy levers for accountability and compliance (Barrie et al., 2011; González & Wagenaar, 2003; Harris, 2009; Hénard & Roseveare, 2012; Jankowski et al., 2013). In response, institutions have implemented learning outcomes across the

breadth of the curriculum. Strategies for assessing these outcomes have tended to be either external to the classroom experience (standardized measures) or lacked consistency and defensibility (Kuh et al., 2015; Miller, 2001; Tremblay, 2013).

Academics often resist change in higher education (Kezar, 2013) and when policy drivers dictate assessment practice, assessment for accountability purposes can undermine meaningful learning (Biggs, 2014; Boud & Dochy, 2010; Craft, 2018; Rhodes & Finley, 2013). 'Quality assurance has created an unfortunate divide between formal rules and routines, and the daily practices in academia associated with teaching and learning' (Mårtensson et al., 2014, p. 534). Assessment should be undertaken for purposes such as diagnostic assessment, used to identify individual strengths and areas for improvement; formative assessment, used by teachers during the learning process; or summative assessment, implemented at the end of a learning sequence for grading or certification (Wiggins & McTighe, 2005). Quality assessment practices involve measuring characteristics of individuals expressed at varying levels of acceptability to assess student learning in a fair, valid and reliable way with appropriate standards and criteria for making judgements about quality (Biggs, 2011; Boud, 2000). Academic staff need to develop capabilities to achieve this, within a supportive climate, building a culture of assessment for learning (Henderson, 2017; McGrath, 2017).

Lately, professional networks have been demonstrated to sway resistance to change (Lieberman, 2009), as interconnections of networks 'may be seen as the way in which knowledge development is tested against professional norms' (Trowler, 2001, p. 91). Communities of practice (Wenger, 1998) offer collegial support networks, leading to professional growth and discussions around disciplinary teaching (Middendorf, 2004). These conversations about teaching function as informal learning and can contribute in meaningful and important ways to academic, professional growth (Thomson & Trigwell, 2018). 'Networks can have a significant impact on whether individuals decide to engage in reform' (Thomson, 2013). To better understand this, we turn to social network theory.

Social network theory

A social network comprises sets of relationships between people who interact to give or receive advice, or to share knowledge or resources (Patariaia et al., 2014). Social network theory describes the study of structures, properties and ties between individuals, groups or organizations (Borgatti et al., 2009). Kilduff and Tsai (2003) discussed reciprocity at the core of network connections, that social network ties can build social capital, and that social relations developed can link micro and macro levels (Williams et al., 2013). That is to say that these relationships can build alignment between the activities of academic practitioners and the goals of senior leadership. Social network theory suggests that 'informal webs of relationships are often the chief determinants of how well and how quickly change efforts take hold, diffuse, and sustain' (Daly, 2010, p. 2).

Small significant networks

Building from the work of Roxå and Mårtensson (2009, 2013, 2015), we understand that academic microcultures in higher education influence academics towards

certain behaviour. Small significant networks are informal and involve interactions between a small number of trusted individuals who discuss teaching-related issues (Poole et al., 2018). The purpose might be to 'vent about teaching-related issues, to reassure themselves about their teaching, to manage their teaching context, to improve their teaching and student learning, (or) to evolve their teaching, thinking and practice' (Thomson, 2013, p. 93). Bonds in small significant networks tend to form when individuals share similar characteristics and beliefs; this characteristic is referred to as homophily (McPherson et al., 2001). Yet, there can be benefits in interactions between those with differing ideas if a climate of trust is established; trust enables the adoption of new information and concepts (Chen & Wang, 2008). If we want to leverage the potential benefits of interactions within small significant networks in supporting changes to assessment, we need to better understand how they work for this specific purpose.

Purpose

The goal of the current study was to define significant social interactions and pilot the investigation of small significant networks across a range of higher education settings and disciplines. The purpose was to determine how significant social interactions within these networks aid in changing assessment practices. To the authors' knowledge, there is no precedent for this work in the social network literature, and 'researchers studying formal organizations have typically ignored social networks and their informal leaders that can create social capital' (Kezar, 2014, p. 117). This investigation adds a new dimension to existing research on the role of small significant networks in improving teaching (Patariaia et al., 2014; Pifer, 2010; Roxå & Mårtensson, 2009; Thomson, 2013; Thomson & Trigwell, 2018; Van Waes, 2017).

Research questions

- (1) What value is found in small significant networks?
- (2) How do participants define significant social interactions?
- (3) How do significant social interactions within the network support changes to assessment?

Methodology

Phenomenology 'emphasises the attempt to get to the truth of matters, to describe phenomena' (Moran, 2002, p. 4). Social networks are a lived experience, thus exploring the phenomena through narratives offers insights into people's experiences (Van Manen, 2016). Research into social network phenomena is expanding both in the macro direction, with very large network configurations, and in the micro direction, focused on cognitive and personality perspectives (Kilduff & Brass, 2010). The former are commonly studied by plotting a complex array of interdependent individuals and groups as they relate to each other using objective sociograms to track unbounded networks. The latter, have an egocentric context, centred on an individual and the relationships they

form (Marsden, 2002). With social networks it is difficult to directly observe their impact on change without influencing the outcome (Treagust et al., 2014). The narrative methodology allows the examination of people's perceptions of their networks and the interactions within.

Methods

The episodic narrative interview method (Flick, 2000) was used to elicit reflection of a specific experience within contextual bounds; the episodic narrative process prompted participants to recount a stand-out experience of assessment change (Simper, 2020). The narrative was combined with a sociometric technique (Avramidis et al., 2017), with participants drawing a network diagram to situate the episodic narrative within the participant's small significant network. The network diagram protocol was piloted in Poole et al. (2018); participants drew diagrams of their teaching-related small significant networks and the interactions between members, characterized by the relational ties of direction. The prompts for these are described in the interview protocol section below. Interviews were conducted individually, enabling participants to think-aloud (Fonteyn et al., 1993) and explain the interactions within the networks.

Sampling/ participants

Sampling was designed to facilitate representation from early-, mid- and late-career academics from a range of disciplinary backgrounds and institutions across three continents. Participants were therefore selected from a range of disciplinary representations, with varying institutional seniority. Purposeful sampling was employed to focus on the role networks play in improving assessment practice. The sample was drawn from those in an academic teaching role who were known to have engaged in teaching or assessment improvement activities, for example, adopting active learning strategies, redesigning assessment rubrics or moving to case-based learning and assessment. Participants were recruited from three medium-sized, doctorate-granting, research-intensive universities: one in Australia ($n = 11$), one in Canada ($n = 12$) and the other in Sweden ($n = 11$). Ethical consent of research data was obtained according to each institution's requirements. Interviews were conducted in a one-to-one setting and audio recorded for transcription purposes. Transcripts were numbered to protect participant identity, with numbering coded for reference to the country and individual. For example, #205 means country 2, and participant 5.

Interview protocol

Introductory questions in the interview protocol related to the participants' position, years of teaching and a short description of assessment in the department. For the episodic narrative, participants were asked to describe an example of assessment change that was meaningful for them, providing as much detail as possible. Participants then were prompted to draw a diagrammatic representation of their social network interactions. The members of the network were not limited to people involved in the assessment change example. The final question was about how the participant would define a

significant social interaction. Figure 1 displays an authentic, direct example of a participant's map, and indicates the numerical coding for the prompts:

- (1) Draw a circle in the centre of the paper to represent yourself.
- (2) Think of your academic network and draw circles to represent the people that you interact with about teaching and learning.
- (3) Draw a second circle around the people with whom you have conversations that involve literature or research. (Research in the context of teaching and learning. These network relationships are referred to as 'involving literature' from this point forward).
- (4) Use the colour markers provided to indicate the frequency of these conversations.
- (5) Draw arrows to represent the direction of the communication.
- (6) Use asterisks to indicate the value you see in that interaction.
- (7) Beside each network member, write a number between 1 and 5 to indicate how similar you think that person is to you in terms of the beliefs they hold about teaching and learning.
- (8) When I say significant social interactions, what does that mean to you? Draw a box around any of the significant social interactions involved in your assessment change.

Analysis

The deductive analysis of the episodic narratives and think-aloud responses was grounded in Social Cognitive Theory (Bandura, 2012) and value creation in social interactions (Van Waes et al., 2016): immediate, potential, applied, realized, reframing or aspirational value. The first author conducted the qualitative analysis, and the validation process involved members of the research team independently coding a sub-set of

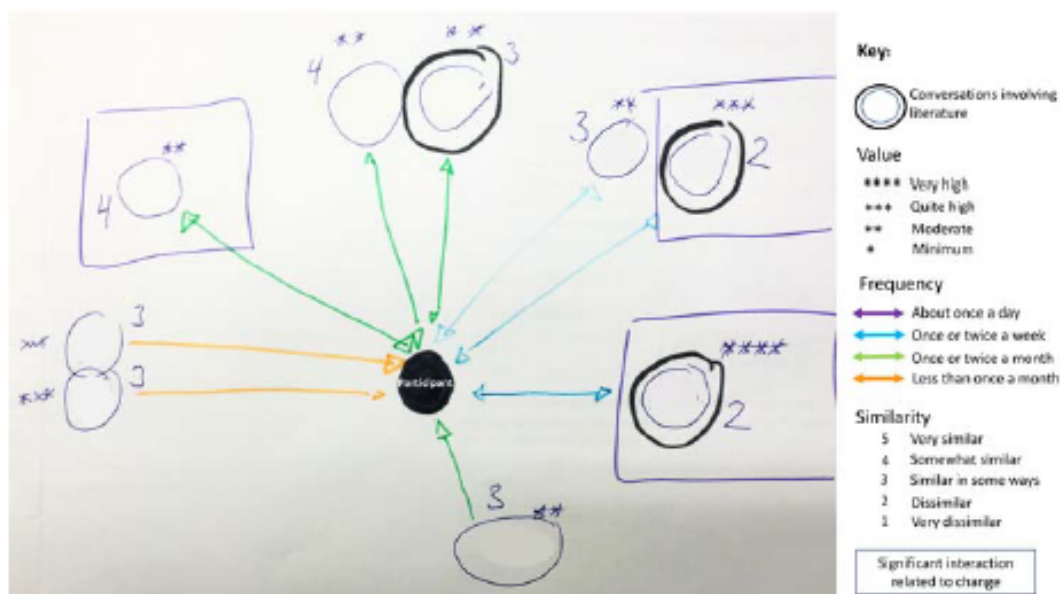


Figure 1. A participant's network diagram (identifiers removed), indicating coding of node-links.

responses. Any differences in interpretation were discussed and reconciled for the investigation of research questions 1 and 2. The network maps were numerically coded for quantitative analysis related to research question 3. Correlations were drawn between the network interactions and analysis of variance was utilized to differentiate interactions involved in change versus other interactions in the network.

Results

Table 1 displays the number of participants from each university, a breakdown of their rank and the areas in which they teach.

Participants selected examples of changes to assessment that they found meaningful. These examples were grouped into five general categories (see Table 2). Participants described changes to one or more of the following areas: changes in structures for providing feedback, development of assessment criteria, changes toward authentic assessment and assessment in group or professional contexts. There were changes relating to an online delivery method and instances where the participants initiated processes for consistent assessment (calibration using rubrics or moderation of marking student work samples). Some of the examples included more than one type of change.

The value in small significant networks

The participant responses were coded using the Van Waes et al. (2016) framework for value type. The specific cues that researchers used for interpretation of the data are included in Table 3; interactions were listed under the roles of the people with whom they occurred.

Immediate value

Immediate value resulted from interactions that were personally beneficial. This was most commonly observed in interactions with peers closely involved in teaching. Value was attributed to venting or reassurance, for example, *she also teaches a big course and we also talk about our frustrations and support each other in that way* (#205), or *... with the others listening to me, and saying this seems like a good idea* (#209). There was immediate value in interactions between similar people. As participant

Table 1. Participant learning areas and rank.

Discipline	Sweden	Canada	Australia	Graduate/ Teaching support	Sessional/ Adjunct	Lecturer/ Assistant Professor	Senior Lecturer/ Associate Professor	Professor/ Head of dept.
Business	1	0	1	1	0	0	1	1
Education	1	0	1	1	0	0	1	0
Engineering	2	4	4	1	2	0	5	2
Health Sciences	2	3	0	0	0	2	2	0
Humanities	0	1	2	0	0	1	2	0
Sciences	2	1	2	0	0	1	4	1
Social Sciences	3	3	1	0	1	1	3	1
TOTAL	11	12	11	3	3	5	18	5

Table 2. Type of assessment changes as described in participant's narratives.

Assessment change example described the development or adoption of:	Number of cases			Percentage of cases
	Site 1	Site 2	Site 3	
Peer/ instructor feedback	4	4	2	29%
Assessment criteria	2	7	1	29%
Authentic assessment	4	3	3	29%
Group/professional assessment	1	2	4	20%
Assessment for online learning	1	1	2	11%
Processes for consistent assessment	0	1	2	9%

#102 put it, *I like to work with the person who really helps me think ... and also, significant is fun to work with.* Interactions with dissimilar individuals can involve more risk-taking, but can also be beneficial, *well, there are similarities to all these people; otherwise I wouldn't listen to them. [Actually] I don't think that's true, I think that even people who are different, I think I can benefit from them* (#202).

Potential value

Interactions anchored in social or knowledge capital were potentially valuable. Potential value was evident in comments such as *that's kind of a pool of individuals who have special meaning, in the sense that long ago I learned the key players within an organisation are* (#204), or *she is the expert on that, so if it's something related to that I would talk to her* (#104). There was also a sense of shared or common ground; *we share a certain view of what higher education is all about, or we have a set of interests. Then I talk with quite a bit, actually. It can be over lunch, any time* (#103).

Applied value

Interactions were coded as applied value when they resulted in changes to practice. The interview related to assessment practice, so many of the comments were of a practical or logistical nature. *They're high value because unless I have this conversation, schedules will not be put into place* (#101). Interactions with teaching assistants were seen as applied value *because this was someone who was actually a part of putting the course together* (#206). It was noted that students were often mentioned first when participants drew their networks. Students had an applied value when their direct feedback meant that changes were made to meet their needs. *So one part of this would be when I have meetings with them regularly just asking the group 'how are things working, what problems are you having right now?'* (#109). Helping others was also seen as an applied value, *there are people that I coach and give advice to, and looking at their problems helps me with my own practice* (#202).

Realized value

Interactions that had an observable outcome were coded as realized value. For example, *my TA's (teaching assistants) actually provided lots of great feedback which improved the rubric* (#212). Interactions with peers were important in adopting new assessment practices: *I followed the protocol that my colleague had done previously and afterwards I started thinking about what I wanted to know* (#106).

Table 3. Coding value of interactions.

Type of value: Van Waas descriptor	Coding cues	People with whom these interactions happened									
		Co-teacher	Department Peers	Peers outside department	External	Teaching assistants/ Graduate students	Undergraduate Students	Central education support	Department/ technology support	Admin support	Leadership
Immediate: Interactions that produce value in and of themselves.	Past tense; personal, reflection, reassurance.	6	1			6					
Potential: Knowledge capital, whose value lies in its potential to be realized later.	Future tense; learning from experience; shared view; ideas, sounding board.	1	7	7	3			7	1	2	2
Applied: Interactions that have caused actual changes in practice.	An outcome, administrative, pragmatic or relating to student needs	1	1		2	1	8	1	5	7	5
Realized: Indicates actual improvement in performance resulting from suggestions or ideas.	Past tense; positive outcome(s).		2	1	3	1			1		
Reframing: Redefining or reframing goals, values or strategies.	Challenge thinking 'coming to an agreement', 'debating.'	2	3	2	1				3		
Aspirational: The expected value. Future aspirations rather than already acquired resources that show potential.	Future tense, speculative, people that will definitely be valuable in the future.		2	2				1			

Reframing

Reframing interactions involve the process of challenging and debating theories and ideas to come to a new understanding; they closely reflect double-loop learning processes (Argyris, 2005). *I think that it's also good because they give an outsider's point of view; they're not from the same subject area, they look at things differently and so forth so in that sense it gives you a totally different sense. (#103).* The current study focused on social aspects, but there were concerns with governance structures driving changes. In this example, a reframing occurred through reflection because of situational factors: *That worked pretty well ... being taught by someone else how to do it, but a lot of the more recent changes have been mandated from on high, from the engineering accreditation board, from quality assurance and things like that. And what I've tried to do is be an optimist and say, yes we have to do this, let's try to do this so it's good, not just do the minimum to pass the bar. I've tried to learn in order to do that. Making the best of a mandated situation and try to adapt that to the way I think, and change the way I think. (#208)*

Aspirational value

There were fewer comments relating to aspirational value because it indicates future worth, and participants were reflecting on past experiences. There were comments like this one though, *he is brilliant ... he'll be the one I'll go to when I need to translate to that metacognitive level (#204).* This participant is talking about a person that they are not currently working with, but mentions their potential for the future.

Defining significant social interactions

Participants were asked how they would define 'significant social interaction'. Evident in the responses was the relationship between cognitive, behavioural, personal, and environmental factors, traits of Bandura's (2012) social cognitive theory's determinants for motivation and behaviour. Statements from transcripts were grouped into these traits, as described in Table 4.

Comments were synthesized to generate a generic comment, then combined into a definition:

Table 4. Traits of a significant social interaction.

Trait	Description
Cognitive	There was reference to reflection or deep thinking, the impact on learning, and numerous mentions of interactions that were valuable with comments like, <i>rang a bell (#204)</i> . Many of the participants referred to changes in ideas, conceptualisations or thinking, that gave them <i>a lasting impression (#110)</i> .
Behavioural	A behavioural trait that emerged was the frequency of exchange. Most participants suggested that the interaction needed to be frequent, others suggested that it had to be face-to-face, some both, <i>frequent communication in person. To be significant, you need to talk in-person, and more than once and a while (#211)</i> . Doesn't have to be every day, but regularly.
Personal	There were an underlying emotional responses like, <i>it changes my mind, and those interactions are sometimes painful (#102)</i> . Some of the participants defined a significant social interaction as one that motivated them for action. Enjoyment was inferred through comments such interaction with people who are <i>fun to work with (#102)</i> , or when (you) <i>feel that you're listened to (#107)</i> . All of the participants made reference to an exchange based on respect and trust.
Environmental	The idea of a shared common ground related to environmental factors such as <i>aligned interests (#211)</i> and <i>conversations about our teaching experience (#110)</i> .

A significant social interaction is an engaged exchange between people who trust and respect each other, around topics that hold common value, leading to an emotional response, promoting reflection, resulting in action and/or a shift in thinking.

Relationships within network interactions

The word node was used to describe the people represented on the personal network diagram. The relational ties (frequency, direction, similarity, the discussion of literature and value of the interactions) are referred to as node-links. There were 339 nodes in total resulting from the 34 network diagrams. The nodes primarily represented individuals, but in the case of groups, these were depicted as a large circle that contained many individuals. The most common groups were students, but there were some departmental groups and groups of people associated with professional associations. During the interview process, the interviewer queried the nature of the group. If the quality of interactions were consistent irrespective of a specific individual in the group, they were collapsed into a single node for the purpose of analysis. Some students fulfilled a different role (such as the class representative who met outside of class time for discussion). In those cases, the individual student became its own node. The node-links resulting from the diagrammatic representations were converted to a matrix as quantitative data for analysis.

The size of the networks varied, so to examine the relative strength of node-link relationships between different participants the size of the network needed to be taken into account. Investigation of Pearson's correlations found a significant relationship between the years of teaching and the number of nodes in personal networks ($r(34) = .56$ $p < .001$). The node-link variables were normalized to draw a fair comparison between node-links from newer academics with smaller networks and those who had been teaching longer (each node-link data point was divided by the number of nodes in its network). Pearson's correlations were calculated to investigate the relationship between the (normalized) node-links (Table 5). There were strong positive correlations between the value of interactions, conversations involving literature, frequency and direction of interactions, and the similarity of individuals.

The influence of significant social interactions on teaching and assessment

Participants were asked to identify which of the interactions they considered had a significant impact on the assessment change that they described in the interview. There were 94 nodes in total that participants identified as significant to change (these were called change nodes). Multivariate analysis of variance was calculated to compare the change nodes with the other 245 nodes in the networks. The dependant variables were literature,

Table 5. Correlations between weighted node-link variables ($n = 339$).

	Literature	Frequency	Direction	Similarity
Literature	-			
Frequency	.68**	-		
Direction	.71**	.88**	-	
Similarity	.78**	.84**	.86**	-
Value	.74**	.84**	.82**	.90**

** Correlation is significant at the 0.01 level (2-tailed).

frequency, similarity and value. A multivariate effect was found (Wilks' Lambda = .91 $F(5,338) = 8.54 p < .001$); there was a significant difference between the node-link variables that were related to changes in assessment and the other nodes in the network. Examining the differences in mean and standard deviation found that the largest differences between the *change nodes* compared with the other nodes in the network were for *value*, with a mean of 3.1 (SD .88), compared with 2.5 (SD 1.0) and *similarity*, with a mean of 3.9 (SD .94), compared with 3.5 (SD 1.0). Effect sizes were calculated using Cohen's d , $d = \frac{m2 - m1}{Pooled\ SD/2}$ with the effect of value on assessment change of $d = .64$.

The similarity was also significant to change, with an effect of similarity on change of $d = .50$.

Discussion

The participants in the current study were purposefully selected because they had engaged in teaching or assessment improvement activities to provide rich descriptions of interactions related to assessment change. As universities across the world closed their doors in the response to the global COVID-19 pandemic, the situation required an almost overnight shift to remote delivery and wide-scale changes to assessment. Now more than ever it is essential for institutional leaders to create an environment rich in factors demonstrated to support assessment change. As such, valuable lessons can be learned from the current study about how to utilize significant social networks for improvement activities. These six results are suggested to create positive behaviours in the facilitation of assessment change.

Build diverse networks

Participants who had been teaching for longer had more people in their networks, and therefore more people to potentially draw upon for support. Van Waes et al. (2016), also associated a greater number, multiple types of interactions, and higher levels of interdependence between experts over novices. This suggests that it would be particularly important for novices to establish networks early in their careers. When participants were asked to describe their academic networks they all included a range of people with various roles and attributed value to interactions for different reasons. Some of these were based around survival and need to get things done, whereas other types of value were longer-term. For example, some participants mentioned that the value of teaching assistants was high because they were the ones who marked the majority of student work, the value was immediate, as in getting things done, but did not translate into the longer-term benefit. It was often students who were mentioned first when drawing the network maps. The value of interactions with students was applied directly to informing changes to teaching or assessment.

Furthermore, participants much-appreciated input from teaching support centres, but the potential value was seldom applied directly to practice. Having collegial interactions about teaching were potentially valuable but did not always contribute to improvements in teaching or assessment. Simply sharing ideas, experiences or resources does not necessarily mean that value is created (Van Waes, 2017). However, there were positive outcomes when interactions with potential or reframing value were combined the

interactions of an applied or realized value. There were many examples of new ideas developed with a trusted colleague, that were enabled because the network included technological support personnel, who proposed or facilitated new strategies so that goals could be achieved. The diversity of the network facilitated change.

Appreciate reciprocity

Mutual exchange was mentioned by participants as an important component of social interactions; it might be expertise, resources, or the willingness to listen; you have to give something to get something back. This was a resounding message in the narratives and aligns with the importance of reciprocity in social networks (Kilduff & Tsai, 2003). Peers were the go-to people for dealing with problems or as a sounding-board for ideas. This reframing of ideas is what Argyris (1982) describes as double-loop learning processes. These are highly desirable in promoting a positive shift in culture or norms. These close ties are between what Handal (1999) describes as 'critical friends', and those in a mutual, trusted relationship, have 'the competence to analyse, discuss and critique teaching' (p. 65). Critical friends provide a sounding board for ideas and help bring about quality improvements in higher education (Andreu et al., 2003).

Forge trust

The significant interactions that influenced change were based on trust and respect. Further, relationships with people similar to themselves led to more effective communication. Tierney (2006) described a dynamic process of repeated interaction, facilitating risk-taking, innovation and experimentation, arguing that trust relationships are critical to the future of higher education. Academics fear reprisal if they make changes to assessment, because things don't always go right the first time and if students give negative comments or low scores on evaluations of teaching, that can be professionally damaging (Kozub, 2008; Uttl et al., 2017). Courage stems from knowing that 'someone has your back', especially if that person is a head of department. The trust relationships were key drivers for quality-based changes to assessment such as changes to make expectations clearer, to develop authentic assessments and mechanisms for feedback to be used for improvement.

Create time and space

Frequent, mutual (two-way) interactions were associated with value, echoing Rogers' (2003) finding that the closer the proximity, the more frequently members of a network were likely to interact. Participants commented that their interactions were limited by available time for conversations, and also mentioned that they ended up having conversations in the hallway. Time and space for informal networks need to be created, together with building trust within the academic community.

Recognize the benefits

New academics with busy schedules who focus on the tasks of teaching and research may not see the benefits of creating network connections thus don't invest the time to make

those important relationships (Niehaus & O'Meara, 2015). 'Globally, institutions continue to tackle questions of excellence in university teaching ... and added urgency has arisen around engagement with notions of excellence in university teaching' (Gunn & Fisk, 2013, p. 9). The desire to be part of an academic community might be encouraged through tenure and promotion metrics. Although it was not an area of investigation in this study, it was observed that more than half of the participants who had engaged in teaching and assessment improvement activities had subsequently gained tenure. These people all had close network ties and leveraged support from academic peers and support centres.

Change the culture

Daly (2010) warns of a flawed belief that if individuals are provided with overwhelming evidence from an external expert, they will change. 'However, in practice ... a wonderful idea is presented, a few passionate individuals champion that effort, then it fails to be sustained' (Daly, 2010, p. 2). This problem suggests a need to change cultures, or collegial norms or traditions. Implementing policy and guidance documents directed at improving the quality of higher education remains challenging. Academics learn from peers that they trust, this is especially important in situations where a rigid assessment policy has been used to force change. There were participants who had come to terms with the assessment policy and actually used the policy guidelines to engage in positive change. Through a process of socialization, these participants actively shared their understanding. This can instigate a culture shift (Tierney & Rhoads, 1993). Like the work on significant conversations (Roxå & Mårtensson, 2009), the positive effects of small significant networks could influence the adoption of quality assessment practices aligning with the goals of senior leadership (Williams et al., 2013).

Limitations

Data were collected from three medium-sized research-intensive institutions and the results were based on 34 participants. Inferences made based on the analysis may not be generalizable to other educational sectors. The sociometric method used was limited by participant perception and historical recall. A strategy for navigating this limitation was the mixed design, incorporating the interview component, thereby allowing participants to think through the nature of their relationships as they explained them. Furthermore, the word value was used throughout the text, but there was subjectivity on the part of the participant in attributing value. It is stated in the methods section that what was being discussed was perceived value, reiterated here for clarity. It would have been challenging to test the conformity or accuracy of the network diagrams. There was no intention to do this because the work was focused on the individual's perception of the network and its associated value, rather than on the objective accuracy of those networks.

Conclusions

The current study investigated small significant networks and interactions significantly related to changes in assessment. Thirty-four participants from higher education settings


in Australia, Canada and Sweden provided a narrative account of a significant change they made to assessment and drew a diagram of their academic networks and interactions therein. Significant social interactions were demonstrated to be effective in supporting changes in assessment practices. The most significant relational ties related to changes in assessment were the value of interactions ($d = .64$) and similarity between individuals ($d = .50$). This research provides evidence for the value of significant social interactions. It is suggested that institutional leaders keenly focus on the following positive change-oriented behaviours: Building diverse networks; appreciating reciprocity; forging trust; creating time and space for significant social interactions; recognize the benefits of networks and developing a cultural shift toward quality assessment practices. Additional research is necessary to investigate these levers for small significant networks and to determine what mechanisms are most effective in instigating and supporting changes to assessment practices.


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10. Evaluation of an assessment change project, engaging academics and the role of SoTL

The assessment change project was one of the initial reasons that the PhD research was conducted. The research manager role at Queen's University allowed the observation of changes in attitudes and behaviour toward assessment but not for the documentation to make assertions about the efficacy of the project. The project was funded, and it is known that project-based interventions are successful while there is funding and support, but they can have a limited longer-term impact. The strategies employed during the project could not be sustained. Instead, the current study focused on motivations, and the evidence of assessment strategy propagated into an ongoing practice. The link between SoTL and sustained change was an incidental finding but possibly one of the most valuable findings in this study.

Engagement and the Role of SoTL in Assessment Change

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This study follows a network-based Assessment Redesign Project at a Canadian university to investigate engagement and sustained implementation. The following strategies were employed in the project; mini-grants, embedded support, a community of practice and social networks. Assessment facilitators worked in discipline clusters to achieve mutual goals for assessment reform targeted at the authentic assessment of critical thinking and problem-solving. Interviews were conducted with nine of the 25 project members one-year post-implementation. The study adopted a motivational theoretical lens to investigate how the experience of the Assessment Redesign Project affected motivation and the continued adoption or propagation of assessment strategies. Participants commented on how helpful the embedded support had been in building their assessment skills or knowledge. The mini-grants were used (in some cases) to fulfil scholarship of teaching and learning (SoTL) goals. All of those engaged in SoTL demonstrated intrinsic motivation for assessment change and had propagated assessment techniques or activities into other courses. In the few cases where motivation was purely extrinsic, there was no SoTL or continuation of assessment activities. This study highlights the links between SoTL and the longer-term impact of the Assessment Redesign Project. Suggestions are provided for institutions wishing to replicate outcomes from the project.

Introduction

Over the past decade, higher education institutions have been compelled to better prepare students for 21st Century skills, such as critical thinking and problem-solving (Gallagher, 2010), skills attained through meaningful learning activities (Bellanca, 2010). Institutions across Canada came together to “to support the integration and use of learning outcomes by institutions, programs and faculty members” (Lennon et al., 2014, p. 3), with similar projects conducted in other countries (Barrie et al., 2011; Jankowski et al., 2013; *Tuning Asia-South East (TA-SE)*, 2016). The Organization for Economic Co-operation and Development (OECD) conducted a global investigation, underlining the need for reliable, scalable methods to assess learning outcomes in higher education (Tremblay, 2013). The Higher Education Quality Council of Ontario (HECQO) supported a series of learning outcomes assessment projects (*Higher Education Quality Council of Ontario: Learning Outcomes*, n.d.; Weingarten & Hicks, 2018). One of the common threads through these Canadian assessment projects was that introducing new methods for assessment presented a challenge in acceptance, uptake and shared understanding (Deller et al., 2015).

Achieving change in assessment practices in higher education is a difficult undertaking (Deneen & Boud, 2014). There are concerns about assessment cultures devoid of inclusivity, a lack of consensus or understanding, limited stakeholder buy-in, and being mired with issues of accountability (Baas et al., 2016; Duff, 2010; Fuller, 2013). Approaches need to align with the institutional culture because “using concepts foreign to the values of the academy will most likely fail to engage the very people who must bring about the change (Kezar, 2011, p. 7). Henderson (2017) argued that change strategies focused on convincing individuals are insufficient to bring about large-scale change. Fisher & Henderson (2018) contrasted prescribed strategies (Kotter, 1996) versus emergent strategies derived from complexity leadership theory. The prescribed strategies are leader driven and authority-based, where a leader recruits others and creates a coalition to implement planned changes. Prescribed strategies are contrasted with emergent strategies, or *middle-out* approaches, as innovation-based, adaptive, and promoting institution-level learning.

Chen (2021) proposed Kotter’s 8-step change model as a tool for the acceptance and willingness of faculty members to change their existing teaching practices through the scholarship of teaching and learning (SoTL). SoTL encompasses a broad set of practices for the critical investigation of student learning, using evidence to answer questions and refine student activities, assignments and assessments (Hutchings et al., 2011). The most frequently cited purpose of SoTL is to enhance university teaching (Trigwell, 2013). While evidence suggests that SoTL is an effective mechanism for improving student learning (Brew, 2007), engagement in SoTL is dependent on understanding, incentives and commitment to improving teaching and learning (Webb, 2019).

Engagement and motivation

Engagement influences an individual’s choices at different levels of awareness (Kahn, 1990). It affects “the degree to which an employee puts discretionary efforts into his or her work over and above required time, brainpower or energy” (Rama Devi, 2009, p. 3). Self-determination theory (Deci & Ryan, 2008) suggests that actions are driven (directly or indirectly) by psychological needs manifested within different types of motivation. “The term extrinsic motivation refers to the performance of an activity in order to attain some separable outcome and, thus, contrasts with intrinsic motivation, which refers to doing an activity for the inherent satisfaction of the activity itself.” (Ryan & Deci, 2000, p. 71).

Engagement is particularly important in Canadian universities, where academic freedom is bound by collective workplace agreements (MacKinnon, 2018). That is to say; each faculty member deems where to place their discretionary efforts on how they fulfil their job role. If a faculty member is not motivated to engage in an institutional change initiative, they do not need to do so. the need to engage faculty is a tenet of institutional change initiatives in Canada. The Assessment Redesign Project was an example an assessment change initiative that engaged faculty in a project funded by the Higher Education Quality Council of Ontario (HEQCO).

Assessment Redesign Project

Following their involvement in the Canadian Outcomes Tuning (Lennon et al., 2014), institutional leaders “were struck by the lack of evidence around student learning at our own institution” (Scott et al., 2018, p. 28). The project was designed to include faculty engagement strategies from teaching change initiatives that had demonstrated empirical merit:

- Mini-grants for incentivization (Berman & McLaughlin, 1975; Coleman & Thomeczek, 2003; Loshbaugh et al., 2004). Successful project proposals were awarded a mini-grant of \$5000. The funds were provided to support academic goals for improvement.
- The use of embedded experts for facilitating change (Chasteen & Code, 2018; Wieman & Perkins, 2005). Embedded experts need to have disciplinary expertise and be known (and trusted) within a faculty or discipline. In the Assessment Redesign Project, the embedded experts were called assessment facilitators. They worked with faculty to achieve mutual goals.
- Community of practice (Wenger, 2000) was used in the project to build the theoretical basis of assessment knowledge, develop consistency of approach for clarification of terminology, and provide an avenue for collective problem-solving.
- Social networks (Kezar, 2011; Moolenaar & Slegers, 2010) were utilized in the project for peer support and knowledge-sharing.

The above strategies were combined to achieve constructive alignment of learning activities, assignment guidelines and assessment criteria for student achievement of target learning outcomes. The network included 25 faculty members, grouped into five disciplinary hubs, each supported by an assessment facilitator. The assessment facilitators shared knowledge and built understanding, acting in the role of a ‘critical friend’ (Handal, 1999). They facilitated discussion of ideas, listened to concerns, worked collaboratively to articulate cognitive skills achievement in disciplinary contexts and clarified assessment criteria. At the end of each semester, members of the project presented lightning talks, sharing their ideas, actions, issues and outcomes. Further details are available in the institution guide (Simper et al., 2018).

The project report (Simper et al., 2019) provided metrics for the achievement of student learning and validation of assessment. The report also stated that it was the first time that 40% of the faculty members had used rubrics in their course. However, the initiative was not evaluated as a change mechanism, and further research was needed to investigate the longer-term impact. The Assessment Redesign Project had stakeholder commitment and support to achieve goals within the project, but as Henderson et al. (2015) point out, successful initiatives tend to regress when funding is withdrawn. Henderson et al.'s (2015) recommendation was that success is gauged in the longer term through dissemination, sustained adoption and propagation activities. The current study is a follow up (one-year post-implementation) of the Assessment Redesign Project. The purpose was to investigate the effectiveness of the project engagement strategies and whether there was sustained adoption of assessment strategies.

Research questions:

1. How did the experience of the Assessment Redesign Project influence engagement in assessment change?
2. In what ways, if any, did the Assessment Redesign Project lead to sustained adoption or propagation of assessment strategies?

Methodology and Method

The exploration of meaning constructed within assessment change is based on interactions between personal dispositions, the institutional approach and change mechanisms (Kezar, 2011). These are factors that are not easily quantified, hence adopting a qualitative methodology. Narrative inquiry (Clandinin, 2006) enables the exploration of lived experience (of assessment change) through storytelling, where “we can present what we’ve learned from our narrative inquiries so that each of us contributes to the overall story with a particular voice” (Clandinin, 2006, p. 147). The exploration of the construction of meaning “depends heavily on naturalistic methods (e.g. interviewing, observations, etc.) conducted in situ; requires sufficient interaction between the researcher(s), participant(s), and the research phenomenon (Varpio et al., 2017, p. 42). A narrative methodology was selected because storytelling can help transfer tacit social knowledge with implied meaning (Linde, 2001). Participant stories were reflected on through a socio-cultural lens to observe the impact of behaviour within the institutional and disciplinary context.

Purposeful sampling was employed (Patton, 1990) to seek detailed descriptions of experiences from the Assessment Redesign Project members. Recruitment invitations were sent to the 25 faculty members involved in the Assessment Redesign Project. Ethical approval was granted by the university’s General Research Ethics Board, and nine participants provided informed consent (38% of the project members). Data collection took place a year after the project's completion. Participants were allocated ID letters; three of the participants were from the Engineering cluster (E), three from Health Sciences (HS), and three from Social Sciences (SS).

The lead researcher conducted three-part interviews to capture assessment perspectives and reflections on experiences. Part one was directed at the disciplinary setting and professional context. It comprised open questions about the participant’s role, teaching experience, assessment practices and processes for changing assessment in their discipline. In part two, participants were asked to recount their assessment change in as much detail as possible, including the reason for the change. The third part of the protocol focused on social interactions within their small significant network (Poole et al., 2018). Participants were prompted to draw a network diagram and explain the people in their network. Once the diagram was finished, participants were asked to identify the people they felt were significant to the assessment change. Interviews lasted approximately one hour and were audio-recorded and transcribed.

Analysis

The first step was a close read of transcripts to focus on evidence to answer the research questions, highlighting comments that were related to what was changed, the reason for the change, how the change was facilitated and whether there was sustained adoption of assessment techniques. The data were then hand-coded in a deductive process (Braun et al., 2018) to explore how motivation and engagement resulted from the experience of the Assessment Redesign Project. Comments were managed in a spreadsheet format with columns representing the categories of intrinsic and extrinsic motivation, support and reflective practice related to engagement, and sustained adoption or propagation of assessment strategies. Participant

comments were added in rows down the spreadsheet to enable the comments from participants to be examined within the and across the categories.

The first author did the initial coding of the raw data, and then the coding was discussed with the research team. The category of SoTL emerged when the research team delved into comments coded to reflective processes. During the coding of the seventh participant's comments, minimal new information was being added to the analytical set, suggesting thematic saturation. That is to say, coding of the seventh to ninth participants enabled validation of the themes but did not present any significant alternative perspectives. Data interpretation and deductive reasoning were facilitated by creating a concept map to display the codes visually. A reflexive discussion between the research team led to the refinement of the map representing findings (Figure 1).

Findings

Motivations behind assessment change

In response to research question one, in what ways did the experience of the Assessment Redesign Project influence engagement in assessment change? Thematic analysis suggested intrinsic and extrinsic motivational factors. Faculty members were extrinsically motivated to implement assessment changes through the mini-grant incentives, accreditation requirements and negative feedback from students. Intrinsic motivation was suggested by the desire to engage students in meaningful learning, to clarify criteria, and, for one participant, to generate consistency in assessment across multiple markers (teaching assistants). For most participants, there were both extrinsic and intrinsic factors involved in their assessment change. For three of the participants, the incentive of funding was the main reason for their involvement in the project. They used their mini-grant to pay teaching assistants (TA's) to facilitate learning sessions and assist with marking. Table 1 lists the assessment changes and example quotes demonstrating motivational themes.

Engagement in assessment change (support and reflective practice)

All of the participants mentioned advice from peers, indicated in comments such as, *my philosophy is that if I don't know how to do it, then I'll learn from someone that knows how to do it. It doesn't necessarily mean that I have to do it all by myself, I can get others involved* (HS2). There were comments suggesting reflective practice, indicated by actively seeking feedback. Participants greatly valued the assessment facilitators, but following the project, there was no funding for support. This was lamented in the following comment:

I see (Assessment facilitators name) of very, very high value to me and I miss her dearly.... In some senses she just helps me talk through things myself, she was always putting in the right word or two to get me to see where I could be more specific about the criteria for the assessment rubrics (SS5).

The following participant mentioned that they had to rethink their rubric and described how the assessment facilitator worked with them on training their TA for consistent assessment:

So, we developed this draft rubric and then it came time to train the group of seven TA's in how to use the rubric. The facilitator came to meet with us, and the TA's were given a chunk of assignments that they had to mark. They were asked to come to this meeting having already looked at the rubric and after having tried to work through a few of the student assignments. So that they could ask questions about the things they didn't necessarily understand about the assignment or the rubric. We wanted to get

consistency and it took a lot longer than we anticipated just because they had a lot of questions about how to interpret student's information. (HS1).

Table 1. The nature and purpose of the assessment changes

ID	What was changed	Extrinsic motivation	Example quotations	Intrinsic motivation	Example quotations
E1	Developed rubric in line with accreditation criteria	Accreditation	<i>We wanted to match up with CEAB (Engineering Accreditation requirements), Graduate attributes and all these things.</i>	Clarify criteria	<i>The redesign work was motivated by the design of a new lab, students need some scaffolding, so they know how well they're going to do when they get to certain outcomes, and what outcome they're shooting for.</i>
E2	Technology enabled formative feedback	Mini-grant	<i>If it wasn't successful in the grant, I wouldn't have resources... when I say resource it mostly has to do with time.</i>		
E3	Redesigned rubric for peer assessment of critical thinking	Accreditation	<i>We try to teach 'professional skills' where there is no specific answer. It's more subjective on whether you have achieved some level of competence... we didn't have a specific marking guide.</i>	Meaningful learning	<i>Last year, based on some input from a conference I had been to, I thought about peer assessments...</i>
HS1	Redesigned rubric; trained TAs for consistent marking; Moderated grading	Student feedback	<i>After the feedback was released we had so many requests for re-marks because the students couldn't understand why they got the mark they did, even though there was rubric that was very clear.</i>	Clarify criteria	<i>They've had a lot of multiple-choice examinations. It's the first time that they had to write something that had to be coherent, the writing quality wasn't so great which is what created the barrier to how we assess using the rubric.</i>
		Mini-grant	<i>... and we had funds to pay the TA's</i>	Generate consistency	<i>Working out how can we be consistent between TA's?</i>
HS2	Designed rubric for interpersonal skills			Meaningful learning	<i>I wanted to put the onus onto the students, individually and within their small groups... trying to get into their cognitive level of thinking rather than regurgitating memorized facts</i>
HS3	Peer assessment; assessing peer assessment	Accreditation	<i>External accreditation standards drive so much of what happens, including the fact that students need to be informed about expectations.</i>	Clarify criteria	<i>Learning outcomes related to different competency roles, and one of them is a collaborator. Specifically designing rubrics concerned with how their contributions were recognized appropriately.</i>
SS1	Created rubric for new assignment	Student feedback	<i>I had students who come to me and say 'I did everything on the rubric, why did I only get a B?'</i>	Meaningful learning	<i>I think memorization and regurgitation is not appropriate. The redesign was motivated by the desire to revisit the grading structure, inject more active learning components and develop stronger rubrics.</i>
SS2	Created rubric for new assignment			Meaningful learning	<i>I had been feeling for some time that I wasn't getting at their critical thinking skills. I realized that I need to assess them on how well they can think.</i>
SS3	Adapted assignment and rubric for critical thinking	Mini-grant	<i>The TA was a part of the instructional team; she was supported through the funds that we got.</i>	Clarify criteria	<i>There's a focus on more conceptual and applied things and really being able to see the boundaries of the concepts and where they apply and where they don't apply.</i>

TA training was not a regular practice in the participant's department, success in the endeavour spurred confidence for this participant. They had reflected on the experience and refined the process for subsequent TA training sessions.

Sustained adoption or propagation of assessment strategies

In response to research question 2, did the Assessment Redesign Project lead to sustained adoption or propagation of assessment techniques? Six of the nine participants mentioned that they had transferred their assessment strategy to other courses or cohorts. This was evidenced by comments such as, *I do it now also, even at the four-hundred and three-hundred levels* (SS2); and *I'm still doing the same general kind of things but with a different student group and it's a different work environment* (HS3). There was also comments suggesting assessment change activities promoted reflection and continuous improvement. For example, *the project helped me think about training TA's to mark consistently in assessing students. So, I continue to do that (train TA's)* (HS1). One of the participants mentioned their intention to use the strategy again, but they hadn't had the opportunity to do so. None of the participants made claims that their work had directly changed the assessment behaviours of others, but there was a suggestion of the influence of their assessment initiatives. As in the example, *some of my ventures have been used as a template for the bigger, broader aspect of the life-science program* (HS2). Some of the participants used consultation and collaboration to engage their peers, such as this comment *this year I went to my key folks in the department and said 'okay, this is what we're thinking of doing, what do you think?* (E3).

Further exploration of the three participants who did not mention any ongoing implementation suggested that personal goals may have played a part. These participants all mentioned student evaluations of teaching (USAT). For example, the comment *on the tenure-track side, I want to get high USAT scores. I want the students to understand the material, do well, have a positive experience. But of course, to get a high USAT score* (E1). The other participant received negative comments on their USATs about the assessment change, and mentioned that students were not consulted about the new assessment; *we never asked the students whether they wanted to do it or not* (E2). To mitigate negative comments, they proposed that if they were to change their assessment in the future, they would consult students first.

The role of SoTL in sustained change

The scholarship of teaching and learning (SoTL) is described as a systematic inquiry into student learning that advances teaching and learning in higher education by making inquiry findings public (Hutchings et al., 2011). The five participants who mentioned sustained implementation had actively engaged in SoTL activities. One participant collected pre and post test data of student achievement, correlated with the standardised rubric assessment. Another evaluated their assignment design with iterative submissions and feedback, incorporating comparative assessment data. There was a participant who conducted focus groups regarding student experience of the redesigned assessment. The other two SoTL activities were less formal, with reflections of practice in the context of their disciplinary teaching literature, culminating in conference presentations or book chapters. For example, *when I developed the design course, I had some ideas, guidelines, and a syllabus and an outline. I had things for them to do, but I didn't have a rubric, and I didn't realize I needed one. That was prior to writing the conference paper* (E1).

Each of the participants who were engaged in SoTL attended teaching conferences, finding them valuable. Two participants cited input from a conference as the inspiration for their assessment redesign;

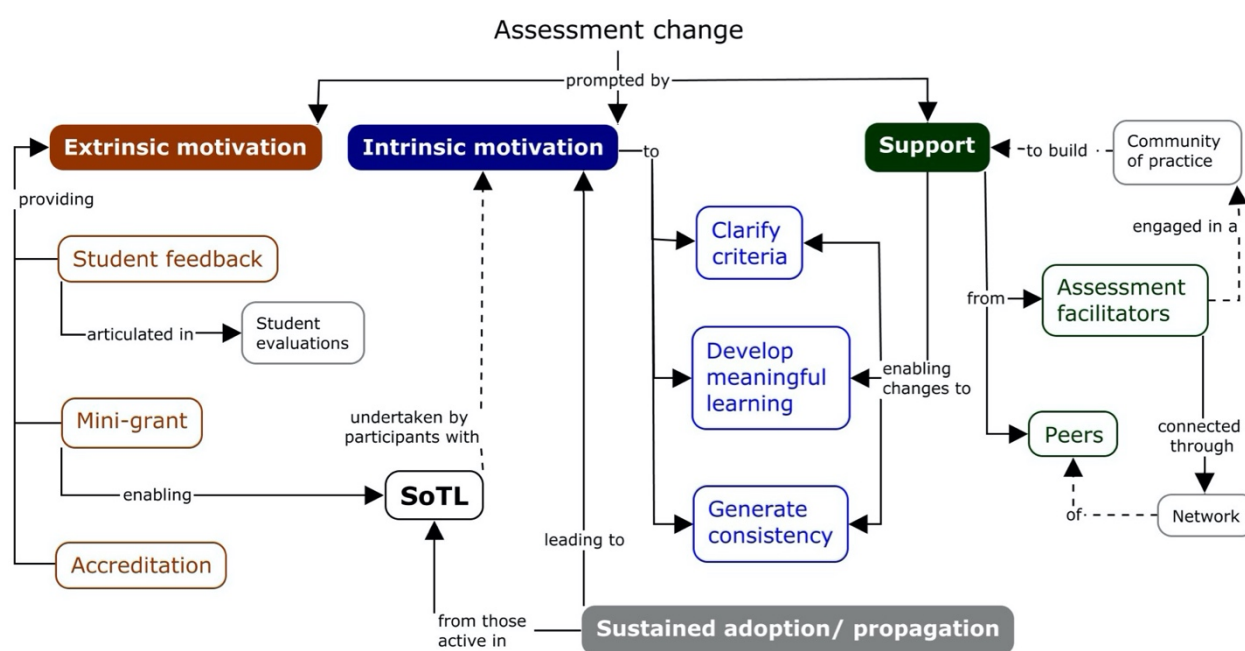
Based on some input from a capstone design conference I had been to the year before where somebody had talked about peer assessments, and I thought 'oh, that sounds interesting' and so I did some more research; how does it work, what do you do (E3).

I'm doing a lot of what we call non-funded research, scholarship, that got my interest in doing what I'm doing". We got it to the point where this approach was presented at the educational venue of an international conference, and it won an award (HS2).

An additional participant partnered with a peer to publish a book; *we kept discussing writing a textbook together, which we did (SS3)*, and another published results of their qualitative investigation of their assessment change initiative in a medical teaching journal.

Participants mentioned that the mini-grant helped them with their SoTL activities, such as paying for a research assistant or freeing up time because they could employ TA's. However, the mini-grant did not appear to be an instigator for SoTL. All participants got the mini-grant, but not all engaged in SoTL. Figure 1 provides a visual representation of analytical findings, demonstrating faculty engagement in assessment change, promoted by motivational factors and support. Intrinsic motivation was linked with SoTL and sustained adoption or propagation.

Figure 4. Links between assessment change and sustained adoption



Discussion

Few would suggest that change in higher education is an easy undertaking. Research indicates that sustainable change must be owned by faculty members (Barth et al., 2007; Corbo et al., 2014; Stensaker & Vabø, 2013). The Assessment Redesign Project was designed to engage and support faculty to make changes aligned with institutional goals. It makes sense to measure success in the long term, but as Eckel & Kezar (2003) point out, long-term change is seldom tracked. The funding for the project did not include the facility to track ongoing implementation. Hence, the current study was conducted (without funding) to investigate the effectiveness of the project.

Engaging faculty members

As in many other higher education settings, faculty members have high autonomy and academic freedom in the Canadian context. As such, leading changes to assessment strategies or design is difficult. Some say to “bring about changes in approaches in teaching and learning, you must first bring about changes in conceptions of teaching and learning” (Watkins et al., 2005, p. 306). The project provided the framework, but participants were active in goal setting. The faculty member’s goals needed to align with the institutional goals to be awarded the mini-grant. The mini-grant provided incentives, and the provision of assessment facilitators further spurred the participants. Still, intrinsic motivators were more commonly mentioned as drivers for change.

The desire to engage students in meaningful learning was the most common reason given for changing assessment toward critical thinking and problem-solving. Clarifying criteria was also prominent in participant comments. We can infer from these comments that most participants had a foundation of assessment knowledge. Yet, they had not made these changes before involvement in the project. Support from the assessment facilitators was graciously accepted, enabling the mutual goals to be implemented.

The changes took time and expertise to develop and implement. In some cases, changing assessments presented a risk in terms of student push-back. Students can be reluctant to change and provide negative feedback (or low scores) in teaching evaluations. These evaluations are critical because they form part of the basis for tenure or promotion at this institution. Assessment facilitators worked with faculty as a sounding board, providing technical advice and feedback on iterations of assignments and criteria. The assessment facilitator’s community of practice informed the feedback that they provided to the faculty members. The larger network met periodically in catered networking events attended by senior leaders. Interestingly, participants did not mention these events but did speak more generally about interactions with people from the network in less formal settings. The inference was that learning from peers had greater importance to participants than sharing ideas more formally.

Benefits of SoTL

Participant responses suggested that engaging with the educational and assessment literature affected their thinking about and approach to the assessment, and there was a link between engagement in SoTL and sustained change. The faculty member’s initiative prompted research on their teaching and assessment. Still, involvement in the Assessment Redesign Project may have offered insight into scholarly processes such as methods and procedures, ethical approval, recruitment, informed consent, or data analysis. We know that the path to publication can be long, emotional, and bewildering (Normandeau et al., 2020). Thus, university supports were available where requested. In addition to recognizing that SoTL can be an effective tool for evidence-based approaches to improving teaching practice (Openo et al., 2017), the findings of this study support the proposition of SoTL as a key element in sustained change. However, we need to know more about the impact of such projects. It would be valuable to further explore a project or program where SoTL was encouraged or even mandatory, to better understand the link between engaging in SoTL and sustained implementation of assessment change. Authors encourage others to use a research-based approach for assessment initiatives in higher education, with purposeful inclusion of SOTL activities to expand our understanding of the role of SoTL as a sustainable change mechanism.

If an institution was looking to replicate an Assessment Redesign Project with limited funding, the evidence here supports the following suggestions:

- A stimulus of some kind is important, but specify that funds be used to pursue SoTL goals.

- Assign people within the faculty or department to become assessment facilitators to support the desired change. They don't need to be assessment experts; there only needs one expert and a community of practice to build assessment knowledge and skills.
- Recognize the benefits of peer support, and encourage members to build these into their SoTL exploration.

Limitations

The sample comprised participants from three disciplinary groupings, but there was no representation from the humanities or sciences. The sample in the current study was limited due to availability and was possibly biased by their interest in improving assessment. Yet, there was informational power of the sample (Malterud et al., 2016), as participants were critical informants for the narrow aim of the study, informed by theory, utilizing a method to capture quality dialogue, and applied through a formulated analysis strategy. However, further research would be needed to determine how to engage faculty across other disciplines and engaging those more reluctant to improve assessment.

Additional data may have enabled triangulation of data analysis. However, due to ethical separation between the Assessment Redesign Project and the follow-up study, data collection was limited to interview components. The facilitator reports that were collected as part of the project were not included in the current study. That constraint aside, it may have aided the trustworthiness of findings to include an alternate data collection device, such as a survey targeting a broader sample. The current study was conducted one year after completing the Assessment Redesign Project. Additional research would be necessary to determine the impact beyond the one-year duration.

Conclusions

Queen's University conducted an Assessment Redesign Project with support from HEQCO. Interviews with nine of the 25 project members were completed one year after the project concluded. A motivational theoretical lens (Ryan & Deci, 2000) was utilized to investigate the experience of the Assessment Redesign Project related to motivation and the continued adoption or propagation of assessment strategies. Analysis of interviews found that assessment changes were promoted through a combination of factors. Faculty members were extrinsically motivated by funding, accreditation requirements or student feedback; and intrinsically motivated to clarify criteria and generate consistency or engage students in meaningful learning. Support from assessment facilitators was also found to promote change. Sustained implementation appeared to hinge on engagement in the scholarship of teaching and learning (SoTL). The mini-grant helped to enable SoTL activities, but results suggested that funds were not an instigator for SoTL. The link between SoTL and sustained adoption is presented here as a possible mechanism for sustained change. These findings resulted from a small sample, thus, further research is suggested to expand our understanding of the sustained assessment change.

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