



Researcher Identity in Transition: Signals to Identify and Manage Spheres of Activity in a Risk-Career

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Abstract

Within the current higher education context, early career researchers (ECRs) face a 'risk-career' in which predictable, stable academic careers have become increasingly rare. Traditional milestones to signal progress toward a sustainable research career are disappearing or subject to reinterpretation, and ECRs need to attend to new or reimagined signals in their efforts to develop a researcher identity in this current context. In this article, we present a comprehensive framework for researcher identity in relation to the ways ECRs recognise and respond to divergent signals across spheres of activity. We illustrate this framework through eight identity stories drawn from our earlier research projects. Each identity story highlights the congruence (or lack of congruence) between signals across spheres of activity and emphasises the different ways ECRs respond to these signals. The proposed comprehensive framework allows for the analysis of researcher identity development through the complex and intertwined activities in which ECRs are involved. We advance this approach as a foundation for a sustained research agenda to understand how ECRs identify and respond to relevant signals, and, consequently, to unravel the complex interplay between signals and spheres of activity evident in struggles to become researchers in a risk-career environment.

Keywords: researcher identity; identity development; signals; spheres of activity; risk-career



1. Introduction

The position of early career researchers (ECRs) has always been challenging and involves many difficulties that must be conquered in order to secure personally and intellectually satisfying positions and a strong sense of self as a researcher. However the situation has become particularly acute over the past few decades as higher education systems have been confronted with changing worldwide circumstances due to the requirements of the knowledge society and various economic and political constraints (Cantwell, 2011; Winter, 2009). Changes are especially dramatic with respect to the nature of researcher education and identity development for ECRs who struggle with the demands of global mobility, the lack of stable or permanent positions, and the need to consider alternative careers (Introduction, this issue). ECRs are now embarked upon what we define as a ‘risk-career’ (Weber, 1947), rather than, as previously, a relatively more predictable academic career.

In this changing context, traditional milestones that enabled ECRs to build their identities are disappearing or subject to reinterpretation. ECRs need to identify or reinterpret signals (Yorke, 2009) from institutions and academic communities. Signals related to expectations, constraints, and opportunities may cue performance and progress toward professional skill development and potential career directions. Although studies focusing on identity development or identity trajectories have grown exponentially in recent years, research in the field has not yet resulted in a comprehensive framework that integrates identity and signals or offers a comprehensive way to analyse researcher identity as it unfolds across the different systems or spheres of activity in which ECRs participate. The specific aim of this article is to explore researcher identity in relation to the signals ECRs perceive across different spheres of activity as they attempt to manage a risk-career. Our overarching purpose is to offer a comprehensive framework useful for analysing how signals can be identified and used to build a researcher identity in a risk-career, one where career trajectories are less certain than they were. Consistent with the position presented in the first article of this Special Issue (Introduction), we assume the definition of Early Career Researchers (ECRs) presented by the EARLI Special Interest Group Researcher Education and Careers to include individuals with up to 10 years of research experience, which means doctoral students, postdoctoral researchers, newly-hired lecturers, as well as professionals in universities and other employment.

Globally, stable academic careers have dwindled and a range of alternative academic positions has emerged: contract teaching, contract postdoctoral research, teaching-only lecturer positions, and administrative positions related to research, teaching, or student services. In the non-academic context, emerging types of and contexts for employment include business, government, non-governmental organisations, banking, industry, and previously unknown entities (e.g., start-up companies). The existing research literature base provides little information about the experiences of individuals facing uncertain employment or alternative academic positions. Prior studies shed light on quite narrow aspects, such as international postdoctoral employment in enterprise modes of academic production (Cantwell, 2011; Porfilio, Gorlewski, & Pineo-Jensen, 2013), or critical interactions that shape careers for early academics and new teaching staff (Hemmings, Hill, & Sharp, 2013). Little is known about required competencies, employment satisfaction, the range of skills required, and, most specifically, ways to formulate a researcher identity in this changing environment.

It is a paradox that on the one hand research and advanced education is of ever-growing importance for knowledge-based economies, while on the other hand the attractiveness of academic working conditions is decreasing and it is becoming more difficult for ECRs to embark on stable careers. ECRs are exposed to contradictory signals about expectations, constraints, and opportunities in relation to their careers. The knowledge-based economy boosts an expansion in training positions for researchers (Cyranoski, Gilbert, Ledford, Nayar, & Yahia, 2011), which signals to potential students that it is worthwhile to start doctoral training. However, once they become students, these individuals may learn that the increase in training positions is not matched by an increase in stable jobs for researchers. They realise, sometimes too late, that



they have chosen a risk-career in which they might face the danger of precarious positions where they may or may not feel they can contribute as researchers.

In a risk-career, traditional mechanisms are fading for individuals to identify as ‘members’ of a collective, and for others to attribute or acknowledge such membership (Castelló & Iñesta, 2012). ECRs are positioned differently to those already established within their fields and may hold various competing interests and identity constructions (Archer, 2008). ECRs are not only ‘becoming’ but also ‘unbecoming’ (Archer, 2008), meaning that they are not always recognised by others in terms of the dominant structures and practices. ECRs may also unbecome by their own choice as a possible form of resisting the dominant practices (Archer, 2008; Danaher, 2015; Pyhältö & Keskinen, 2012). Although there is a vast body of literature from the field of higher education about professional identity, academic identity, authorial or writing identity, emotional identity, and other related concepts, many studies lack a clear definition of what identity means, how the notion is operationalised or analysed, and the underlying theoretical and methodological assumptions (Trede, Macklin, & Bridges, 2012). Moreover, it is common that studies do not focus on identity as a whole, but rather tend to conceptualise it as a multidimensional construct that can be applied to different activities and systems in which particular experiences are developed. There is a need for an integrative and comprehensive framework to identify and analyse signals and changes in identity. In order to understand such mechanisms, we first present a comprehensive framework of the notion of researcher identity, produced by analysing spheres of activity related to researcher and career development to account for theoretical assumptions about researcher identity in a risk-career; and second we illustrate this framework through eight identity stories drawn from our earlier research projects.

2. A comprehensive framework for the study of researcher identity in a changing environment

We conceptualise researcher identity to be a dynamic and social process that develops through participation in different disciplinary and academic communities. This conceptualisation also implies that *researcher identity* is relational and discursively constructed through a recursive and iterative process of subject positioning, which involves a process of self or subject constructions that influence the ways people interpret the present and learn for the future (Harré, Moghaddam, Cairnie, Rothbart, & Sabat, 2009; Holland, Lachicotte, Skinner, & Cain, 2001; Lave & Wenger, 1991; Sutherland & Taylor, 2011). Therefore, researcher identity should not be considered a static product but a continuous process of identification, which can be described in terms of development (Baker & Lattuca, 2010) or an ‘identity-trajectory’ (McAlpine, Amundsen, & Turner, 2014) that accounts for both the continuity of stable personhood over time and a sense of ongoing change. This conceptualisation presents identity development as a route by which a newcomer becomes part of a community (Golde, 1998; Lave & Wenger, 1991; Sweitzer 2009). However, socialisation could also be considered a two-way process (McDaniels, 2010) in which an individual actively explores possibilities for differentiation and negotiation with a community to find balance between institutional and structural positioning (Archer, 2008), and to create space for personal autonomous actions in a changing environment (Clegg, 2008).

According to this broad sociocultural conceptualisation of researcher identity, it is important to account for the particular activities and interactions that characterise the different *communities* in which ECRs participate. ECRs interact with and engage in multiple communities, and these different communities shape the activities and positions that ECRs adopt. In the current complex higher education work conditions, crossing boundaries is one of the requirements of researchers and this includes personal, disciplinary, national, and professional positions related to research, teaching, administration, and leadership (Boden, Borrego, & Newswander, 2011; Holley, 2010; McAlpine & Amundsen, 2009; Sweitzer, 2009).



We propose the notion of *spheres of activity* as a helpful construct to characterise and explain the prototypical activities of different communities in which ECRs tend to be engaged. A particular sphere, as it works as a system, is shaped by rules, artefacts, and specific divisions of labour (Engeström & Sannino, 2010) and by the actions that individuals and communities develop to achieve outputs. Actions, although performed by individuals, are also socially organised within *communities*, which accounts for recurrent actions shared by a group of individuals. At the same time, each of the spheres in which an individual participates can be shaped by different communities. Therefore, notions of spheres of activity and communities are not synonymous. Spheres can be considered domains or fields of participation in life or in human activity. Communities are defined by the types of social actions that are developed by different groups of individuals within each sphere of activity. For instance, the learning sphere includes several communities (e.g., a community of peers participating in regular doctoral courses or seminars, or a community of PhD students in a research team working with—and learning from—more senior researchers).

In the case of ECRs, we distinguish at least three related spheres of activity that affect identity development (Camps & Castelló, 2013), as illustrated in Figure 1. Some representative activities of a particular sphere are emphasised or have more relevance at the beginning of the process of be(com)ing a researcher (e.g., completing set requirements for a doctoral program), whereas other activities (e.g., publishing or securing research funding) may be more common throughout or at advanced stages of researcher development.

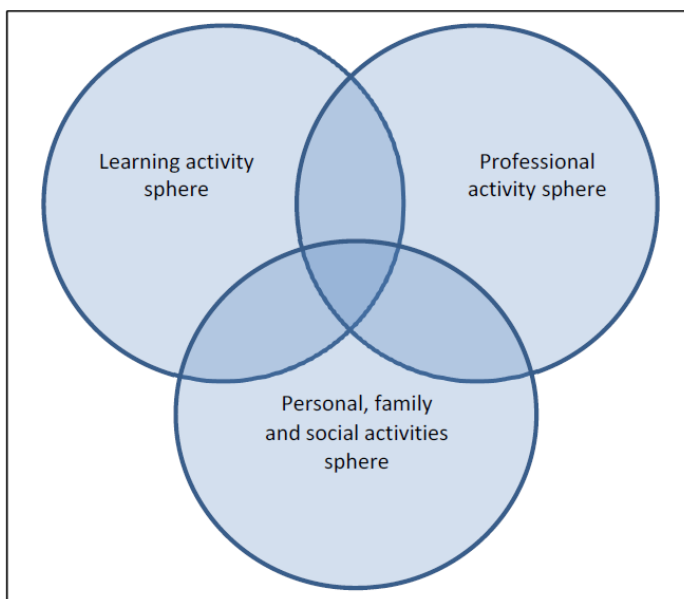


Figure 1. Spheres of activity for ECRs.

The *learning activity* sphere is characterised by those more or less formal situations in which ECRs are situated as students in learning environments of different communities. These situations include seminars and doctoral courses, some aspects of supervisor relationships, and the increasing variety and number of development activities assessed for doctoral students and probationary or apprentice research staff (McAlpine, Jazvac-Martek, & Hopwood, 2009). Displaying these activities has to do with redefining the student identity developed in previous stages, since roles, outputs, and artefacts differ as students advance in their doctoral journeys toward the status of and possible employment as researchers. Moreover, ECRs should also learn, usually implicitly, ways of acting, values, and practices that are prototypical of relevant disciplinary communities. Institutional expectations of an increase in interdisciplinary work make this learning of disciplinary activity even more complex for ECRs faced with contradictory and fuzzy signals regarding appropriate actions and expected outputs.



The *professional activity* sphere is shaped by prototypical activities defining the professional communities to which ECRs belong or aim to belong when they finish their journeys. At times, these activities overlap with others from the learning sphere, which is common during doctoral study, particularly for those ECRs who aim to develop academic careers. In these cases, participating in scientific events, applying for grants and funding, presenting research, or teaching courses could simultaneously serve as learning and professional activities toward acquiring a university position. For ECRs advancing research careers in professional settings outside academia, the scenario is still more complex, since they must understand and participate in two—or more—distinct professional communities. Doctoral students who are already employed in professional roles within or outside the academy may experience particular challenges deciding when and how to prioritise the learning activity or professional activity sphere.

A third sphere of activity accounts for *personal, family, and social activities* that are variably related to learning and professional activities, especially in terms of values and aims, and the need to develop a researcher identity aligned with one's personal intentions.

There is a complex, dynamic interplay between ECRs and the spheres in which they are involved (Pyhältö, Nummenmaa, Soini, Stubb, & Lonka, 2012; Vekkaila, Pyhältö, & Lonka, 2013a) and hence, between the signals perceived across these spheres. One way to understand the dynamics contributing to researcher identity for ECRs is to explore them in terms of congruence (fit) (see Edwards, 2007) or lack of congruence (misfit) between individuals and their environment (Castelló, Iñesta, & Corcelles, 2013; Pyhältö et al., 2012; Vekkaila et al., 2013a). Ideally, a constructive congruence is formed among the signals from the overlapping spheres. For instance, the personal or the professional sphere outside academia may function as a source of support for ECRs' activities and goals in the learning sphere (such as earning a doctorate and aspiring toward a researcher career) (Vekkaila, Pyhältö, & Lonka, 2013a, 2013b). On the other hand, activities in the personal and professional spheres may compete with the academic learning activities and often-distant goals (e.g., publishing articles and books, securing a permanent position at the university) by providing rival interests and prioritising short-term goals (Vekkaila et al., 2013a, 2013b). Moreover, depending on the context and domain, there are likely to be tensions or contradictions among the signals across these spheres. For instance, in much doctoral education, professional and learning spheres are highly intertwined. Pursuing a doctorate entails conducting—and learning to conduct—research work and increasingly writing and publishing—and learning to write and publish—articles (Castelló et al., 2013; Pyhältö et al., 2012; Vekkaila, Pyhältö, Hakkarainen, Keskinen, & Lonka, 2012). Through numerous interactions across the spheres, individuals' positioning, the environments, and the relations among them are constantly evolving and being re-negotiated (Camps & Castelló, 2013; Lave & Wenger, 1991). Intersections across spheres are multiple and unavoidable, which may illuminate synergies or contradictions for ECRs who are striving to make sense of the signals and transitions they encounter as they formulate a researcher identity. Discovering and sharing the changes in rules and recommended actions in each sphere could enhance ECRs' awareness of new signals crucial for researcher identity development in the 21st century. It might also be useful to explain transitions between communities and what these transitions imply for the processes involved in researcher identity construction (Castelló et al., 2013; Giddens, 1991; Goffman, 1967; Strandler, Johansson, Wisker, & Claesson, 2014; Wisker & Robinson, 2012).

3. Identity stories

Earlier work conducted individually by team members on various projects concerned issues related to ECRs' identity, engagement, sense of belonging, writing, metacognition, wellbeing, and resilience, among other topics. The risk-career, signals during researcher career development, researcher identity, and the need to manage contradictions and tensions emerged as main themes during our discussion of these previous



research projects. In order to illustrate the proposed comprehensive framework, we consulted our existing datasets to build indicative identity stories exemplifying ECRs' experiences and trajectories in the light of their recognition of and response to signals affecting the development of researcher identity in the context of a risk-career. Data were drawn from projects about doctoral education in Finland (Pyhältö et al., 2012; Pyhältö, Stubb, & Lonka, 2009; Vekkaila et al., 2012, 2013a) and in the United Kingdom (Wisker et al., 2010), and studies about being academics and researchers in Canada (McGinn, 2012a, 2012b). This analysis is based upon interview transcripts from a total of 83 ECRs across three countries: Finland (35), the United Kingdom (30), and Canada (18).

All interviews were gathered according to the research ethics clearance procedures in the respective jurisdictions with care to protect the rights of the (potentially vulnerable) ECRs. To reduce risks of harm and ensure compliance with accepted procedures, individual team members worked directly with the original interview transcripts from their respective projects and did not share raw data with others. All the interviews included information about how the ECRs perceived themselves. The Finnish participants were asked to discuss significant positive and negative turning points during their doctoral journeys and how they perceived themselves at these points (Vekkaila et al., 2012, 2013a). The interviews conducted in the United Kingdom aimed to draw out the participants' experiences and identify transitions, turning points, and key learning moments within their doctoral journeys (Wisker et al., 2010), whereas the participants in Canada were asked explicitly to describe their perceptions of themselves as academic researchers (McGinn, 2012a) and more generally in academe (McGinn, 2012b). We selected interviews that presented (a) the strongest and clearest expressions of researcher identity, that is, participants' perceptions of themselves as researchers; and (b) evidence of ECRs' recognition of and response to signals from different spheres of activity while managing a risk-career. Team members re-analysed their respective interviews using our jointly constructed framework of identity, spheres, and signals. Based on these new analyses, we prepared drafts of identity stories from original interview transcripts, which were then reviewed by the whole research team. Initially we started with a large number of identity stories; however, after several careful readings, we collectively selected a final set of eight identity stories on the basis of their potential capacity for illustrating the ways signals are emerging and interpreted by ECRs in the current higher education context of risk-careers. In our selections, we specifically sought diversity in terms of countries of origin and location, fields of research, and researcher career systems. Although this analysis emphasises this limited set of just eight identity stories, the issues addressed were prevalent across our international datasets and not limited to these eight ECRs.

4. Discussion of the identity stories

Identity stories from Mari, Jaakko, Dan, Wang, Siiri, Elaine, Aatu, and Kenneth (these are pseudonyms) provide a wide range of examples of development of researcher identity, spheres, and signals and represent empirical examples of researcher identity and tensions during early-stage identity construction. In each story, we highlight relevant spheres, the congruence (or lack of congruence) between signals coming from one sphere and another sphere (or among signals coming from multiple spheres), and the ways in which ECRs respond to (or, equally important, miss) these signals. We also specify the nature of different types of signals, ranging from those perceived as implicit to more explicit ones, as well as characteristics of responses in terms of agency and identity construction. For ease of reference, we provide an overview of the eight identity stories in Table 1.



Table 1
Overview of Identity Stories

Pseudonym	Gender	Country	English as first (L1) or second (L2) language	Interviewed in first (L1) or second (L2) language	Position at time of interview
Mari	f	Finland	L2	L1	Doctoral student
Jaakko	m	Finland	L2	L1	Doctoral student
Dan	m	UK (originally Israel)	L2	L2	Lecturer
Wang	m	Canada (originally China)	L2	L2	Assistant Professor
Siiri	f	Finland	L2	L1	Doctoral student
Elaine	f	Canada	L1	L1	Assistant Professor
Aatu	m	Finland	L2	L1	Doctoral student
Kenneth	m	Canada	L1	L1	Educational developer (doctoral studies on hold)

5. Signals of congruence

Congruence between individuals’ perceptions of and interpretations of signals in the *learning activity sphere* and those in the *professional activity sphere* can reinforce ECRs’ identity as researchers. Such congruence was evident for two Finnish doctoral students from the natural sciences. Participating in international conferences and networking across universities is an increasingly common requirement for establishing a successful researcher career, and therefore these professional academic activities are also activities and goals in the *learning activity sphere*. **Mari** reported, “*The most significant turning point in the final phase of doctoral studies was the meeting of the international researcher whose research had inspired me from the beginning of my studies.... We also talked that I could visit her group and conduct my post-doc project there.*” Her success in networking internationally and establishing connections with an international researcher were signals that strengthened her identity as a scientist and prompted her to make active decisions in terms of her further research and future in academia. A similar fit was evident in **Jaakko**’s story. He also strengthened his identity as a researcher by reading signals from the international arena: “*I presented my results, got encouragement from others, and I learnt what they did.*” Moreover, Jaakko moved beyond the *learning activity sphere*, where dependence on a supervisor is common, into the *professional activity sphere* through co-authoring an article with other international researchers: “*In this article the main responsibility of writing was shared between me and another, more senior scientist.... If my supervisor would have been involved in this I would not have such an independent role in writing the article and collaborating with others.*” Such signals enabled Jaakko to develop an identity consistent with moving



toward the post-doctoral phase of his academic career: “*And they are also indicators in my CV showing that I have the competence to work with others outside my own group.*”

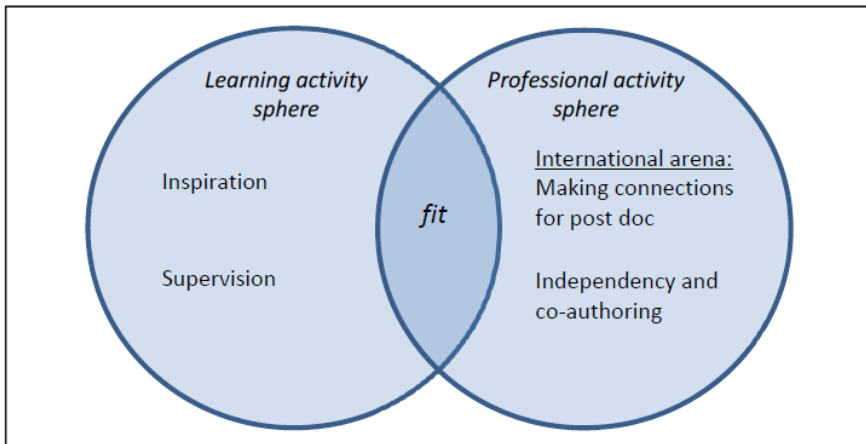


Figure 2. Interpretation of signals from spheres of activity for Mari and Jaakko.

Dan’s identity story illustrates the importance of congruence between the perceived signals from the professional and the personal activity spheres. Brought up in an orphanage in Israel, Dan had neither family ties nor money. He developed an internal sense of values and determination to succeed, becoming a physical education instructor for young men with difficult histories involving crime, poverty, and lack of education. His research was on physical education training. His achievement during a PhD in the United Kingdom was intellectual and personal; it affected his sense of himself as a professional success and a role model: “*My wife fell in love with me more, she appreciates me more, especially my father in law. My students too—they appreciate me and they were my catalyst for my research. I dedicated this research to my students while other people usually dedicate their PhD to their family.... The close society—family and colleagues—appreciate this, including my students who are proud of their lecturer who is perceived as a role model. A role model in the practical area and in the cognitive area—a doctor and a professional. Usually, when I publish or when I participate in conferences, professional development courses or workshops then the title is meaningful.*” The fit between the personal and the professional activity spheres for Dan applied to his personal values and family as well as his research and teaching.

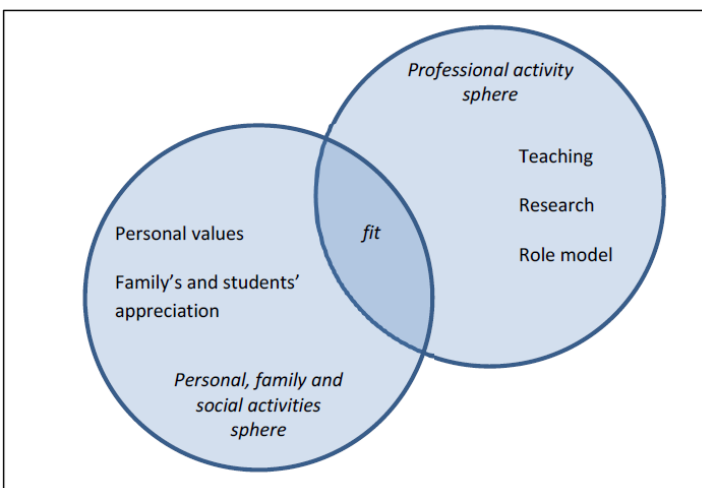


Figure 3. Dan’s interpretation of signals from spheres of activity.



6. Solving tensions and incongruences

Such congruence between the perceived signals coming from the *personal* and the *professional activity spheres* was also important for **Wang**, but his identity story is more complex with tensions within the *professional sphere* between two competing communities with different values and rules. Wang completed his doctoral degree, was hired at a Canadian university, and had recently transferred to a second Canadian university. Both positions were as a tenure-track Assistant Professor in Education. Prior to his doctoral studies, he was employed as a professor in his home country, China, where he received awards as a researcher and was selected for an international scholarship. His first appointment in Canada was at a research-intensive university where there were extensive pressures to secure research funding: “*This is a bombard, this unspoken language.*” He was happy to have transitioned to a less competitive environment where his national research grant and strong publication record allowed him to stand out rather than trail behind colleagues. Perceived improvements in his general health and wellbeing indicated the importance for him of experiencing greater congruence between his *personal* and *professional activity spheres*.

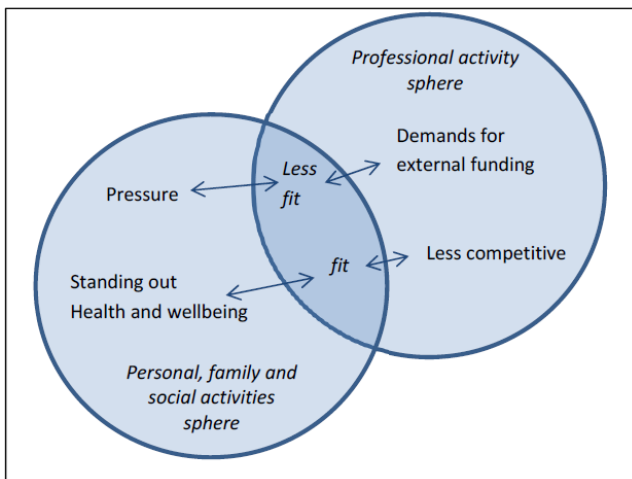


Figure 4. Wang's interpretation of signals from spheres of activity.

Another identity story revealed perceived signals in the *personal activity sphere* that represented a misfit with one community of the *professional activity sphere* and a fit with another community of this same *professional activity sphere*. **Siiri**, a Finnish doctoral student in behavioural sciences, was involved in doctoral studies part-time while working full-time outside academia. Initially, her doctoral studies and professional work outside the university were strongly interconnected and her employer encouraged her to conduct a thesis; however, this congruence diminished over time: “*There was this organisational change and my time to conduct the thesis disappeared.... Then, I was not able to write the articles, I have dozens of conference posters but those cannot be included in the doctoral thesis.... If the situation would have stayed the same I probably would have a stronger identity as a researcher.*” Within the *professional activity sphere*, a tension developed between her academic and her non-academic activities, and in time the signals from her non-academic professional life increasingly diminished the importance of earning the doctorate: “*In this field the academic degrees are of course one way of gaining expertise but the other, as appreciated, way is through conducting the work.... In the beginning the expectations motivated me to pursue the doctorate but now when I am an acknowledged expert in my field without the PhD it has decreased my motivation to pursue it.*” Siiri was dedicated to her professional career outside academia and had developed her identity as an expert by relying on signals coming from her non-academic professional life. Therefore, she had gradually become distanced and alienated from her identity as an academic researcher. Instead, she valued her identity as an expert, and in that sense, she experienced congruence between her personal values and her professional life outside academia.

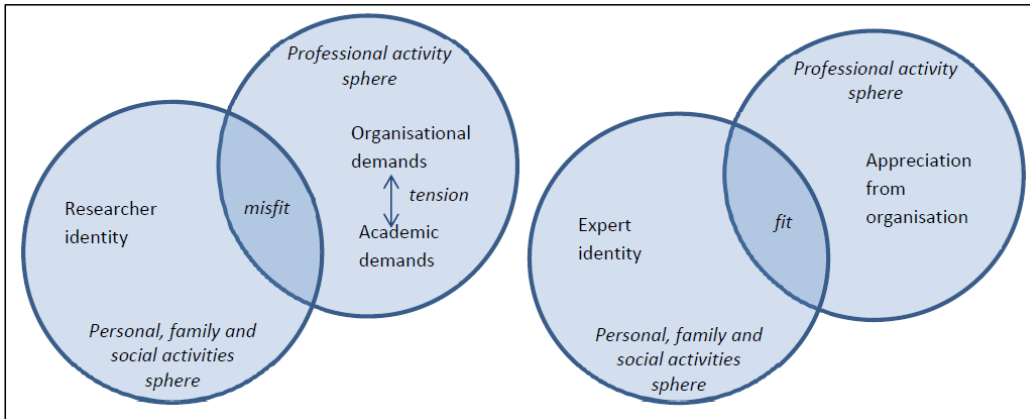


Figure 5. Siiri's interpretation of signals from spheres of activity.

Elaine's story also illustrates a misfit between perceived signals coming from the *personal activity sphere* and those from the different communities of the *professional activity sphere*, in which she participated, particularly regarding personal values. For Elaine, completing a PhD and securing a position as a tenure-track professor in Education in Canada actually diminished her sense of self-esteem. Prior to entering academe as a mature student, she had research experience through her work outside academia, including publishing and evaluating research funding bids. During those early experiences, her personal sense of identity as a researcher was reinforced in the ways that others treated and referenced her: “It wasn’t only my own identity but being recognised by others as being a researcher in the field ... certainly the recognition by others and which I think had started off ... by having my first study being published in [an academic journal].” These early, positive expressions led her to doctoral studies and an academic position, but she felt the signals of success in academia had shifted to particular kinds of dissemination (peer-reviewed journal articles) rather than the public policy work she had done. This shift undermined the pleasures she once associated with research and her confidence as a researcher. Her identity story is a clear example of tensions within the *professional activity sphere* and particularly of the ways contradictions between communities within and outside academia can interfere with identity development. Elaine’s expectation that her professional experience would contribute and enhance her academic activity had not been upheld, which undermined her researcher identity.

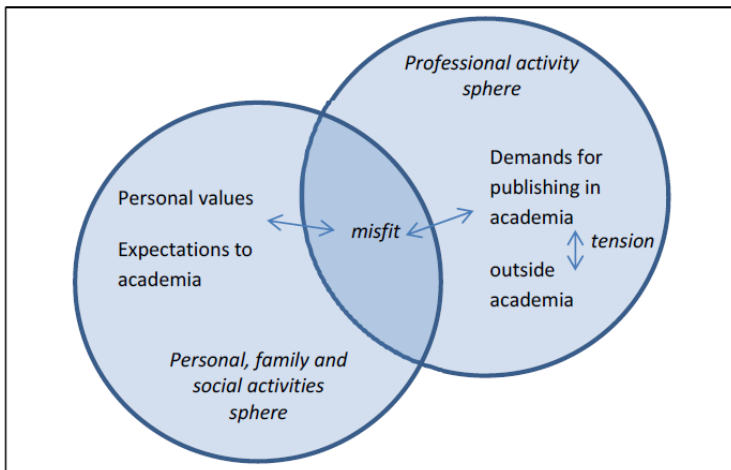


Figure 6. Elaine's interpretations of signals from spheres of activity.

Aatu's story illustrates a misfit in the perceived signals coming from all three spheres. At the beginning of his doctoral studies, Aatu, a Finnish doctoral student in behavioural sciences, was eager and inspired to pursue his doctoral research: “I thought that now I will pursue my thesis, I planned my



publications... No problems with that because I had such excellent data.... And the beginning was excellent, I wrote three conference papers and then I presented my results in conferences... and I thought that I had reached a new level as a researcher.” However, the signals Aatu interpreted from the journal peer-review process were different: “This same paper that included the same information and structure as the paper that got accepted in the previous conference and got positive review comments got now crushing review comments from the journal.... I thought that there was no logic in this system.” Aatu’s story focused on new expectations in the academic *professional activity sphere* and the *learning activity sphere*: increasingly doctoral students are required to publish during their doctoral studies, but they are still in the process of learning what is involved in writing and publishing papers. The learning experiences involved in the publication process were not in congruence with Aatu’s initial expectations, which resulted in misfits and tensions between his personal intentions and the signals he received from the *professional activity sphere*, causing him to struggle with his identity as a researcher: “I wondered if I could get any permanent position from the university with my publication list... Maybe I was not capable to play this ‘science game.’ I think that this is not worth it at all.... Do I even want to play this game anymore?” The sense he made of the signals from the *learning activity sphere* and the *professional activity sphere* made him increasingly alienated from research and cynical towards science. Aatu identified some signals and requirements defining a research career but they were not things he considered meaningful and worth striving toward; they were inconsistent with priorities in his *personal activity sphere*.

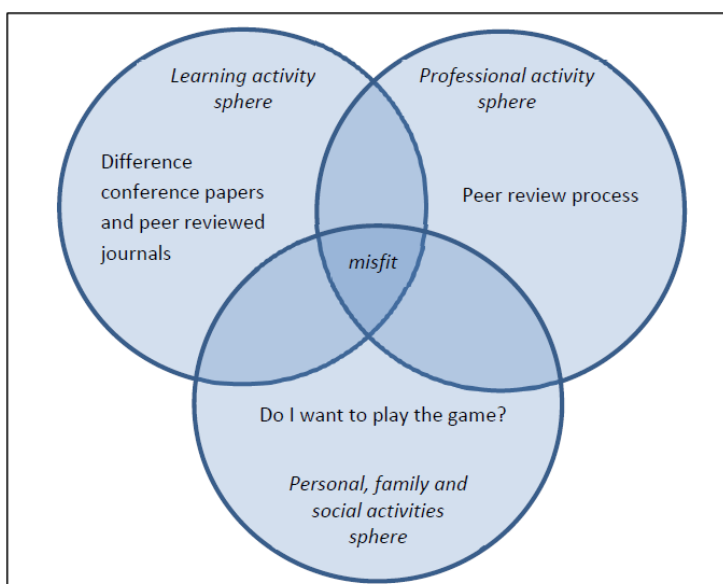


Figure 7. Aatu’s interpretation of signals from spheres of activity.

The final identity story illustrates both fits and misfits among the perceived signals from the *professional*, *learning*, and *personal activity spheres*. **Kenneth** had placed his doctoral studies in the humanities on hold temporarily while employed in a full-time, non-tenure-track position at a Canadian university. Within his doctoral program, he had perceived himself on the margins both with regards to his theoretical interests and his evolving interests in pedagogy: “I was loving my teaching, loving it. So that in one of my comprehensive exams I added ... some things on pedagogy... and at that time maybe it should have clicked that I was, you know, interested in maybe writing and exploring that further.” He had been feeling like a “loser” because his PhD was unfinished. This feeling of powerlessness lifted, however, when he accepted a full-time teaching development position. He felt he could effect change in the teaching profession, and this in turn left him feeling positive about himself and more confident he would eventually finish his degree: “I feel like I am beginning to be able to effect some of that change and it’s a cool feeling and so I know now that I’ll finish my PhD.” He felt a strong sense of belonging within the higher education



pedagogical community and even began to see teaching and teaching development as a prospective career choice. He felt respected and included by other academics in his teaching role, and saw this as an affirming space for himself. He did not feel similarly encouraged by others to do research, which undermined his researcher identity.

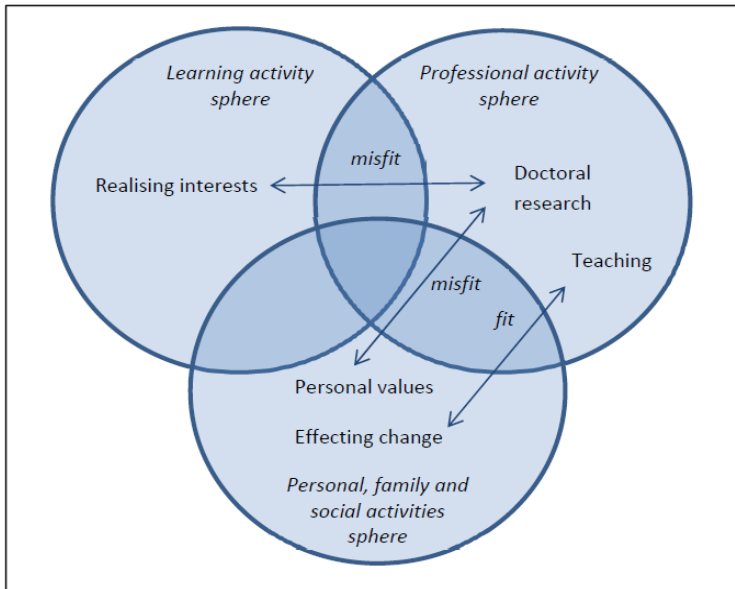


Figure 8. Kenneth's interpretation of signals from spheres of activity.

7. Conclusion

Higher education now offers increasingly precarious career prospects for ECRs. In this contribution, we first offered a framework to account for the notion of researcher identity, which provides a new comprehensive way to analyse researcher identity development within the complex and intertwined spheres of activity in which ECRs are involved. Second, in combining across and re-scrutinising data from a range of previous research projects, we explored the usefulness and potential of this framework by means of illustrating ways in which ECRs were aware of, and responded to, signals about their career trajectories, which, in turn, were connected to researcher identity (Castelló et al., 2013; Pyhältö et al., 2012; Vekkaila et al., 2013a). Recognition of and response to these differing signals is an important aspect of an ECR's identity-trajectory (McAlpine et al., 2014) within the context of a risk-career. In the current higher education landscape, ECRs are faced with ever-increasing and possibly conflicting demands to advance toward research careers they fear may not materialise. Rather than anticipating stable research careers in academic institutions, ECRs are now pressured to consider how they might contribute and find satisfaction through alternative academic or perhaps non-academic careers. Consciously attending to the signals present across spheres of activity may provide ECRs with a sense of agency within the uncertainty of a risk-career environment.

We were heartened by the extent to which this new framework applied across the diverse researcher education and researcher career systems in our various international contexts and the different disciplinary fields and professional settings for ECRs involved in our interviews, but we also acknowledge that this conceptualisation requires further testing and analysis with new data to assess its wider transferability along the various career trajectories ECRs face globally. Moreover, since data we used came from our previous



work, the situations and signals we have been able to identify might not be fully representative of the emerging tensions and pressures that ECRs are facing within the current context of a risk-career.

Assessing and refining the provided comprehensive framework, identifying signals emerging in and across different spheres of activity, and helping ECRs to identify and respond to these signals are important issues that deserve recognition and focused attention in the efforts of the Researcher Education and Careers SIG to advance a shared research agenda for exploring ECRs' identity development in the 21st century. We propose the following future research emphases as ones that have the greatest potential for consolidating the comprehensive conceptual framework introduced here and facilitating ECRs' identity harmonic development:

- Original data specific to ECRs' spheres of activity, perceived signals, and tensions associated with a risk-career are needed in order to discuss and further illuminate the complex considerations discussed in this paper and advance knowledge about the nature and development of researcher identity.
- Cross-cultural analyses of ECRs' experiences across contexts could lead to better understandings of the ways ECRs identify and respond to relevant signals in their various contexts, and, consequently, could unravel the complex interplay between signals and spheres of activity when dealing with tensions and struggling to become researchers in a risk-career environment. In the current globalised context, such cross-cultural analyses could extend to include situations where ECRs pursue opportunities in other cultures and countries.
- In the changing scenarios facing higher education systems worldwide, the study of the ways ECRs deal with the perceived continuities, and especially discontinuities, among spheres of activity could help to identify and theorise the conflicting signals that systems are producing and to provide ECRs with tools to better interpret and respond to these signals.
- Longitudinal analyses of changes ECRs face as they progress from admission to graduation and into initial appointments within and beyond academe will be particularly useful to understand transitions, trajectories, and the varying signals between and among spheres of activity.
- More generally, we encourage researchers who focus on the ways specific activities (e.g., writing, supervisory interactions, teaching or publishing, among others) contribute to ECRs' identity development should attempt to situate their conceptual and methodological assumptions in relation to a comprehensive framework of identity development, such as the one provided in this article, in order to make diverse research data integration possible.

Keypoints

- In the current higher education context, early career researchers (ECRs) face a 'risk-career,' in which they must identify and interpret new or emergent 'signals' in their efforts to develop a researcher identity.
- The proposed comprehensive framework for researcher identity emphasises ECRs' recognition and response to signals across spheres of activity.
- Identity stories drawn from prior studies illustrate the congruence (or lack of congruence) between and among signals across different spheres of activity, and the varied ways ECRs respond to (or miss) these signals.
- The framework and identity stories are intended to offer exemplars to assist ECRs, supervisors, and university managers to identify issues and manage risk-careers.



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