A Social Innovation Model as Bridge-Builder Between Academia and Research Management

Charmaine Williamson
University of South Africa

Christina Shuttleworth
University of South Africa

Abstract: *Institutional research management (RM) is increasingly seen as a strategic force, not only to raise the research output per academic, but also the quality thereof. RM, therefore, has to attend to researcher development (RD). How RD is achieved, as part of RM, is still viewed as an embryonic field with attendant calls for additional research. Often, criticisms of RM's researcher support efforts come from the academy itself. These drawbacks, perhaps, originate from the nature of research, in that advanced scholars gain strategic research identities through deep positioning within disciplinary specificity, embedded in knowledge-based and methodological originality. This then creates a disjuncture between academia, as researchers, and RM, as support services. Academic staff's perception of the value of RM may be filtered through how well RM speaks to epistemological, academic fields, while inculcating the same in RD. RM's chances of gaining support and traction for their work from the researchers they support, may well be gained through "speaking within the remit of disciplinary languages". Yet, how might this be smartly achieved in the intensely active and respective roles of the two parties? We present a novel RD model, which has been shown to boost credible conversations between researchers and research managers. The research novelty is expressed through a model of social innovation, which brought methodology into the heart of RM's support and received traction from researchers, who perceived RM as "speaking their language", while triggering conceptual thresholds. The findings extend an under-studied area of social innovation within an empirical setting in a mega-university and theorise how conceptual thresholds spur on social innovation.*

Keywords: *Research management, social innovation, researcher development, conceptual thresholds, graduate studies*

Introduction

> "Becoming an independent scholar – after years of study or work in other roles – is a major shift in identity and practice. If not well managed, it can be painful and aversive."
> (Murray & Cunningham, 2011, p. 831)

Obtaining global recognition is the name of the game for modern universities. The rise of the "world-class university" or "super research university" marks a new era of knowledge production in higher education (Lee, 2013, p. 123; Zhou & Wu, 2016, p. 76). Alongside these existing imperatives, the COVID-19 pandemic also underlined the importance of research-driven solutions for systemic knowledge and quality of life. A world-class university, as such, provides highly sought after, leading-edge researchers and research outcomes, thereby receiving status and coveted resources that enable ongoing success. Altbach (2013, p. 317) is of the opinion that research universities are not only important for national development, but are "the key to gaining entry into the knowledge economy of the twenty-first century". Globally, but in particular in developing countries, there is, therefore, a need for a "quantum leap" in research capacity building, in all disciplines (Nchinda, 2002, p. 1701; Kizza et al., 2010; Merritt et al., 2019).

As a consequence of the increased focus on research quality outputs and the corresponding government funding allocations, universities increasingly support efforts to build research capability (Browning et al., 2014, pp. 123-124; Merritt et al., 2019). Early career academics, who mostly joined academia to teach, have, in many instances, limited research experience and find the pressure to do research difficult, exacting and to be avoided (Belkhir et al., 2019; Murray & Cunningham, 2011, p. 832; Sikes, 2016, p. 555). Many faculties encompass fundamentally technical or vocational disciplines with an original focus on teaching, rather than research (Bai et al., 2008, p. 5; Pratt et al., 1999, p. 43). Yet, systemically and institutionally, publishing research is prized and rewarded. Although institutional support is key to productive research, it is important to look at how institutional goals can be aligned with individual goals of academics as well as to that of a larger discipline-focused community (Nygaard, 2017; SARIMA, n.d.).

Thus, institutional research management (RM) is increasingly seen as a strategic force, not only to raise the research output per staff member, but also the quality thereof. Ironically, however, researcher development (RD), which falls into the remit of the RM, is still viewed as an emerging field (Rospigliosi & Bourner, 2019), with attendant calls for additional research on the matter.

Yet, while perhaps a strategic force, RM's diverse spectrum of services facilitates the fuzzy positioning of the profession. Often, criticisms for the profession come from the academy itself. This could originate from the nature of research, in that advanced scholars gain strategic research identities through their positioning within disciplinary specificity, embedded in knowledge-based and methodological originality. This creates a disjuncture between academia and research management. Academic staff members' perception of the value of research management may be filtered through how well RM speaks to epistemological, academic fields. RM's chances of gaining support and traction for their work, from the researchers they support, may well be gained through "speaking within the remit of disciplinary languages".

Research managers, who might be remote from these discourses, could consider innovatively to bridge the disjuncture through using research methodology tools, provided by knowledgeable mentors, as a unifying language. This translates into a more practical "language" of the research process, as opposed to theories and disciplinary specificity. This may seem to be arguing RM's roles divergently. Notwithstanding this divergence, the article probes the idea that an innovative

construction of a relationship between RM services, on one hand, and researchers, on the other, has thus far been under-conceptualised. The relationship entails sharing methodological commonalities between RM and academics, and in doing so, strengthening RM's third space (Whitchurch, 2008) through bolstering acceptance with academics.

Statement of Problem in Practice

The study, therefore, records the four-year implementation of a researcher development model at a mega distance education (DE) university in Africa. The university, by definition of its mega status, has, in terms of its graduate students, high throughput rates. In terms of rankings, however, its publication and citations statistics, contribute towards its ranking as 1001+ in the world (Times Higher Education, 2021). The higher education sector might consider this a lag in fostering a strong research tradition. While this is felt by the university itself, certain faculties experience it more keenly (Williamson et al., 2020). There are a number of reasons for this lag or lack of research. As previously mentioned, some faculties, for instance those that offer professional qualifications, have been criticised in the literature for adopting a more technical focus, while showing "little appetite" for research (Venter & De Villiers, 2013; Samkin & Schneider, 2014; Verhoef & Samkin, 2017). Another reason, specifically applicable to the illustrative faculty in this case (Faculty A), is that most academics have accredited professional qualifications, with strong professional identities and little research experience. Academia, however, places a premium value on academic research and peer reviewed publications.

Should graduates remain in the academic arena, they are required to pivot their skills set and acumen towards undertaking research for publication in accredited journals. This pivoting starts at master's (M), but mainly doctoral (D) level, and then continues, with increasing pressure during their tenure at universities, should they wish to advance their academic identities and careers. Developing as a researcher may well include virtual support provided by DE and, since 2020, increasingly, also by residential universities, but studies have shown that researcher growth happens through more personalised models (Lamar et al., 2019; Bitzer & van den Bergh, 2014). In DE, the geographical dispersion of M and D students as well as the arms' length virtual learning modalities displace the personalised models. The in-person contact includes experiential guided learning, mentoring, deliberate fostering of research skills, inculcating academic dispositions and proximate interpersonal supervision (Hodza, 2007). The DE orientation, therefore, may well fall short on such models, as has been experienced by Faculty A. Consequentially, this has prompted Faculty A to innovate and to build a research-intensive focus among its M and D candidates, but also, interestingly, among some of its established staff, who also find they need to "play research catch up".

Statement of Research Problem

In response to the problem in practice, Faculty A's RM leadership saw the increasing importance of a deliberate programme for developing researchers (as opposed to teachers or professionals) to achieve graduate throughput, staff academic progression and to improve their publication credentials. Knowing how personal [post-]graduate studies are (Lamar et al., 2019; Bitzer &

van den Bergh, 2014), the leadership desired a shift from the one-size-fits-all institutionalised modalities towards a more innovative, personalised RD model. A broad-based formulation was in place, but no articulated blueprint or precedent existed for the model.

What was in place, however, was the regional Southern African Research & Innovation Management Association (SARIMA) Research Management Professional Competency Framework (PCF) (Williamson et al., 2020). Within this framework, researcher development (RD), as undertaken by RM, was, in part, articulated as: "Support postgraduate [graduate] student and researcher development across the research pipeline within different organisational settings" and included specific competencies, numbered by the authors for convenience: 1) "demonstrate knowledge of the full research cycle"; 2) "develop frameworks to support researchers at different levels of their research careers"; 3) "scan the environment and capitalise on innovative partnerships for researcher development"; 4) "benchmark…initiatives and practices"; and 5) "adapt.. for best practice" (SARIMA, n.d., pp. 13-14). The RM leadership, therefore, was determined to meet these requirements as well as seek a value-adding criterion of innovation.

They also scrutinised the PCF for guidance on RM innovation. The PCF contains a number of cross-cutting competencies, identified across RM, such as communication, negotiation, leveraging of technology, among others. Within this band, innovation was included and expressed as: "questioning conventional approaches, using intuition, experimenting and developing fresh perspectives to resolve challenges with innovative solutions or services" and "forward thinking and doing new things" (SARIMA, n.d., p. 6).

These guidelines thus provided valuable points of departure, but the impetus remained for the model to be home-grown and tailored to disciplinary context (as highlighted in the Introduction). This posed an applied, as well as, research question:

> How might RM innovatively implement a model tailored to researcher development needs?

The purpose of this article, therefore, is to report on the genesis and implementation of this model. We reflect on the findings and address theoretical gaps on RD using a confluent theory of social innovation. The remainder of the article is structured as follows: literature review with a conceptual framework; followed by the methodology section; then, the findings are presented and interpreted through a discussion; and, finally, the article concludes the argument and reiterates the contribution of the study.

Literature Review

Conceptualising innovation within RM was underlined by the SARIMA PCF (n.d.). The PCF, like other RM frameworks, was formulated based on international literature and benchmarked against best practices for RM from participatory processes, across public sector RM. Despite innovation being an expected competency, the PCF, as well as the RM literature consulted (see Williamson et al., 2020), did not specifically address the notion of social innovation (hereafter, SI), which is addressed in the current study. Rana et al. (2014, pp. 259, 262), in a systematic analysis of SI in the public sector, indicate such a gap as a "huge" and a neglected area. While these

authors do refer to "operations research management science", they indicate that, within their review, no study had been undertaken on SI, as applied to a model that was founded on empirical practice and, therefore, insufficient primary data had been used. In their introductory views, Rana et al. (2014) show the proliferation of SI research could mainly be attributed to disciplines around business, management and economics (within private sector-bases), and not sufficiently to universities or RM, with nothing addressing RD. Their review also does not sufficiently address a definition of SI, within the public sector, even while noting its intellectual tradition and the plethora of key words, as well as theories associated with the phenomenon (Rana et al., 2014, pp. 259, 263, 265). Other scholars do venture towards definitional spaces, as will our conceptual frameworks, which emanates from this review and practice.

Innovation, and its antecedents of entrepreneurship and disruption, is much touted, in practice, in the field of organisational, management, technology and business domains (Schumpeter, 1934; Christensen, 1997; Adsule et al., 2015), and also as spanning disciplinary boundaries (Dogan, 2019). Scholars had conceptualised innovation studies (see, for instance, Christopher Freeman, Giovanni Dosi, Luc Soete and Ian Miles, in Mulgan [2012, p. 23]), framing specific areas such as innovation ecosystems (de Vasconcelos Gomes et al., 2018), innovation communities (Fichter & Beucker, 2009), innovation universities (see Christensen, 2003 in Mulgan, 2012, p. 24) as well as innovation and creativity in social sciences (Dogan, 2019). In Lepore's view (The New Yorker, 2014), innovation is afforded "gospel status", while getting some things wrong and, perhaps, very obviously so. As Mulgan (2012, p. 20) states: "Not all innovations are good." In developing his argument, he centrally discusses SI, which has gained traction through its links to innovation. Mulgan (2012), however, indicates that, despite innovation being pervasive in societies, SI is "short on theories", with theory needing to "catch up" on practice and each requiring recursively to expand each other (pp. 19-20). This article, in part, addresses this concern.

In his approach to extend SI theory, Mulgan (2012) profiles seven theoretical overviews for nurturing SI. The theories mentioned here do not follow Mulgan's order, but have been recast to support the processes in this study, as underpinned by SI. SI is initiated by: (1) paradoxes and tensions, (2) where previous ways of doing or being appear no longer to suffice, thus incremental, organic change may happen. (3) SI needs to be rooted in contextual circumstances. (4) Additionally, being socially innovative is following communitarian ways of existing, inseparable from collaboration and being more fully, and socially, human. (5) As such, the foundational premises of SI rest on the well-being and development of humanity in the social realm, differentiating it from technological innovation that is hard-wired into test-driven, measurable worlds. Mulgan (2012) advocates, too, that (6) SI seeks to build capabilities towards fully actualised humans, who are able to harness both tacit and explicit knowledge. Given these dimensions, (7) the field remains emergent and less fully formed than other innovation domains; thus, it prompts additional research.

Mulgan's work suggests the boundaries between SI and any system are permeable and intersecting. As such, he defines SI as the capacity to prompt "new ideas (products, services and models) that simultaneously meet socially recognised social needs (more effectively than alternatives) and create new social relationships or collaborations that are both good for society and enhance

society's capacity to act" (Mulgan, 2012, p. 22). Conversely, Avelino et al. (2019) provide working definitions that create a proximity gap between social innovation and wider society. They posit four levels: social, yet, only at the micro level, where people and processes interact to usher in new processes or technologies for "people [to be] doing things differently" (Franz et al., 2012). Moving further from micro views around people, at a more abstract level, systems innovation is described as an organisational sub-system that intersects with society, while game changes are at the macro level, creating mainly global field changes as well as the "rules of the game". As such, narratives of disruptive change are positioned at meta-theoretical and paradigm revision levels, around change and innovation (Avelino et al., 2019).

Mulgan (2012, p. 22) usefully leaves the discussions of social innovation open-ended, by stating that definitions might well clarify what "social innovation is not". He highlights that it is not a subset of techno-economic novelties, but more specifically enables and democratises society. To take a more expansive view, one of the central custodians for achieving such societal advancement is the university, which should be both an incubator for SI theory and a living example of its practice. In short, universities should service a seminal definition of SI that is social "both in ends and means" (Young Foundation and Social Innovation eXchange [SIX], 2010). Based on this review and for this paper, SI, therefore, refers to a co-created model which had not existed before. SI unfolds through in-person, conceptually-challenging interactions shifting graduates' capabilities to engage with research using different or novel ways of thinking, writing and producing academic outcomes.

Paradoxically, however, SI is strongly written about in terms of entrepreneurship, civil society and, increasingly, in socially-conscious businesses (Bayuo et al., 2020, p. 2), yet remains "scattered" and "at the fringes" around RM (as the SARIMA PCF established) policy and the role of higher education therein. Thereto, Bayou et al. (2020, p. 2) conducted a systematic review as a means to offer commentary "on the role of the university" in advancing SI through its core elements of teaching, research and community engagements (the so-called "third mission"). The review covered 61 peer reviewed journals and 7 books from an initial 208 in the search. The review highlights how SI is neglected in universities in terms of its application towards building research acumen through novel teaching and learning innovations. As the authors (2020, p. 8) state, "[there are] growing fields of study but also... large gaps in the knowledge base." Particularly these gaps point to fragmented evidence on SI practice models, such as we present in this paper. The review concludes that SI dominates in works around the third mission—mainly community engagements and social entrepreneurial focal points. This is not surprising, considering that third missions focus on entrepreneurial, technology transfers, consultancies and business engagements, specifically with innovation drivers including "universities as agents for sustainable development and/or technology providers" (Bayuo et al., 2020, p. 8).

In research, while universities are being propelled towards SI, current literature was found to be lacking through being fragmented and casebound. SI is encouraged through being a criterion in grant-funded research and other sponsored initiatives. What appears to be the strongest area of SI, in relation to research, is that which intersects with the third and entrepreneurial mission of technology transfer, with social innovation becoming what Bayuo et al. (2020, p. 6) call

"appendages… with no clear path" for dedicated social innovation philosophy. Within teaching, SI has been taken up through programmes offering curricula and qualifications thereto, with signals that universities currently might be more aspirational in integrating social innovation philosophically in their pedagogies.

Distance education (DE) was singled out as practising SI through necessary technological platforms (Bayou, et al., 2020; de Pretelt & Hoyos, 2015). Wentzel and de Hart (2020, p. 284) endorse this contextual view through arguing that "teaching and learning within DE as a social system has dynamic opportunities for cybernetic learning". Despite recognising DE, which is the setting for this article, the Bayuo et al. (2020) study provided no examples of SI as a model for developing research capability/development to achieve increased and higher quality research. The model, notwithstanding its case base, therefore, integrates two missions, according to Bayou et al. (2020, p. 8): the need for socially innovative thinking as a core epistemological driver, as well as an under-studied topic requiring additional research, while also noting the strengthened potential of DE to provide socially-oriented innovation, especially during complex times, such as the COVID-19 pandemic. Africa, despite possessing a mega-DE university, is tabled for its trailing innovation capabilities.

Kizza et al. (2010, p. 222) argue that African countries, in particular, show inadequate capacity in relation to research and innovation generation, and that developing researchers, through innovative models, is not critical to change this profile. They posit that Africa is, in fact, in a "decline of research and a research culture". While they single out Egypt and South Africa for their better research acumen, their review demonstrates that the African countries do need strategies for research capacity, while also noting that these should increasingly harness "indigenous… expertise". By 2015, Cloete, Bunting and Maasen (2015, p. 29) reiterated that Africa lacked quality PhD quotas and outputs, researcher development and strong research universities, and, therefore, does not possess that "self-generative" capacity to achieve global knowledge production outcomes. While they highlight South Africa as being on the right trajectory to develop more strongly in these areas, South Africa's graduate education efforts (notably, in the apex area of doctoral education) are still not sufficiently intentionally wedded to widespread innovation (Cloete et al., 2015, p. 103).

The review segued from innovation, to universities' SI and, thereto, Africa and South Africa's research deficits. From this review and the problem in practice, which signals how professional qualifications, in many instances, are prized above a research culture, the impetus to create SI and RD becomes stronger. Based on this review and applied practices, the researchers provide the orienting concepts for the study.

Orienting Concepts

Layder (1998, pp. 101, 109) argues that studies may be considered, initially, through orienting concepts, which allow for investigators such as ourselves to seek pertinent issues, in principle, while, at the same time, following inductive means to plumb the data. Orienting concepts are looser than a more structured conceptual framework, allowing for the researchers to explore the data richness with concepts as points of departure, but not necessarily arranged in any structured

relationship. The orienting principles for this study were research management and programmatic researcher development within the SARIMA PCF, which is expressed in the competency framework stating the need for RD to have: "third parties", as a mentoring research methodology in existing supervisor/s-student relationship; and potential for social innovation in a longitudinal model for changing mindsets about undertaking research.

These concepts, as supported by Layder (1998), and MacFarlane and O'Reilly-de Brún (2012), make sense of pre-existing framings (in this case, both the PCF and the empirical model were in existence), while also allowing researchers to keep an open mind to the energy of the data. In this current study, the concepts, therefore, informed the process of the analysis and were then used to crystallise an evidence-informed rendition of the research management model of the study.

Methodology

Context

Englander (2019, p. 6) provides the view that general knowledge claims of qualitative science are provided through context-dependent meaning of a phenomenon, rather than statistical, generalisable findings related to sampling and population. Englander, therefore, questions the necessity for a sample. Given this argument, providing the research context becomes critically important to make our knowledge claims.

The introduction has provided the research setting for this study. The case covers four years, from 2016 to 2020, inclusive of the outlier year of COVID-19. The unit of analysis is a RD model that includes three academic mentors, who are contracted, respectively, for up to 30 hours per month, to support the research and graduate work of the faculty and their master's and doctoral students (who might also be faculty). The faculty's work covers teaching and learning in DE, research, master's and doctoral supervision, and community engagement. The supervisors often have a ratio of 1 supervisor to 10-15 graduate students. There are also punctuated periods to do teaching. Additionally, many members of the faculty are involved with professional associations, based on their registrations with such bodies. They are required to integrate their faculty work with the developments of the profession in the public and private sectors.

The workload of academics and RM in South Africa has been noted as being disproportionately skewed away from concentrating on research and publications, towards teaching, supervision and, sometimes, unwieldy, bureaucratic administrative duties (USAf, 2019). Considerations of this reality, and other dimensions that will be raised in the discussions section, prompted the RM leadership of Faculty A to introduce this model. The model was framed as being part of evolving SI, as discussed in the sections on the literature review and orienting concepts.

The RM office initiated and then integrated the model into Faculty A's strategic cycle. RM also provides relational and administrative support through accepting bookings for the mentors for their hours at the university, promoting supervisors and students' relationships with the mentors, tracking the implementation of the model and, together with the mentors, building on any system enhancements for the model. RM also reports on the model to the Faculty and university

leadership. In doing so, RM fulfils the standards set by the SARIMA PCF (see *Statement of Research Problem* section).

External mentors were contracted for their specific expertise. Each mentor had wide and deep experience in their respective fields of qualitative and quantitative methodology approaches, with the third mentor being highly regarded for disciplinary knowledge. The mentors are widely and well-known nationally in higher education for their work with graduate students and supervisors. Mentors were thus approached to apply to be part of this exploratory process. All mentors thus were well placed to provide advice in recurring, repeat sessions and are consulted for master's or doctoral studies as well as article writing or to discuss any need around the research process. When the members of the Faculty thus have an identified requirement to be addressed, they would make an appointment to see the qualitative, quantitative or discipline-specific mentor for an hour's consultation. Repeat consultations are common and happen from month to month. Written work may or may not be sent beforehand. If written work is sent, the mentor reviews it, before the session, and discusses the feedback in the consultation. Sometimes, on-the-spot advice is requested and the mentor draws on their experience and the discussions happening in the group to consolidate the advice. While the mentor (third party as advised by SARIMA's PCF) is the lead of the session, there is always collective discussion, with the supervisor often co-leading. A session includes mainly advising on methodology, but, often, the study is discussed more broadly, specifically around the coherence of the study, the logic, expectations of academic conventions and the choice of theories.. The practical implementation is best illustrated in terms of the numbered segments and relationships, as depicted in Figure 1, with mentors (segment numbered as 2), as the pivotal anchoring of the model. This model crystallises the orienting concepts, as referred to in the section of the same name.

Figure 1. Practical Display of Research Management Researcher Development Model as Implemented

To add further substance to the context, a sample of enumerated data provides a snapshot to signal that the model is being used. In 2018, as an illustration, 152 community members accessed the model by consulting any or all of the three mentors. Of the 152 consultations, there were often instances of 3 to 4 repeat consultations. Additionally, under the context section of their responses, participants indicated two critical sentiments, in the light of their professional identities, namely, that they found research challenging and that they are currently, as professionals, required to "think in the box", yet research often requires "out of the box" thinking.

Data Gathering

The data were gathered using a qualitative approach, following "a phenomenological theory of science" (Englander, 2019, p. 11). The phenomenon was therefore narratively elicited and analysed for both the textual and sub-textual elements. The study used the self-narrated and recalled experiences of the researchers themselves as well as the consenting members of Faculty A. A limited amount of enumeration of qualitative data (Grbich, 2013) was used in the methodology context to bolster the descriptive setting.

The model is located as an experiential, illustrative phenomenon, shaped by the participants taking into account the meaning-rich assumptions elucidated by the theoretical points of departure (Englander, 2019). As such, following Englander (2019, p. 8), we probe the meaning-making by participants within the "world" of this model. The method used was an adaptation of memory work (Haug, 1992), as experiences were gathered retrospectively over the five years (2016-2020) of the use of the model. Quoting Haug (2008, p. 22), and drawing on other authors, Clift and Clift (2017, p. 606) state that memory work is "not only experience, but work with the experience". In this way, memory work does not recognise memory as truth, but rather as a means of talking around, with and through memory-sharing telling, writing and listening, to produce knowledge about the ways individuals are "made social, [and] are discursively constituted in particular...moments" (Davies & Gannon, 2006, p. 4).

The specific data gathering method used was computer-mediated research (CMR) (Salmons, 2015). CMR, in itself, is an emerging area of methodological innovation, consistent with the theoretical disposition of the article. The COVID-19 pandemic has also validated, through necessity, the use of CMR. The participants were e-mailed a short "e-interview" guideline, to prompt and probe their memories of the consultation sessions in an "asynchronous" manner. The schedule took approximately 15-30 minutes to write up and mail back to the researchers. All the participants responded through a reciprocal e-mail response. The researchers acknowledged each e-mail received and prompted for further additions to the initial recollections. Two members of the group indicated that they would welcome interviews, as they felt they wanted the energy of an oral narrative. The researchers, while respecting these views, indicated that they would keep the data gathering consistent to e-interview responses.

Additionally, the use of e-mail, as a mediated form of data gathering, was deemed useful so as not to have proximate inter-personal relationship cues where the researchers, who are intricately part of the model, could perhaps colour the recollection of the interviews or prompt in-person impression management.

Data Analysis

Data were extracted from the mails, anonymised and then loaded into ATLAS.ti™ Version 8 for methodological systematisation (Smit, 2005). Using inductive content analysis, the researchers first descriptively open coded the data to understand the phenomenon in broader terms. The scope of this first cycle enabled the researchers to use prefixes (see Tables 2-4 for examples of

prefix coding), thereby focusing the coding for two successive coding cycles (Friese, 2019; Saldaña, 2015) so as to arrive at what became four thematic areas, together with a note as to the rationale underpinning the thematic area (as reported in Table 1).

Table 1. Thematic Areas from Codes

No	Thematic area	Note on rationale
1	Professional identity (not research identity)	Context: Disciplinary specificity challenges in relation to research
2	Mentors and why consulted	Context: Consulted for stage of research (PhD, master's, article writing, general research skills); all mentors consulted
3	Researchers themselves	Findings: The model itself and RD specifically
4	Research support model/Metaphors	Findings: The model itself with elements of RD and SI

Thematic areas numbers 1 and 2 verified the context sections of the study. Numbers 3 and 4 were considered substantive to the model itself and are integrated into the narratives with their focused codes tabulated prior to the write-ups. The themes were enriched through using a selection of the researchers' own in-session, handwritten, anonymised jottings of what methodologies, processes and conventions were advised and the mentors' reflections of the session. We adapted Haug's (n.d.) work on how identities (the first person "I") are re-constructed through memories. Haug (n.d.) calls this the "Construction of I", and such devices acknowledge the voice of the narrators, which, in this case, are the researchers. The review of these anonymised jottings appears almost cryptic until memory kicks in. The cues of the jottings enabled memories to manifest in the present (Clift & Clift, 2017) so as to be applied to the narrated themes.

In memory work, these researchers' memories and those e-mailed by the participants may be described as "working backwards into the future" (O'Reilly-Scanlon & Dwyer, 2005, p. 82). Both sources shaped the themes, which are presented in a storyline, with participant quotations to illustrate the themes and the subsequent theorising (Saldaña, 2015).

Quality Criteria for Trustworthiness

To elicit phenomenological knowledge, the researchers are ethically prompted to undertake rich descriptive, reflective and trustworthy research as offered through the qualitative paradigm (Tracy, 2019). Two-level ethics approval was obtained from the Faculty and institution, owing to the data being anchored in both those levels. Within ethics approval, quality criteria for trustworthiness were approved and fulfilled in the study. Inclusive to trustworthiness ATLAS.ti was used for transparency and to systematise for credibility and data organisation. While one researcher coded

the data, the other researcher reviewed the codes for coherence and shared connotative meanings (Barbour, 2001). The study's gaps were verified theoretically and through observation notes in the implementation of the model, as part of the applied faculty operations, thus supporting the pointedness of the research question and the authentic necessity for the study.

Findings

The data provided "memory work" on repeated consultations with all mentors. While the recollections with different mentors were differentiated, the data were aggregated to theme level. The themes are creatively named from participant quotations. With reference to Table 1, each theme integrates researcher development, the research support model and the expressive metaphors used by the participants.

Theme 1: "They did not tell me, but allowed me to figure it out for myself … I can rely on my (growing) judgement and abilities."

Table 2. Main Codes Informing Theme 1

Codes (with prefixes-capitalized)	Thematic areas
RES stuck	Researchers (RES) themselves
RM space for emotional expression	Researchers (RES) themselves
RM elevated interpretive levels (in session/ afterwards)	Research support model (RM)
RM extended critical thinking and thinking thresholds	**Research support model**
RM_QUAL methodological guidance	Research support model
RM_QUAN methodological guidance	Research support model
RM shared soundboard for research	Research support model
RM theoretical awareness and application	Research support model
MET various	Metaphors

Participants (anonymised, using letters of the alphabet, for instance, Participant O, and then indicated as student or supervisor) used a preponderance of phrases that connoted being "stuck", until they attended sessions with mentors. Some specifically mention the tensions or inadequacies associated with that disposition, evocatively shown in the "before" and "after" reflection below.

> All [my study had] done in the past year was to drain me and at some point made me doubt my abilities. I felt like I was smoking my socks … (Participant D-Student)

> I remember how nervous I was with my follow up consultation… but she read my updated report, you could see her face light up, I got a bit relaxed, and there it was….I finally got my 'groove back'. Participant R-Student)

> I was stuck for quite a long time in my research journey because I needed to find a suitable theoretical lens for my study. Dr L acted like a knight in shining armour and rescued me from my misery. (Participant O-Student)

Predominantly, the data thus showed crossing portals in their thought processes. Students stated that the sessions with the mentors and supervisors stimulated socially situated brainstorming discussions that prompted them to think critically, "there and then" at an interpretive (often new or refined) theoretical level.

> … many golden nuggets of wisdom and knowledge get transferred in the mentoring sessions, in words that just sounds amazing. I loved the sessions! There are light-bulb moments while you share ideas with Dr P and then there are other moments while she kindly makes you realise that there are big pieces of the puzzle still missing … (Participant O-Supervisor as well as student)

The sessions also required of them actively to think through their studies, when they had to go back and sit alone with their research work. The details of methodological guidance were also strongly provided in these sessions, increasing their repertoire to address formulating and analysing research projects. They were able to apply the methodological and theoretical ideas gained from these sessions, then, in solo analysis and writing, they built confidence and expanded their ability to integrate their ideas from what they learnt in the model.

> Dr X reviewed my research methodology chapter, gave constructive feedback and patiently answered my questions till I was satisfied that I understood everything and could apply it. By nature, I do not simply accept what is told to me, as I have a need to know why it is what it is. It didn't bother her, but bred room for more discussion … I felt confident that my research was based on a solid foundation. (Participant J-Student)

> I have a memory regarding methodology [discussions] on a number of occasions with Dr X. Dr P also assisted me intensively to understand the methodological process and the types of theories that are relevant to my study resulting in a very good methodology chapter. (Participant U-Student)

All the participants acknowledge the model for being situated in the social learning of mutual problem solving, both as a means to do better research and to achieve more—or better—research as an end goal. Supervisors, specifically, addressed how welcome it was to get the views of other experts within the context of academic discussion.

Theme 2: Similar to being Greek and other stories….

Table 3. Main Codes Informing Theme 2

Codes (with prefixes-capitalized)	Thematic areas
RM extended critical thinking and thinking thresholds	**Research support model**
RM_AHA moment	Research support model
RM space for emotional expression	Researchers themselves
RM provided intellectual challenges	Research support model
RM motivating and encouraging shared space	Research support model
RM professional and supportive ethos	Research support model
RM think out of the box	Researcher development
MET various	Metaphors

Both the students and the supervisors recall seminal moments of breakthrough—from a place of not knowing to a place of knowing—in the intellectual discussions of the sessions. Likened to feeling as if research was "Greek", in the memorable statement (below) by Participant D, the students could trace their emotional, cognitive and interpersonal engagements during the sessions. As such, they indicate first feeling part of one world and its "languages" and then acknowledge how they entered a different world, using expanded, often, difficult "languages" and moving towards "out of the box" thinking. Their sense-making of the crossover mostly reflects struggle and a feeling of their brain needing to break through. When the "Aha moment" lands, there is a sense of relief and an awareness that they now had a different, yet, irreversible way of viewing their studies. These moments were often reflected metaphorically, indicating the tacit levels of change that complemented the explicit learning.

> [It] was similar to [it] being Greek, having already read a big bunch of studies without understanding the whole 'research' concept with theories … After Dr P asked a few probing questions here and there, she framed the study to be either 'compliance' or 'innovation', where the 'AHA!' moment struck! She provided key words to look up and, all of a sudden, the theories that were relevant and applicable 'came to light'. Without this specific session, I can't imagine what this study would have turned into. I might even say that this was the 'first sign of life' or maybe 'the missing link' (similar to if you were to believe in a fairytale…) in terms of 'RESEARCH' that gave it breath and brought it all together. (Participant D-Student)

Additional to these individualised "Aha moments", there were references to how changes in thinking or viewing of the research happened in the communal energies of a widened academic group and a dedicated space that could be accessed repeatedly, to follow an evolving and cumulative research process and traversing thresholds in thinking and action.

> She was like a living library—always knowing what we needed and ready to share that. After a session with her, I always felt more equipped to guide a student further (knowing that I can consult her again). I do not think we ever thanked her enough for the hours she spent

in finding supporting sources. However, all my students thanked her, by the name, in their dissertations/theses for her contribution to their studies. (Participant F-Supervisor)

Theme 3: "Now to build the puzzle is up to me…"

Table 4. Main Codes Informing Theme 3

Codes (with prefixes-capitalized)	Thematic areas
RM extended critical thinking and thinking thresholds	**Research support model**
RM complete research process	Researcher development
RM completion of high-quality studies	Researcher development
RM love of research/key changes	Researcher development
RM role modelling	Research support model
RM targeted reading	Research support model
RM model indispensable	Research support model
MET various	Metaphors

This theme speaks to the sense of responsibility attained in relation to the development of the researcher facilitated by the model. Multiple reports of how a model, such as this one, impels researchers to work harder and smarter, as a member of the research community, abounded. There was extensive evidence of progressing further across thresholds of learning and being. The enabling environment, provided by Faculty A, in conceiving of a research model such as this one, was repeatedly acknowledged. Fears were even expressed of losing this opportunity, should resources not be available. During the time of COVID-19 lockdowns, when making appointments were not easily effected, researchers took it upon themselves to proactively consult with the mentors, sending completed work in advance, so that online sessions were productively used. The researchers themselves initiated the online platforms, sending out the invite as opposed to expectations that the system would make this happen. Participants did share how they missed the in-person engagements, but stated too that the online adaptation was another dimension to the model, in the sense that they could use the model more flexibly than what the fixed site and days provided. Some initial reservations were expressed about the technology, but, when the participants settled into the "passions" of talking research again, in a supportive online environment, these reservations dwindled as the sessions proceeded.

> This changed my life, not only as a researcher, but also on a personal level, allowing me to shift paradigms and, in so doing, start to really love research and appreciate the contribution it can make. (Participant V-Supervisor as well as student)

> The session inspired me to do further reading into my methodology of choice in order to produce a chapter of good standard. The discussion made me feel blown away by this passion for and knowledge of research methodology … (Participant H-Student)

> [The model provides] the privilege of receiving much needed methodological support and guidance on theory from [mentors]. (Participant O-Supervisor)

Discussion and Significance of Findings

The study provides distinct findings in respect of initiating a modest contribution to social innovation theory within RM. The model also addresses the call made by Bayuo et al. (2020, p. 8) towards building integrated practice models of SI around research, teaching and learning.

1. Potential for social innovation in programmatic researcher development, assessed over the five years:

With regard to the definition of social innovation (Young Foundation and SIX, 2010; Mulgan, 2012), the data show that the RM model responded to the social needs of supervisors and researchers, who wanted to expand their repertoire of research processes, specifically regarding methodologies and how to use theories. The shift towards supervisors and their students working with mentors created new social relationships, extending beyond the traditional dyadic supervisor-researcher relationship (Wisker, 2012). The strong positive response, narratively and enumerated, shows that individuals felt that the consultations had been productive for their research identity, provided researcher development and research outputs. The impetus to complete their studies and publish, with the knowledge that the support from mentors extended towards publication, also verified that the model provided goodness of fit for Faculty A and the university, as a sub-system of society.

Hughes et al. (2019, pp. 24, 28) posit that conceptual frameworks need to be noteworthy inclusions in publications for their value as contributions. They indicate that the framework graphically demonstrates the main concepts drawn from the literature review, while also providing the "theory-to-experience" hierarchy that the conclusion of a study provides. They also advocate a narrative for the schema. An integrative model was thus developed as a finding of this study.

The schema illustrated in Figure 2 (below) is therefore explained and narrated cohesively. The outer propositions, in the square textboxes, represent the realised "theory" of the framework's hierarchy. The text on the "experience" dimensions of the hierarchy are contained in the inner circle's segments of the figure. The arrows at the core of the model show that all elements are integrative and self-reinforcing. The schema also confirms the orienting concepts which guided this paper. The narrative uses italics to show when the SARIMA PCF framework is applied.

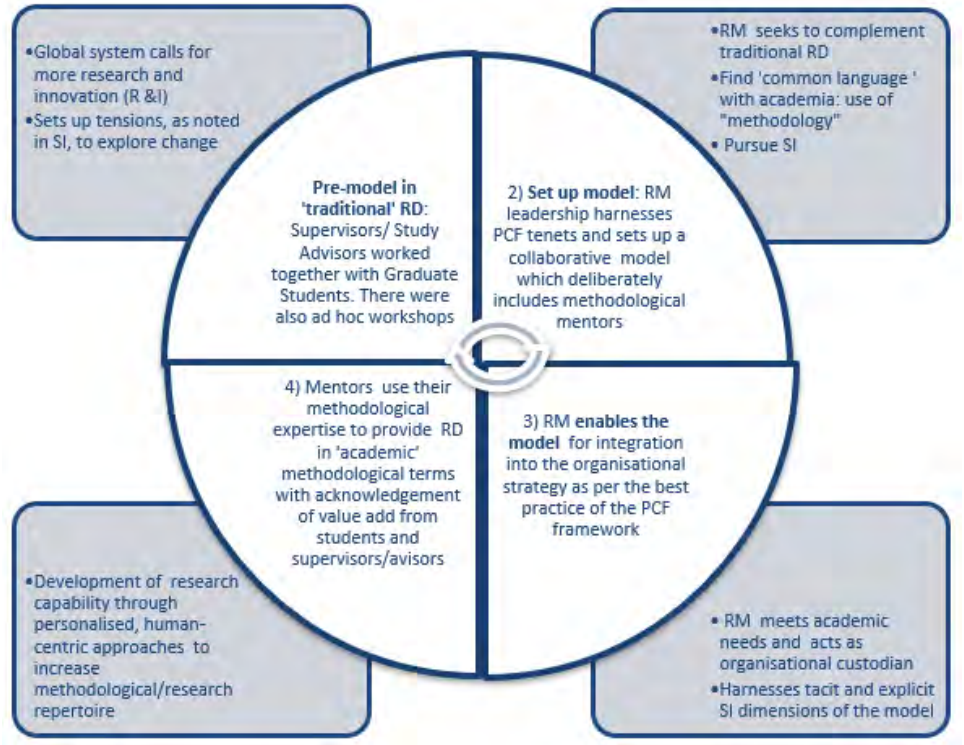

Figure 2. An Integrative Model in response to Research Question and alignment with the SARIMA PCF Researcher Development Competency (SARIMA, 2016)

Worldwide, and now intensified under unusual pandemic systems, there is a need for more research and innovation (R & I), provided by matured and maturing researchers. This group of researchers mature into research, often through traditional supervisor/study-advisor-to-student methods of RD, while also accompanied by RM-driven workshop-based topics; thus, inculcating *the full research cycle*. Yet, there might also be opportunities to *innovate* on a social learning level. RM may conceptualise a *framework* or model that works in a complementary, yet, programmatic fashion to achieve improved R & I and which finds a collaborative, "common language" to *partner* with academia. RM, therefore, hones in on customised teaching of methodologies of qualitative, quantitative and mixed methods research through a sustained mentor-based system. RM, as custodian, devises strategy, which provides the enabling support facilities for such a model, thereby integrating the model into *organizational strategy*. Furthermore, RM also systemically harnesses the SI learning that comes from tacit and explicit dimensions of the model. The model *develops research capability* through the use of *benchmarked mentoring expertise*, to enhance the methodological and research repertoire of students. These mentors are highly versed in this "language" of academia, so that they work in a personalised, customised manner with students'

studies, alongside their supervisors/advisors, with the latter self-declaring the importance of the mentoring for advancing their own and their students' RD.

Based on the discussion above, the dimensions required by the SARIMA PCF (see *Introduction* and italics above) are seen to be achieved.

2. Contribution to Social Innovation Theory

The discussions above serve to provide assenting evidence of social innovation theoretical standpoints and provide an empirical case, as called for by the study of Bayou et al. (2020), in terms of social innovation and university contexts. While the findings presented herein meet the requirements for concurring studies, novel theorising on social innovation is still important for this emergent field. In the extant literature, the tension-driven changes that impel social innovation towards redefining historical circumstances and working collaboratively towards creating change, heightened capability and social good have been conceptualised by Mulgan (2012). Our view is that the substance of these changes has been under-theorised. The researchers' review of the existing literature, for this study, showed broad brushes that did not provide the human-centric manner in which social innovation may translate into practice.

Galle (2011) argues that, while research might start with the foundational conceptual framings, the data often suggest instrumental theory, invoked at the findings stage. An instrumental theory is one that is strongly suggested by the data and not a priori at the initial stages of the research question. For this study, bringing in an instrumental theory was needed because of the defined signals of the data. The strongly grounded code of: "***RM_extended critical thinking and thinking thresholds***", linked to informative quotations, extended the orienting concepts that were anticipated for the study. As may be noted, the latter were thereto covered in the literature and context sections.

The instrumental theory, illumined by the data, is that of threshold concepts and, therefore, these concepts are introduced at this stage, as provided for by Galle (2011, p. 92). He proposed that instrumental theory is akin to providing specific "accent lighting" and thus providing focus through the "drawing [together of] lessons from the case". Our findings posit that social innovation is progressively enabled through critical thresholds (Meyer & Land, 2006), specifically raised in Theme 2, yet also interwoven in the other two themes (as shown through the bold, italicised code in the code summary for each theme). Threshold concepts entail moving beyond an existing, and perhaps even comfortable, conceptual repertoire and transiting to novel lines of sight and worldviews (Meyer & Land, 2006).

Meyer and Land (2006) (with other authors), and Kiley and Wisker (2009) (equally with other authors) provide two bodies of work on threshold concepts (TCs). In applying this theory, the researchers found that it is the experiential, human-activated threshold concepts that might explain the propulsion and translation of social innovation within RM and RD. Meyer and Land (2006) provide the characteristics of threshold concepts (as covered in Table 5, column 1). To demonstrate extending the theory of social innovation through threshold concepts, the researchers juxtapose these characteristics with the theoretical overviews of social innovations (in column 2) and their findings on the RM model (in column 3). Table 5 provides the alignment.

Table 5. Early Theoretical Extension Integrating Threshold Concepts with Social Innovation as Based on the RM Model For RD

1) Characteristics of threshold concepts (TCs) which lead to –>	2) Characteristics of TCs as expressed in the data: Research findings within RM model for RD, which support –>	3) Social innovation theoretical overview, as aligned to columns 1 and 2
Troublesome	Being "stuck" and the need to address different methods to create a more confident research culture	Tensions and paradoxes
Transformative and irreversible	Impetus for change: changed thinking, attitude and improvements in working with theory and methodology	Previous ways of doing or being, appear no longer to suffice; thus, incremental, organic change may happen
Bounded	Contextual, historical circumstances of Faculty, feeling more "at home" in professional qualifications than research; RM in third space role and seeking to find common ground with academics	SI is rooted in contextual circumstances
Integrative and discursive	RM model provides personalised, human-centric means to facilitate researcher development and collaboration	Being socially innovative is following communitarian ways of existing, inseparable from collaboration and being more fully and, socially, human The foundational premises of SI rest on the well-being and development of humanity in the social realm, differentiating it from technological innovation that is hard-wired into test-driven, measurable worlds
Reconstitutive	Model provides researcher development, drawing on tacit and explicit knowledge within the consultations through working collaboratively between the model and traditional supervision	SI seeks to build capabilities towards fully actualised humans, who are able to harness both tacit and explicit knowledge

Transformative and liminality	Model works in an exploratory and incremental manner and is open to emergent dimensions such as the COVID-19 pivoting to online support	The field remains emergent and less fully formed than other innovation domains; thus, it prompts additional research

The alignment constructed within Table 5 provides a starting point to consider social innovation within any sphere, but more specifically how research management's RD role may be better attended to in creating an enabling environment for threshold concepts. As discussed below, this is a summative and modestly provocative finding, which acknowledges its own troublesome basis and impels additional studies.

Implications

The study has provided more intricate details towards how threshold changes instantiate social innovation within the context of a RM model that advanced researcher development in a university setting. The bridge-building between academics, with their knowledge-driven outcomes, and research management, within their support function, was established. RM facilitated that the language of academia could be incorporated systemically into RM service provision. Additionally, the context showed that the SARIMA's PCF's technical requirements and cross-cutting indicator of innovation are also met through this model. The paper which published the SARIMA PCF (Williamson et al., 2020), indicates how different settings and evolutions of dimensions of the PCF need to be replicated. This current paper responded to this call, giving it credence in a mega-university setting. Working with Research and Innovation Management Associations (RIMAs) such as SARIMA and other RIMAS, the model may be replicated or further extended through contextually-relevant customisation. From a DE Faculty and university point of view, the critical thinking capabilities of confident, engaged researchers better place them to deliver to the national system of research and innovation, which is associated with societal benefits. The endeavour has given burgeoning theoretical contours to SI in university settings, while giving impetus to future research and, at the same time, signalling that there are inherent limitations in the current work.

Limitations

With regard to limitations, the human-centred threshold concepts, as boosting social innovation, is only introduced as a theoretical extension and inherently limited herein, and, therefore, this nexus should be further explored. Additional ventures into whether this model has enhancing potential in contrasting research settings, where the research culture is already mature, was not established and is recommended. Concomitantly, it has to be explored whether it has replication potential in comparative, like-minded settings. Methodologically, a follow up longitudinal and/or quantitative approach to studying the research and supervision progress of these participants would also render scholarly benefits. This approach shows only cross-sectional, qualitative memory work, which, while evocative in detail, might be lean on more positivist proofs, which are called for in other academic quarters.

Concluding Remarks

Reflecting on A-ha moments - the metaphors of the researchers, as they articulated their development and experiences - linger from the data, perhaps long after the more formalised principles of scholarship leave. A study should prompt the same in the readers: we extend the wish that the lingering ideas would activate a deepening of, and challenge to, this composition.

Authors' Note

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Correspondence concerning this article should be addressed to Charmaine Williamson, Dr, University of South Africa, Graduate Studies and Research, Pretoria, College of Accounting Sciences, P O Box 392, Pretoria, Tshwane, South Africa, 0003, charmwilliam@gmail.com.

Charmaine Williamson
Adjunct Faculty
University of South Africa,
Graduate Studies and Research, College of Accounting Sciences,
P O Box 392,
Tshwane, Gauteng, 0003 South Africa
+27 (0)12 429 6376
charmwilliam@gmail.com

Christina Shuttleworth
Professor
University of South Africa, College of Accounting Sciences,
P O Box 392,
Tshwane, Gauteng, 0003 South Africa
+27 (0)12 429 6376
Shuttcc@unisa.ac.za

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