Relationality, Networked Learning and Árbediehtu-traditional Sámi knowledge

Katarina Parfa Koskinen

Department of Education, Umeå University, katarina.parfa.koskinen@umu.se

Abstract

The purpose with this paper is firstly to investigate whether an Indigenous, multidimensional, relationally intertwined onto-epistemology is present in a policy document regarding árbediehtu, traditional Sámi knowledge. The policy identify knowledge claims the Sámi parliament in Sweden wants to pass on to future generations, and is the closest to a Sámi produced curriculum we get in a Swedish context. A four-dimensional relational framework where relationality is unpacked through resonance theory by Hartmut Rosa is utilised as an analytical tool. Secondly, implications for Networked Learning, especially as occurring in remote Sámi language education, are elaborated on. The findings show that the framework can be helpful for understanding and describing a multidimensional relational onto-epistemology as relationships in the policy can be identified on three of the four dimensions in the framework. The last dimension involves the self and is mainly a reflexive tool. However, as the discussion initiated in the concluding section indicates, implications for Networked Learning and remote Sámi language education is not the only take-away. An unpacked understanding of relationality offers a glocalised as-well-as theoretical approach, which is important both locally and globally as issues of sustainability call for the development of a new social contract. According to resonance theory, resonant relationships are transformational, leading to the conclusion that a relational approach can lead to an increased understanding of learning and knowing, and a sense of self-efficacy and a stronger identity, all important aspects in transformational education. Further, the study is an example of how a national graduate school, GRADE, can offer epistemic space when researching digital technologies in education.

Keywords

Relationality, resonance theory, epistemic space, Indigenous relational onto-epistemology, árbediehtu, Networked Learning.

Introduction

In 2020, I presented an Indigenous Strategy of Inquiry supporting Networked Learning (Parfa Koskinen, 2020a) at a symposium at the 12th International conference on Networked Learning. Aimed at informing a PhD study on remote Sámi language education, the strategy outlined findings from an Indigenous research paradigm analysed in relation to concepts from the expanded theory on Communities of Practice (Wenger, 2010). The overarching aim of the dissertation is to review, problematize and develop the conditions for Sámi efflorescence through remote Sámi language education. The Sámi are the Indigenous peoples of Sápmi, the northern parts of what today is more known as Sweden, Norway, Finland and Russia (see e.g. Gaski, 2015 or Cocq, 2017). Remote education is to be understood as synchronous education where teachers and pupils are remotely located to each other in space but not in time, relationally entangled in networked technologies.

This is an example of cross-disciplinary research bringing along specific complexities from several intersecting fields, two of which are remote education and Sámi language education. Remote education is from a legislative perspective described as a second best option that should be avoided if possible (SFS 2010: 800, SOU 2017:44). One area where this can be seen is in arrangements for pandemic-related emergency remote education, which the Swedish government has recently decided to remove from the 1st of April 2022, still allowing extended face-to-face education on week-days, week-ends and on holidays (https://www.regeringen.se/pressmeddelanden/2022/03/mojligheten-att-bedriva-fjarr--eller-distansundervisning-pa-grund-av-pandemin-tas-bort/). This is interesting as it of today is rare to find educational practices not entangled in online digital technologies (NLEC, 2020). Additionally, Sámi language education has a long

subordinate history of oppression and discrimination in relation to the surrounding national states (see for example Magga et al., 2005), which has led to all Sámi languages being severely endangered or extinct (Cocq, 2017; Sapir, 2020). In combination, these areas automatically situates the research in a politically complex landscape. One complexity deals with "...which or whose knowledge system is being enacted" (Meighan, 2021, p. 398).

As shown by Svonni (2015), Sámi culture, values, traditions and knowledge only have a minor place in the Swedish national curricula. The closest to a Sámi produced educational policy we can get in a Swedish context is when the Sámi Parliament presents knowledge claims they wish to pass on to future generations (Nordin Jonsson, 2010), also described as árbediehtu. Árbediehtu is north Sámi for traditional knowledge. When taking part of the policy, there seems to be an expanded notion on relationality present that I recognize from the earlier mentioned investigations of an Indigenous research paradigm where relations and relational accountability are two reoccurring concepts (see for example Battiste, 2000; Chilisa, 2019; Kovach, 2010; Kuokkanen, 2000; Smith, 2012 or Wilson, 2008). This notion on relationality, however, moves beyond individuals and a social context (Wenger, 2010) involving all kinds of entities regardless of time and space, an onto-epistemology described as follows:

> Every individual thing that you see around you is really just a huge knot - a point where thousands and millions of relationships come together. These relationships come to you from the past, from the present and from your future. This is what surrounds us, and what forms us, our world, our cosmos and our reality. We could not be without being in relationship with everything that surrounds us and is within us. Our reality, our ontology is the relationships. /.../ some of these knots of relationships are not visible or tangible entities, but they are there just the same. They are developing ideas, grand abstractions, entire systems of thinking. This is our epistemology (Wilson, 2008, p. 76-77).

The earlier mentioned complexities indicate that the issue of Indigenous peoples and digital technologies "go far beyond the purely technical" (Dyson, 2015, p. 1), calling for a multidisciplinary approach. This give reason to ask several questions, of which I focus on two in this paper. How can relationality in the Árbediehtu-policy (Nordin Jonsson, 2010) be understood and described? What implications does an unpacked notion on relationality have for Networked Learning, and especially as occurring in remote Sámi language education? As the reading of a text lead the readers in different directions, some agency has to be ascribed policies and other types of documentations (Säljö, 2012). This would in resonance theory be referred to as the text playing first tuning fork potentially "setting off" the reader (Rosa, 2019) why it is interesting to investigate what kind of relationships the policy wants to encourage. To answer the above questions I have therefore unpacked relationality through resonance theory by Rosa (2019), resulting in a four-dimensional, relational framework which I utilise as an analytical tool for understanding and describing the Árbediehtu-policy. The result of the analysis is presented in a separate section as an answer to the first question. A starting point aiming at answering the second question is outlined in the final discussion, but I am hoping for a developing of these ideas together with others.

The backdrop of the study is provided in the next section where I further develop the interdisciplinary positioning of the study, and outline why it, according to epistemic logic (Chalmers, 2011) is epistemically possible for a relationally intertwined onto-epistemology. Following is a description of the theoretical framework (Rosa, 2019), a presentation of the analysis and finally, a discussion where I elaborate on implications for Networked Learning and remote Sámi language education.

Backdrop

Interdisciplinary positioning

The context for presenting this paper is at the 13th International conference on Networked Learning at a symposium especially focusing on whether two national graduate schools in Sweden, GRADE and UPGRADE, provide epistemic spaces for researching digital technologies in education from different perspectives and paradigms. An important notion, however, is that in order to understand what conditions are created for each individual graduate student to utilise the potentially available epistemic space, one also have to consider the influence of local and disciplinary modes of being, career and institutional position as well as physical location (Brodin & Avery, 2020). Regarding transcultural and First Nations doctoral education, the supervisors also play a crucial role in facilitating and encouraging epistemological border-crossing (Qi, et al., 2021). Consequently, there might be epistemic space not utilised as such by the participants in GRADE and UPGRADE for different

reasons unknown to others. All the above, I believe, are not easily captured at a short symposium of this sort, but hopefully an increased interest might be the outcome encouraging further research on the conditions for graduate students.

Networked Learning and GRADE graduate school are both dealing with the entanglements of the taken for granted digital infrastructures of today, which create "rich meshworks of learning relationships" (NLEC, 2020, p. 2013). Aspirations within the Networked Learning community to promote emancipation and social justice is promising as the Networked Learning community is reported to have left a "significant trace in educational transformations over the last decades" (Gourlay et al., 2021, p. 327). As networked learning is one of the fundamental pillars of the graduate schools GRADE and UPGRADE, the Networked Learning community is a suitable and exciting context for presenting results from our various research approaches. Although GRADE focus on digital technologies in the intersection of educational sciences and digital technologies in education, the focus of my thesis lies in pedagogical issues but is highly cross-disciplinary in character in the sense of integrating knowledge and skills from more than one school of thought (Brodin & Avery, 2021). Research on remote education in a Swedish context is still comparatively scarce (Pettersson & Hjelm, 2020), but a lot has been done in the last few years (see for example Billmayer et al., 2020; From, Pettersson & Pettersson, 2020; Pettersson & Lindfors, 2021; Pettersson, 2021; Pettersson & Nässtrom, 2020; Stenman & Pettersson, 2020 and Öjefors Stark & From, 2020). My approach complements these examples of research conducted by several of my colleagues.

Within an Indigenous research paradigm, an increasing interest in digital technologies can be identified. For example, Rolleston et al. (2021) are dealing with how Māori and Tauiwi (non-Māori) can collaborate and work through misunderstandings due to different worldviews when designing software. Meighan (2021) asks whether digital and online technologies can assist in Indigenous language revitalisation and provides a synthetization of key takeaways from the past three decades, concluding that "Indigenous communities, content creators, scholars and visionaries have contributed to an ongoing decolonization of the digital landscape" (abstract, p. 397). This decolonization has reportedly been going on since the creation of the Word Wide Web in 1989 (ibid.), something Roche, Maruyama and Kråik (2018) would refer to as a slow revolution, i.e. an Indigenous Efflorescence. Three of the chapters in their book focus on Sámi examples of Indigenous Efflorescence in digital environments (Cocq, 2018; Outakoski, 2018; and Sedholm, 2018). In 2016, an anthology on Indigenous people and mobile technologies even talk about an "Indigenous Mobile Revolution" (Dyson, Grant & Hendriks, 2016, p. 1).

Although research across disciplinary boundaries is today encouraged politically as addressing global challenges (Brodin & Avery, 2020; UNESCO, 2021), Indigenous perspectives, research approaches and worldviews are still marginalised. As a counteraction in the educational field, UNESCO in 2019 initiated Futures of Education, Learning to Become (UNESCO, 2021). The initiative aims at exploring and challenging established ways of thinking about education, knowledge and learning, and move towards a sustainable, desired future (ibid.), i.e. widening the available epistemic space. UNESCO seems to support that "First Nations and transcultural approaches to knowledge production, which historically have too often been belittled and excluded, represent rich epistemological resources for research" (Qi et al., 2021). The available epistemic space to express a relationally intertwined onto-epistemology has hence increased.

Pesambili (2021) is the contributor coming closest to my aim with this paper, offering a "glocalised design" (abstract, p. 406) as a way of utilising and expanding the available epistemic space. I agree that through encounters between two knowledge systems in tension, a dialogical space opens where interrogations, negotiations and productive dialogue can create mutual understandings (ibid.). I thus prefer to describe my approach as an "*as-well-as* theoretical focus" (Bagga-Gupta, Messina Dahlberg and Lindberg, 2019: xii) providing a complementary piece to the most commonly used learning theories. By doing this, the content of the paper aligns well with Indigenous relational onto-epistemologies (cf. Hart, 2010; Smith, 2012; Kuokkanen, 2000; Wilson, 2008 & Kovach, 2010), the ambition to investigate socio-material entanglements and support emancipation (NLEC, 2020; Gourley et al., 2021), and utilise epistemic spaces for Sámi Indigenous efflorescence in all available contexts. As for availability, the reader has the power to decide whether to give room for the content, as I will show through epistemic logic (Chalmers, 2011) in the following section.

Is it epistemically possible for a relationally intertwined onto-epistemology?

There are many ways things might be, for all we know. The worldview captured in the quote by Wilson (2008) is one of those things. To evaluate whether there is epistemic space for this kind of relationally intertwined onto-epistemology, I have turned to epistemic logic (Chalmers, 2011). According to Chalmers, any epistemic

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possibility is available for an unknowing subject (ibid.). Knowing consequently delimits the epistemic space accordingly. When Chalmers (2011) approach the nature of epistemic space, he does this in a systematic, mathematical way. This brief account, however, is far from a complete understanding, but should be seen as a first attempt to investigate whether epistemic logic can be of help when analysing the worldview in the quote. If so, epistemic logic could be a valuable tool when reimagining and creating a new social contract for education (UNESCO, 2021). Chalmers (2011) suggests that:

> When it is epistemically possible (for a subject) that p, there is an epistemically possible scenario (for that subject) in which p. A scenario is a maximally specific way things might be: a sort of epistemically possible world, in a loose and intuitive sense (Chalmers, 2011, p. 60).

To proceed any further we have to look closer at scenarios asking ourselves whether an epistemically possible scenario based on this onto-epistemology is available. There are several possible scenarios in an imaginative overarching epistemic space (ibid.). The two obvious ones in this example are that it is possible and the other that it is not. All scenarios that are not excluded by any a subject's knowledge are epistemically possible. However, we can simply not know, per se, whether this onto-epistemology is true or not and have to turn to beliefs (ibid.). Therefore, the scenario is "doxastically possible for a subject if and only if it is not doxastically ruled out by any of the subject's beliefs" (Chalmers, 2011, p. 61). Seen from the perspective of epistemic logic, only if the belief qualifies as knowledge, scenarios ruled out as doxastically impossible are also epistemically impossible. Consequently, it is (for some subjects due to their beliefs) onto-epistemologically possible that every individual thing (that subject) sees around (him/herself) is a huge knot where thousands and millions of relationships come together. Although this is a somewhat overly liberal conception of epistemic possibilities (ibid.), it is likewise an interesting thought experiment when trying to reimagine taken-for-granted truths.

Taking the experiment further, deep epistemic possibility provides further insight, i.e. "ways things might be, prior to what anyone knows" (Chalmers, 2011, p. 62). Three notions of how this can be understood are presented by Chalmers, one of which suggests that "every proposition that is not ruled out a priori is deeply epistemically possible" (ibid, p. 63). If the onto-epistemological idea is accepted, it results in beliefs and if justified it leads to knowledge. Further, the expression relation regulates how truth conditions are preserved and "the utterance is true if and only if the thought is true" (Chalmers, 2011, p. 66). Regarding the worldview in the assessed quote, it is deeply epistemically possible as it expresses a priori, potential knowledge that can be justified independent of experience, as long as the subject truly believes it is true.

The above analysis leads to the conclusion that it is epistemically possible with a relationally intertwined onto-epistemology as long as one beliefs that it is. If then, as is claimed in the second part of the quote, epistemology is identified as invisible, relational knots containing developing ideas, grand abstractions, entire systems of thinking, relationality as a key feature of both Indigenous ontology and epistemology needs to be further unpacked. This notion is supported by epistemic logic as shown in this part of the paper. At the least, it is not ruled out as an epistemic impossibility. Therefore, an analytical framework capturing and making visible relational aspects of a societal practice, such as education, is motivated. With this philosophical experiment, I encourage you to stay open to an onto-epistemology intertwined by relationality.

Four-dimensional relational framework

Resonance theory is a sociology of the world, where relationships between self and parts of world are understood and described through their resonating qualities. Rosa (2019) emphasises that it is a mode of relation rather than a state of mind. Before going into detail, some basic assumptions behind resonance theory are initially important to mention. Firstly, the process where subject and world encounter is in flux. Secondly, encounters between the experiencing subject and world can go both ways or happen simultaneously. A subject, such as a specific person, can intentionally look for resonant relationships when approaching the world as a place of attraction or repulsiveness (Rosa, 2019). In that case the subject plays first tuning fork, which has the potential of "setting off" other entities and create a resonant relationship. Reversely, parts of world, such as a piece of music or art, nature, other subjects or ideas can act as first tuning fork setting off a resonant reaction in the experiencing subject, as was mentioned earlier about texts. In both cases, the process is guided by strong evaluations, i.e. parts of the world identified as worth engaging in or interacting with, as they are capable of response. Further, Rosa (2019) assumes that modern subjectivities are driven by fear of losing out in competition and a desire to access, attend and make available parts of the world. Although some relationships are mute, those are also important as they allow us to consume parts of the world for our survival. Hence, muted relationships should not be perceived as the opposite of resonant relationships, but as a necessity for our survival

as long as not too many of our relationships are muted (Rosa, 2019). When failing to establish mute and/or resonating relationships, alienation as the flipside might be the result. That is a state of being where we experience the world as cold, numb, deaf etc.

Rosa identifies four axes of resonance, where the relational quality stretches from mute to more or less resonating (ibid.). In this framework, I refer to them as dimensions.

- Self-dimension where self-efficacy and a strong identity are important features. It is about being in resonance with one's body, emotions and biography.
- Vertical dimension: representing existential resonance to abstract entities such as Ideologies, Religion, Spirituality, Nature, Universe etc.
- Horizontal dimension: representing resonance to people or groups of people, such as political parties, congregations, associations, neighbourhoods etc.
- Diagonal dimension: representing resonance to objects and the actions they afford in the sense of work, activities etc.

In the next part, I provide an example of when the framework is utilised as an analytical tool. Regarding the self-dimension, I will return to that in the concluding discussion as it provides an opportunity for reflexivity, an important aspect for relational accountability.

Analysis of Árbediehtu (Nordin Jonsson, 2010)

Through several re-readings, the analysis has ended up with numerous examples of relational aspects on vertical, horizontal and diagonal dimensions of resonance presented under separate headings below.

Vertical dimension of existential resonance

On the vertical dimension, abstract entities are presented, with a summary of how the policy suggests these issues should be perceived.
- *Nature* is described as an animated, living being, which should work as guidance when implementing the policy. By letting this view of nature permeate every societal structure a safe environment is created where long term sustainability for biological diversity is possible. The nature-animal-human relationship is the basis of árbediehtu (Sámi traditional knowledge).
- *Ethics* is highlighted as important when gathering, mediating, preserving and managing Sámi traditional knowledge. However, the local context and purpose of a project have to guide which parts of the policy guidelines are to be utilised and how to interpret the advices in the policy. Different relationships need to be established locally and agreements in place depending on what is planned. Agreements have to be put in place to protect from exploitation. For a smaller, practical project, there is no need to have a hearing with the local community or create agreements.
- *Honouring* those that have shared their knowledge is important and anonymity should therefore be avoided. If anyone involved wish to stay anonymous for different reasons that is also ok.
- *Other existential factors* of importance are that the ties between the past, the present and the future are indissoluble. Árbediehtu is not to be perceived as an opponent to scientific knowledge, but is to be respected as an equally valid way of gaining and doing knowledge. In Sámi knowledge tradition, there is no opposition between earthy/practical/material and the spiritual/immaterial nor empirical/objective with holy/intuitive. Religion, belief systems and ethics can be part of this work. Heterogeneity is perceived as a strength, where the adaptive character of árbediehtu is highlighted.
- Through this *holistic* worldview contextual factors should, if possible be described to such a large degree as possible.

Horizontal dimension of social resonance

- *Elders*, such as grandparents (áhkku and áddjá), should have a central position in the educational system.
- However, *all Sámi* carry both theoretical and practical traditional knowledge to different degrees depending on the contextual preconditions in a person's landscape/nature. *All Sámi* have a common responsibility to forward traditional knowledge.
- Sharing with the *community*, or *other interested people* is an important part of a project involving árbediehtu. Knowledge acquisition is emphasised as a *collective* endeavour.

- The policy document is aimed at the *politicians in the Sámi parliament, the staff working at the Sámi parliament, all Sámi, society at large,* for example *authoritative personnel, researchers, museums and others* that encounter Sámi traditional knowledge through their work.
- Additionally, the *reindeer herding community* or *other Sámi communities in a particular area, family and relatives* all contribute with codes, rules and regulations on how to behave in the life environment in that area.

Diagonal axes of material resonance and the actions afforded by objects

- To be able to *try oneself* and *observe* others in collaboration with elders in an authentic context is by far the best way of learning, according to the policy. One should learn to leave traces without destroying the landscape and natural resources.
- *Narratives* are also common when passing on traditional knowledge to future generations, through either storytelling or jojk, the traditional music.
- The policy as an object is supposed to *guide* different societal structures (museums, governmental offices, universities etc.) on how to deal with Sámi traditional knowledge. The policy is referring to another policy document, Eallinbiras (The Sámi Parliament, 2021), which is an action program on how to carefully, in a sustainable and long term way work with árbediehtu. Both policies complement each other.
- Traditional knowledge on how to *optimize harvestings from nature* and how we *manage the resources* we have are important.
- *Places for doings or sacred places* are highlighted as particularly important in-situ locations for árbediehtu. To visit such places, either by physically travelling to those locations, or virtually through movies or pictures is thus of great relevance when understanding árbediehtu.
- When in place, *identifying knowledge holders* within the field one wishes to learn more from is a key activity.
- *Collective symbols are to be respected* as common properties that cannot be individually owned.
- *Projects, thematic work, interviews and meetings* with traditional knowledge holders, often elders, are examples of activities one can engage in.
- *Making movies, books, sound books, articles, exhibitions, lectures* are also important in forwarding traditional knowledge, i.e. ex-situ preservation of traditional knowledge.
- *Language and traditional knowledge are intertwined*. By studying the language from an árbediehtu perspective, such features are manifested. *Writing down* what one knows and can about different things related to árbevirolaš máhttu (traditional doings and knowings) is emphasised as a collective Sámi responsibility.

Discussion

In this concluding discussion, I will further elaborate on what implications the findings from the above analysis might have on networked learning, and especially remote Sámi language education. An important notion, however, is that Wilson's (2008) quote indicates that entities concurrently are made of numerous entangled relationships, most likely on several of these dimensions, reminding that the division in this paper is purely theoretical. For this reason, I have chosen to enmesh the different dimensions in the discussion. I aspire an "as-well-as theoretical approach" (Bagga-Gupta et al., 2019: xii) where interrogations, negotiations and productive dialogue (Pesambili, 2021) opens up epistemic spaces that have largely been out of reach for Indigenous worldviews. The framework is helpful when "challenging established ways of thinking about education, knowledge and learning, and move towards a sustainable, desired future" (UNESCO, 2021) as it makes visible abstract relationships that are often treated as peripheral. As such, it is in alignment with ambitions within the Networked Learning community to support social justice and emancipation through "new theoretical configurations and practices" (Gourlay et al., 2021, p. 327).

The combination of a relationally intertwined onto-epistemology and resonance theory (Rosa, 2019) is helpful for identifying abstract relational entities in the vertical dimension, such as perceiving nature-human-animal as an inseparable holistic entity. Not only deeply philosophical, this kind of notion also adds to the picture of unsettled power relations (Gourlay et al., 2021) as relational hierarchies are thereby challenged. This is a counterpart to the dominating anthropocentric view, which allows for, according to Rosa, commodifying large parts of the world, making resonant relationships to nature harder to achieve. I agree with Rosa (2019) who claims that modern subjects have to run faster just to stay where they are, something he refers to as dynamic stabilization. For example, in order to keep our jobs, we need to deliver more and not just aim for status q. If accepting that human-nature-animal is an inseparable entity, we simply have to adopt a different attitude towards the world, something possible through an Indigenous relational approach but difficult to combine with dominant Western philosophies.

The horizontal dimension, however, have clear alignments with existing prominent theories, such as the expanded theory on Communities of Practice (Wenger, 2010). The policy describes árbediehtu, traditional knowledge as embedded in the Sámi languages, and manifested as practices often carried on from one generation to the next through embodied action in real live settings. Messina Dahlberg & Bagga-Gupta (2016) refer to this as languaging, a dialogic approach where human actions and activities are given primacy in a similar manner as the example from Wenger. In this case, an as-well-as theoretical approach could be productive, as it encourages different theoretical negotiations, collaborations and dialogues offering theoretical proliferation.

Regarding the diagonal dimension, it deals with objects and the activities they afford as in work-related practices. The production of teaching aids, or what Säljö (2012) refers to as external memory systems, are lacking behind in Sámi society at large and in Sámi education (see for example Outakoski et al., 2018), although there has been an increasing number of digital resources in recent years (Cocq, 2017). Still, the teachers within remote Sámi language education largely have to trust their own creativity and ingenuity if pupils are to establish a resonant relationship to árbediehtu, traditional Sámi knowledge. Additionally, they might have to master tools that are "black-boxed" (Säljö, 2012) such as search engines, GPS navigators, spell and grammar checks etc. For example, GPS technology has been introduced in reindeer herding, which in combination with árbediehtu has proven to be an empowering combination (Kuoljok, 2019a; 2019b). The role of technologies in Indigenous language revitalisation sometimes have different purposes than in Western pedagogies, and the goal of the practice might differ (Meighan, 2021). When digital resources are produced within a Western framework, they risk at failing in supporting both the local needs of people (ibid.) as well as the development of digital literacy and hybrid minds (Säljö, 2012). Through this kind of multidimensional relational outlook I believe those risks are, if not vanished, but severely diminished.

Returning to the Future of Education initiative by UNESCO, what they aim at is a new social contract where we learn *how to become* in a sustainable way through the transformational power of education (UNESCO, 2021). This requires changes that are philosophical, social and practical in character. I believe the framework itself can work as an empowering tool for teachers when reimagining education and transferring their beliefs into lessons. Asking and answering relational questions is a reflexive practice with the potential of strengthening identity and the sense of self-efficacy. If taking myself as an example, the journey I embarked on, which I presented at the 12th Networked Learning conference in 2020, was connected to my own family history, which reveals the result of an aggressive assimilatory politics (Outakoski, et al., 2018) resulting in me partially losing my heritage language, north Sámi. I early on in the graduate process felt a need to prioritize a search for a suitable research identity (Parfa Koskinen, 2020b). Not only was I lucky to get the support from my supervisors when embarking on this journey, I have later understood that my sense of self-efficacy increased dramatically in a transformational way.

Concluding remarks

This paper describes a relational approach bridging actions/activities and cognition. This goes beyond literacy as a synonym for learning, and Säljö (2012) points out the importance of developing epistemic practices coordinated with the affordances of the advanced digital tools available. I believe a multidimensional relational analysis, as the one presented in this paper, is such an epistemic practice. The framework is flexible enough to be utilised as a single or additional tool for understanding and articulating relational aspects in a number of practices, something referred to as a boundary-object (Akkerman & Bakker, 2011). It can also be helpful when looking at many types of empirical material, such as interview transcripts, observational notes or recordings, focus group discussions, pictures, objects etc. As this is a first elaboration, the framework will continue developing but as of today, its intended use is when planning, evaluating or analysing educational practices and policies.

The analysis shows that the policy articulates relationships on three of the four dimensions in the framework. When engaging in árbediehtu projects, success can thus be measured through the transformational power of the included relationships, which in turn requires the establishment of resonant relationships on multiple dimensions. It is not enough to do something, such as handicraft, baking or visit cultural sites. According to resonance theory, the activity needs to result in resonance for it to be transformational, a process difficult to plan for, design or stage. However, learning has continuously eluded educationalists and researchers but still not stopped learning activities from being conducted. We keep trying and hoping for the best. What this paper suggests, is that we to a larger degree ask relational questions on multiple dimensions when trying to understand and facilitate learning and knowing.

References

Akkerman, S.F. & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of educational research*, 81(2), 132-169. Retrieved January 25, 2020, from https://www.researchgate.net/publication/220041446_Boundary_Crossing_and_Boundary_ Objects

Bagga-Gupta, S., Messina, D. G., and Lindberg, Y. (Eds.). (2019). *Virtual sites as learning spaces: Critical issues on languaging research in changing eduscapes*. Springer International Publishing AG.

Battiste, M. (2000). Maintaining Aboriginal Identity, Language and Culture in Modern Society. In M. Battiste (Ed.). *Reclaiming Indigenous Voice and Vision*. (pp. 192-208), UBC Press.

Billmayer, J., From, J., Lindberg, J. O. & Pettersson, F. (2020). Editorial: Remote teaching to ensure equal access to education in rural schools, *Education in the North*, 27(2), 1-6.

Brodin, E. M., & Avery, H. (2020). Cross-disciplinary collaboration and scholarly independence in multidisciplinary learning environments at doctoral level and beyond. *Minerva*, *58*(3), 409-433.

Chalmers, D. (2011). The Nature of Epistemic Space. In *Epistemic Modality*. In A. Egan & B. Weatherson (Eds.), Epistemic Modality. (pp. 60-107). Oxford University Press. Retrieved January, 12, 2022, from DOI:10.1093/acprof:oso/9780199591596.003.0003

Chilisa, B. (2019). *Indigenous research methodologies*. Sage Publications.

Cocq, C. (2017). Traditional knowledge--New experts. *Cultural Analysis*, *16*(1), 101-116.

Cocq, C. (2018). Tjutju (pp. 95-98). In G. Roche, H. Maruyama, & Å. Virdi Kroik, (Eds) (2018). *Indigenous Efflorescence. Beyond revitalisation in Sápmi and Ainu Mosir*. ANU Press.

Dyson, L. E. (2015). Framing the indigenous mobile revolution. In L.E. Dyson, S. Grant & M.A. Hendriks. *Indigenous people and mobile technologies* (pp. 15-36). Routledge.

Dyson, L. E., Grant, S., & Hendriks, M. A. (Eds.). (2015). *Indigenous people and mobile technologies*. New York: Routledge.

From, J., Pettersson, F., & Pettersson, G. (2020). Fjärrundervisning - en central del i skolans digitalisering. *Pedagogisk forskning i Sverige, 25*(2–3), 69–91.

Gaski, H. (2015). Looking both ways: future and tradition in nils-aslak valkeapää's poetry. In K.W. Shanley & B.E. Evjen (Eds), *Mapping Indigenous Presence: North Scandinavian and North American Perspectives*, pp. 250-278.

Gourlay, L., Rodríguez-Illera, J. L., Barberà, E., Bali, M., Gachago, D., Pallitt, N., ... & Knox, J. (2021). Networked learning in 2021: a community definition. *Postdigital Science and Education*, *3*(2), 326-369.

Hart, M. A. (2010). Indigenous worldviews, knowledge, and research: The development of an indigenous research paradigm. *Journal of Indigenous Social Development*, *1*(1A). Available at http://hdl.handle.net/10125/15117

Kovach, M. (2010). *Indigenous methodologies: Characteristics, conversations, and contexts*. University of Toronto Press.

Kuokkanen, R. (2000). Towards an "Indigenous paradigm" from a Sami perspective. *The Canadian Journal of Native Studies*, 20(2), 411-436.

Kuoljok K. (2019a). Without land we are lost: traditional knowledge, digital technology and power relations. *AlterNative: An International Journal of Indigenous Peoples.* 15(4):349-358. doi:10.1177/1177180119890134

Kuoljok, K. (2019b). Reading the reindeer. New ways of looking at the reindeer and the landscape in contemporary husbandry. *Ethnologia Scandinavica: A Journal for Nordic Ethnology*, 49, 22–39.

Magga, O. H., Nicolaisen, I., Trask, M., Dunbar, R., & Skutnabb-Kangas, T. (2005). Indigenous children's education and indigenous languages. In *Expert paper written for the United Nations Permanent Forum on Indigenous Issues* (p. 144).

Meighan, P. J. (2021). Decolonizing the digital landscape: the role of technology in Indigenous language revitalization. *AlterNative: An International Journal of Indigenous Peoples*, 17(3), 397–405. https://doi.org/10.1177/11771801211037672

Messina Dahlberg, G., & Bagga-Gupta, S. (2016). Mapping languaging in digital spaces: Literacy practices at borderlands. *Language Learning & Technology*, *20*(3), 80–106. Retrieved from http://llt.msu.edu/issues/october2016/messinadahlbergbagga-gupta.pdf

Networked Learning Editorial Collective (NLEC). Networked Learning: Inviting Redefinition. *Postdigit Sci Educ* **3,** 312–325 (2021). https://doi-org.proxy.ub.umu.se/10.1007/s42438-020-00167-8

Nordin Jonsson, Å. (2010). *Árbediehtu/Árbbediehto/Aerpimaahtoe: Sametingets policydokument för traditionell kunskap*. Sámediggi/Sámedigge/Saemiedigkie/Sametinget. Retrieved April 22, 2020 from https://www.sametinget.se/26119

Outakoski, H., Cocq, C. and Steggo, P., (2018). Strengthening Indigenous languages in the digital age: social media–supported learning in Sápmi. *Media International Australia*, 169(1), pp.21–31. https://doi.org/10.1177/1329878X18803700

Outakoski, H. (2018). In Search of Virtual Learning Spaces for Sámi Languages (pp. 89-94). In G. Roche, H. Maruyama, & Å. Virdi Kroik, (Eds) (2018). *Indigenous Efflorescence. Beyond revitalisation in Sápmi and Ainu Mosir.* ANU Press.

Parfa Koskinen, K. (2020a). An Indigenous Strategy of Inquiry supporting Networked Learning. *Proceedings for the Twelfth International Conference on Networked Learning 2020*, 326–332.

Parfa Koskinen, K. (2020b). Developing a researcher identity of relevance for remote Indigenous language education. *The International Journal of Information and Learning Technology.*

Pesambili, J. C. (2021). Glocalised research design: exploring the encounter between Indigenous and Western methodologies among the Maasai Pastoralists in Monduli, Tanzania. *AlterNative: An International Journal of Indigenous Peoples*, 17(3), 406–415. https://doi.org/10.1177/11771801211037900

Pettersson, F. (2021). Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept. *Education and Information Technologies, 6,* 187-204.

Pettersson, F., & Hjelm, P. (2020). Researching and developing remote teaching in mother tongue tuition. *Education in the North*, *27*(2), 242-247.

Pettersson, F., & Lindfors, M. (2021). K-12 students' experiences/perceptions of synchronous remote teaching and learning environments. *Journal of Online Learning Research*, *7*(3), 249-268.

Pettersson, G & Näsström, G. (2020). Educators´ Digital Competens in Swedish Rural Schools. *European Journal of Open and Distance Learning*, Sciendo, *23*(2), 65-82.

Qi, J., Manathunga, C., Singh M. & Bunda, T. (2021). Transcultural and First Nations doctoral education and epistemological bordercrossing: histories and epistemic justice, *Teaching in Higher Education*, 26:3, 340-353, DOI:10.1080/13562517.2021.1892623

Roche, G., Maruyama, H., & Virdi Kroik, Å. (Eds) (2018). *Indigenous Efflorescence. Beyond revitalisation in Sápmi and Ainu Mosir.* ANU Press.

Rolleston, A. K., Bowen, J., Hinze, A., Korohina, E., & Matamua, R. (2021). Collaboration in research: weaving Kaupapa Māori and computer science. *AlterNative: An International Journal of Indigenous Peoples*, 17(4), 469–479. https://doi.org/10.1177/11771801211043164

Rosa, H. (2019). *Resonance: A sociology of our relationship to the world*. John Wiley and Sons.

Sapir, Y. (2020). Sveriges samiska språk. Revitalisering, utmaningar och möjliga lösningar. *Svenska landsmål och svenskt folkliv*, *143*, 1-50.

SOU 2017:44. *Entreprenad, fjärrundervisning och distansutbildning: Slutbetänkande av Utredningen om bättre möjligheter till fjärrundervisning och undervisning på entreprenad.* Wolters Kluwer offentliga publikationer. Retreived from http://www.regeringen.se/49c4a3/contentassets/e38a4efecaf241d28158507da73f33d0/entreprenad-fjarrundervisning-och-distansundervisning-sou-201744.pdf

Sedholm, O. (2018). Viessuoje Mujttuo: Saving an Indigenous Language through New Technology (pp. 85-88). In G. Roche, H. Maruyama, & Å. Virdi Kroik, (Eds) (2018). *Indigenous Efflorescence. Beyond revitalisation in Sápmi and Ainu Mosir.* ANU Press.

Smith, L. T. (2012). *Decolonizing Methodologies: Research and Indigenous Peoples*. Zed Books Ltd..

Stenman, S., & Pettersson, F. (2020). Remote teaching for equal and inclusive education in rural areas? An analysis of teachers' perspectives on remote teaching. *The international journal of information and learning technology*, 37(3), pp. 87-98. https://doi-org.proxy.ub.umu.se/10.1108/IJILT-10-2019-0096

Svonni, C. (2015). At the Margin of Educational Policy: Sámi/Indigenous Peoples in the Swedish National Curriculum 2011. *Creative Education, 6,* 898-906. http://dx.doi.org/10.4236/ce.2015.69091

Säljö, R. (2012). Literacy, digital literacy and epistemic practices: The co-evolution of hybrid minds and external memory systems. *Nordic Journal of Digital Literacy*, *7*(1), 5-19.

UNESCO (2021). *Reimagining our futures together: A new social contract for education.* Report from the International Commission on the Futures of Education. Retrieved January, 5, 2022, from https://unesdoc.unesco.org/ark:/48223/pf0000379707

Utbildningsdepartementet (SFS 2010:800). *Skollag.* Retreived at: http://www.riksdagen.se/sv/dokument-lagar/dokument/svenskforfattningssamling/skollag-2010800_sfs-2010-800

Wenger, E. (2010), Communities of practice and social learning systems: the career of a concept, In *Social learning systems and communities of practice*, Springer, London, (pp. 179-198).

Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Fernwood Publishing.

Öjefors Stark, A-K & From, J (2020): Regional perspectives on remote teaching in Sweden. *Education in the North*, *27*(2), 7-23