Development of Teacher Self-Efficacy for Teaching in Rural Schools in The Circumpolar North: Lessons for Teacher Education

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Abstract
Teachers across the circumpolar north often share similar experiences working in small communities in remote areas with distinctive cultures and livelihoods. However, teacher education programmes tend to be universal, ignoring an ecological understanding of teaching. This paper describes the findings from a desktop study investigating the specific demands made of teachers working in rural schools and the implications for teacher education in supporting them to develop the necessary self-efficacy for this role. The results indicate that attention to specific teaching and teacher competences is required but that this must be undertaken with an awareness of the importance of place-based education.

Key Words: Rural education, teacher self-efficacy, teacher competences, place-based education; ecological understanding

Introduction

Many schools in the north are distinct in their geographical context – situated as they are in small villages and towns as well as remote areas. This situation has affected teacher recruitment and retention linked to preparation and support for teachers potentially working in these areas. Schools are part of communities and teachers need ecological understanding of teaching in their specific contexts (Kaden et al., 2016; Karlberg-Granlund, 2019, Reagan et al., 2019). However, teacher education programmes are often universal, and the plurality of the profession and its links to the wider community are seldom clearly elucidated in teacher education programmes.

A critical factor in ensuring socially just education systems, regardless of their geographical location, is providing opportunities within the ecological system of education for all young people to flourish (Darling-Hammond and Cook-Harvey, 2018).

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If teacher education is to contribute to socially just education, there is a need to recognise the role of the teaching profession with its plurality and ensure that graduating teachers have strong professional self-efficacy and commitment to the profession. As Çimen (2021) observes, "addressing the quality of teaching has become a prominent pursuit of remediating the relationship between the students' performance and socio-economic backgrounds' (p. 315).

In their review of literature on rural teacher education, Reagan et al. (2019) note that despite recent increased interest in education in rural communities, comparatively little is known about how teachers might be prepared and supported to work in rural schools. Whilst highlighting the work already undertaken by colleagues in Australia, Reagan et al. (2019) call 'for research across multiple contexts that takes into account the unique assets and characteristics of specific rural places, while connecting to a broader field of study' (p. 91).

In response to this timely call for research in specific geographical contexts, this paper describes a desktop study undertaken by colleagues from Finland, Iceland, Russia, the Faroe Islands and the United Kingdom as they sought to identify features of professional success in rural schools. Similar to Reagan et al. (2019), we acknowledge the work of colleagues in Australia. However, the focus of our interest is on teacher education for rural areas in the geographical north, whilst acknowledging Kleinsasser's (2014) caution that teacher efficacy is transferable across contexts. We seek to address a lacuna within the current literature on teacher education for rural schools in the circumpolar north whilst taking into consideration the admonition by Reagan et al. (2019) to consider our findings in relation to the broader field of study.

For this study, we adopted a definition of rural schools as those in the countryside, villages, small towns at a distance from the larger populated area; that is, rural was understood as a measure of geographical distance from urban centres. This definition does not focus on poverty and other socio-economic factors although it is recognized that there is evidence of causal links between the rural and poverty and lack of services. Additionally, the working definition of rural schools in this desktop study did not include notions of community size although it is acknowledged that the use of 'small' is used as a defining term by some to identify schools with similar demographics.

Purpose, aim and objectives

In this article, a desktop study approach is taken to identify the features contributing to teachers' professional success in rural schools. It investigates the lessons that teacher education can learn from competences and self-efficacy exhibited by teachers in rural schools that ensure equitable learning opportunities for all.

As such, the study was guided by the research question: How do teachers develop their professional self-efficacy within a rural education context in the geographical north?

Key to this investigation is the understanding that place-based education has a prominent level of relevance for teachers working in rural schools. Insight from studying each of these factors may allow teacher education a nuanced understanding of what is required to meet the needs of rural schools including the ongoing critical issue of teacher recruitment and retention in rural schools in the north.

Theoretical Underpinnings

Many countries are invested in school quality and strive to meet socio-economic and societal needs and obligations through education. In the quest to ensure social justice and equity in education, quality teaching places a significant onus of responsibility on the teacher. Teachers do play a pivotal role and are deemed the single most significant factor in student learning in school (Hattie, 2003). Improving teacher efficiency and equity of education demands competency from teachers so that their teaching is of a high standard and is accessible to all students. 'In particular, the broad consensus is that "teacher quality" is the single most important school variable influencing student achievement' (OECD, 2005, p. 2).

Teachers in rural schools play multiple roles – educators, organisers, psychologists, social teachers, teachers of additional education, as well as being theorists, analysts and researchers (ibid). Lazarenko et al. (2019) emphasise the importance of improving the pedagogical training of teachers for rural schools to contribute to high levels of teacher retention in these areas. Badashkeev and Buskinova (2021) underline that a rural schoolteacher should fulfil the fundamental idea of social partnership with social institutions. Furthermore, a call for inclusive education in these contexts is made by other researchers (Akyeampong et al., 2018 and Wilkinson & Pickett, 2009 in Çimen 2021;) conscious of the need for equity in society.

Teacher competences in rural education

Professional competences for teachers to support rural society comprise adherence to a communicative culture, recognising the distinctive nature of the community, adherence to a technological culture that includes poly-professionalism, acknowledgement of a methodological culture of self-theorisation, analysis of educational issues and an axiological culture bearing and contributing to the spiritual values of the community (Nasibulov et al., 2016). In addition, the authors note the necessity of rural teachers reflecting the culture of the community whilst simultaneously maintaining professional and personal self-determination with high levels of versatility.

The competences required can be viewed from dual perspectives: teaching competences and teacher competences. The Teaching Council in Ireland, referenced in the European Commission publication (2013), encapsulates the key role of the student teacher as being able to establish effective communication with students, leaders, parents, colleagues and community using their skills in a contextually relevant manner.

On the other hand, teaching competences cast light on the teacher role in the classroom and the 'craft' of teaching - where professional knowledge and skills are combined in a unique manner for pedagogical action (Hagger and McIntyre, 2006). Ideally, teachers must be prepared for both roles. Key to the enactment of both teacher and teaching competences is the development of a high level of self-efficacy of all teachers.

Teacher Self-efficacy in northern rural schools

A focus on building self-efficacy in student teachers may prove to be advantageous in teacher education, as efficacy beliefs are more open to the influence of teacher education and practicum experiences before teacher cognition becomes entrenched with years of experience (Hoy and Spero, 2005). Self-efficacy is defined as teachers' belief in their ability to plan and fulfil their teaching to ensure learning outcomes (Bandura, 1997) and teachers' beliefs in their ability to organise, complete and implement relevant professional action to ensure success in particular teaching tasks within particular contexts (Tschannen et al., 1998). 'As Ludlow, Enterline and Cochran-Smith (2008) have asserted, teaching in the framework of social justice requires knowledge about content, pedagogy, students, cultures, school systems, communities and self' (Çimen, 2021, p. 319).

Although the context of rurality may impact teacher self-efficacy, Ronfeldt (2012) suggests there is insufficient research in the field to justifiably make such a claim. While studies on in-service teachers indicate school settings had insignificant influence on teacher self-efficacy (Tschannen-Moran and Johnson, 2011), Knoblauch and Hoy's (2008) study of student teachers showed that a practicum of 16 weeks in the contexts of rural, urban and suburban did significantly impact teacher self-efficacy. Knoblauch and Chase (2015) posit that practice teaching in any setting contributes to teacher self-efficacy, but there are no attributes identified as unique to building teacher self-efficacy in rural schools. Instead, they highlight that '... whether the school is set in a rural, suburban, or urban area is most likely factored into teaching task analysis, as well as the perceived attributions following the student teaching experience' (p. 107).

Teacher self-efficacy can be viewed in the context of 'self-determination theory' of Ryan and Deci (2000). Within this construct, teacher self-efficacy engenders a sense of competence arising typically in teachers who enjoy intrinsic motivation (Wyatt, 2015); such teachers are empowered by autonomy in their attitudes to work and find fulfilment in relating to students and their teaching environments (Ryan and Deci, 2000). Self-efficacy determines the effort a person makes, influencing the resilience the person can draw upon to cope with challenges. In rural schools, this may translate to a resilience that empowers teachers to cope with the local challenges (Ebersöhn and Ferreira, 2012) and perform their duties to positively influence student learning. Teacher professional development is key to empowering educators in rural education (Sharplin and Chapman, 2011), given the clear and unequivocal link established in re-

search between teacher efficacy and student motivation, engagement, and achievement (Bandura, 1997; Morris et al., 2017; Zambo and Zambo, 2008).

Place-based Education and building Teacher Self-efficacy

A definition of place-based education is "quality experiences in local settings" (Knapp, 2005, p. 277). It appears to have arisen in reaction to the sense of human disconnect from nature and to redress the distance between people and nature by making pedagogy a learned experience based in the community (Knapp, 2005). Considering place-based methods, Smith (2002) and Woodhouse and Knapp (2000) highlight multidisciplinary thematic content with a clear role for local lived experience, student-oriented learning, learning experiences gained from meaningful interaction with the community, an awareness of self and others and problem solving in the context of place with its ecological, socio-economic, historical, geographical and cultural ethos.

Nogovitsin et al. (2018) highlight the necessity of taking into consideration climatic conditions, cultural context and local traditions when considering curriculum. This sits within an ecojustice approach to education underlining the importance of preparing teachers to create democratic, sustainable communities with a deep understanding of the globalised world and associated ethical obligations (Martusewicz et al., 2015).

Place becomes inextricably entwined with self as teacher and learner, and community becomes a dynamic constituent of education. Place then shares a commingled identity and role within the pedagogical ethos and is an active stakeholder that cannot be overlooked in the idea of place as pedagogical (Gruenewald, 2003).

The ecology of small schools and rurality

According to Nasibulov et al., (2016) schools in a modern rural society should reflect the culture of the community and encompass inherent values and attitudes. Rural schools place specific demands on teaching accommodating the challenges of access to quality and equitable educational opportunities.

The default model of rural schools appears to be a higher incidence of multigrade (composite) classes with students of different ages at different stages (Lloyd, 2002). For teachers, they imply using greater differentiation, more planning time, and challenges to classroom management (p, 2006).

Methodology – desktop research

A secondary research approach of research synthesis in the form of a desktop study was used to summarise the existing research with a specific focus on teacher-self efficacy in rural schools (Hempel, 2020; Suri, 2014). The aim of the research was to examine what might be learnt from previous literature within the framework of teacher education, and thus create new knowledge to shape the policy and practice in trans-

forming teacher education to better serve the needs of rural schools (Suri and Clarke, 2009; Suri, 2014). Therefore, studies were collected with a purposeful sampling approach through attention to a homogenous sample with a particular focus on best practice for teaching and teacher competencies for teaching in rural schools (Suri, 2011). This paper continues the work started by Reagan et al, (2019), which highlighted the importance of context and place in educating teachers for rural settings.

During the initial phase of identifying relevant articles, the following criteria were used when searching in databases (see Appendix 1):

- teaching in rural school settings
- teacher beliefs in rural schools
- place-based teaching and self-efficacy
- place-based teaching and implications for professional learning development.

This phase resulted in a shared understanding of the meaningful keywords related to the aim of this paper. The following keywords and Boolean operators were used to identify the literature: small OR rural schools AND 1) professional learning, 2) teacher identity, 3) context, 4) multi-age teaching, and 5) teacher agency. Subsequently, the review proceeded via multiple rounds searching literature to identify those most relevant published between 2015 and 2020.

As analysis proceeded, the search was widened to publications pre-2015 employing forward and backward chain reference searching to increase depth of analysis (Suri, 2014). In total, the number of articles matching the criteria and accessed by the research team was 36. Although the specific focus of this desktop study is rural education in the global north, a considerable number of the analysed articles came from Australia. Australia has a wide geographical area and low population density (3 people per km²) which has necessitated rural education since 1909. This long history and the continuing reality of educational provision has resulted in significant research on rural education in Australia.

To develop transnational comparative understanding, all authors read the papers during the analysis. Team members met regularly online to discuss findings and clarify focus. "Collaborative sense-making" amongst researchers from different countries was essential in drawing on multiple lenses to deepen the analysis (Suri, 2014, p.145). The identified literature does not cover the global range of publications in rural education but focuses on those which specifically spoke to a northern context.

During these multiple phases, the research team identified three main themes relevant in the framework of teacher education: 1) competences identified for teaching in small rural schools; 2) place-based education and building teacher self-efficacy; and 3) implications for professional learning development. The following results section is organised accordingly.

Findings and discussion

Much of the literature on rural education has taken a deficit approach, such as a lack of focus by educational policymakers on the needs of rural education, a tendency towards aggregation of small rural schools in hub schools for economies of scale requiring students to travel long distances (Karlberg-Granlund, 2019). Teachers who work in these areas may face professional isolation, the challenge of teaching composite classes and subjects outside their professional competence (Goodnough and Mulchay, 2011). In addition, research catalogues individual personal challenges such as lack of housing in small communities (Johnson et al., 2006) and potential social isolation including a lack of contact with people with similar interests (Goodnough and Mulcahy, 2011).

Goodnough and Mulchay (2011) highlight that while some view the conditions of working in rural areas as challenges, others see them as beneficial. Some teachers experience isolation in being away from metropolitan areas with all their cultural opportunities. Others value the safe, clean environment of rural living with its outdoor pursuits. Whilst some teachers find living rurally daunting due to the lack of privacy, others welcome an authentic sense of community with high levels of support for the school.

Competences identified for teaching in small rural schools

The desktop study aimed to examine lessons for teacher education from the acquired competences of teachers working in rural schools. Additionally, an approach was adopted that avoided consideration of the rural as 'other' to the dominant discourse within some academic literature of the urban or metrocentric as 'normal'.

Teaching competences

There are six roles within teacher competence as identified by Paquay and Wagner (2001 in European Commission, 2013). They view the teacher as a reflective agent, a knowledgeable and skilful expert, a classroom actor, a social agent and a lifelong learner. In relations between school and community, teachers need to have the competence to ensure active and rewarding collaboration between school and community requiring social understanding, awareness and commitment (Jenkins and Reitano, 2015).

Lukina et al. (2010) identify several teaching competences for rural-school teachers including the ability to cope with the specific context of teaching material (technological, methodical and instrumental), a thorough knowledge of their academic subjects and clear pedagogical position. Describing these multi-skilled teachers, Neustroev et al. (2016) note the importance of the ability to combine subjects in thematic teaching.

Page (2006) draws attention to the fact that general principles of effective teaching are equally applicable in the rural context, such as the fundamental skills of literacy and numeracy, and equipping students with study skills crucial to educational pro-

gress. According to research evidence, teacher effectiveness comprises monitoring and feedback, solid subject knowledge and knowledge of explicit teaching techniques, as these processes underpin teacher planning, delivering, assessing and reflection (Williams and Nierengarten, 2011).

In rural schools, teacher expertise must span various areas of the curriculum as teachers need to be equipped with necessary knowledge and skills to accommodate the learning potential of students with varied abilities (Bell and Pirtle, 2012; Çimen, 2021). The teacher must overcome the challenges of possible limited subject choices in the school, cope with composite classes, involve parents in a constructive dialogue and simultaneously ensure that student needs and dreams are not compromised by community demands (Alloway and Dalley-Trim, 2009).

Intrinsic student motivation has been identified as problematic by rural educators, but there is no compelling evidence that this is unique to the rural educational environment (Redding and Wahlberg, 2012). Yet the authors emphasise that '…inspired teaching, attentive to each student's interests, personality, and readiness for mastery, can lift the student's sights beyond the local horizon' (pp, 3–4).

When teaching adopts an inclusive approach that addresses diversity, it is built on a recognition of student resources. Gonzalez, Moll, and Amanti (2005) view culture as 'funds of knowledge' to be activated in the process of learning to empower students. All students bring valuable resources and experiences to the classroom through their talents, strengths and skills, built upon their personal experience, knowledge and beliefs. Teachers with an awareness of their students' resources can use those for efficacy in teaching.

Therefore, teacher education must be arranged to ensure that quality of teaching is distributed equally to schools regardless of their socioeconomic context by preparing new teachers to challenge the inequalities of the society effectively; new teachers are aware of the social status barriers to be equal participants of society; and they are willing to take part in making disadvantaged students' voice heard.

By employing a culturally sensitive teaching approach, teachers can influence student motivation and build student efficacy by helping individual students set challenging but realistic goals, giving feedback that keeps students on track to fulfil learning outcomes and raise student awareness of monitoring the improvements they make (Schunk and Ertmer, 2000). It is important to establish high expectations for all students even when there is apparent tension between the strengthening of the community and upholding the desire of students to leave the community to pursue individual goals and ambitions.

Positive rural schoolteacher attitudes to information technology and communication integration in teaching and learning may afford their students certain advantages in education (Howley et al., 2011). Computer-based education can be effective when teachers use varied approaches to teaching and are trained in using technology, al-

lowing students to take responsibility for their own learning (Hattie, 2009). Distance education can contribute to educational equity through use of information technology and communication to mitigate some of the drawbacks that rural schools face (Howley et al., 2011). The demands on rural teachers to be digitally competent and use digital pedagogy appear to be a way of counteracting dearth of resources and accommodating the challenges of giving 21st century skills to students (Sheffield et al., 2018).

Teacher Competences

The pivotal role of professional development in supporting rural schoolteachers to provide quality teaching is established in research (Pegg and Panizzon, 2011). These authors underline that it is even more significant in schools distanced from metropolitan areas. Digital technology might make the setting up of Professional Learning Networks possible. This does not replace the need for face-to-face contact in professional development, but is an additional facet to ensure that professional isolation does not result in teacher burnout, affect teacher retention and the sustainability of rural communities (Sheffield et al., 2018).

Teacher action research to record successful pedagogical praxis may strengthen pedagogical innovations in context and contribute to sustainability in the field (Zigo, 2001). Taking on the challenge of teaching in rural schools involves teachers having to function out of their comfort zone and experiencing uncertainty in their exploration of new or diverse ways of teaching and organising. Collaboration with colleagues may create opportunities to problem solve, debate, share success will support teachers in this endeavour (author, 2020). Nasibulov et al. (2016) highlight that this type of collaborative professional learning must commence during initial teacher education including whilst student teachers are on practicum.

Place-based education and building teacher self-efficacy

Teachers with high self-efficacy are well-equipped to anticipate successful fulfilment of goals, invest concentrated effort in their work and continue their endeavours despite difficulties and challenges (Bandura, 1997; Guo et al., 2011). Teacher retention is a particular issue in rural areas, and therefore, attention to development and maintenance of high levels of teacher self-efficacy is essential as this appears to mitigate burnout and emotional stress (Zee and Koomen, 2016). For teacher efficacy and efficiency, the European Commission (2013) highlights how teachers must reflect on their own professional growth to empower them to face the constantly changing dynamic between school and community. Teachers need to be able to cope with change in the educational milieu, embrace commitment to lifelong learning and actively engage in self-reflection and professional development. The combination of teaching and teacher competences cements a holistic view of the teaching profession in the context of the institution and the classroom. The inherent complexity of the role arising from its dual-

ity implies that teacher self-efficacy must be anchored in both these roles to equip the teacher to function optimally in rural education contexts.

Implications for professional learning development

The findings reveal the fundamental requirements for quality teaching in rural schools. Rural schools are described as 'catalysts for community participation, social cohesion and the vitality of neighbourhoods' (Witten et al., 2001, p. 307). The role of teachers in this environment and the demands placed on them cannot be underestimated.

Our proposal is that in highlighting the specific requirements for preparing and supporting teachers who work in rural contexts, we also highlight the need for preparing and supporting all teachers to work in the diverse social and geographical contexts that they may encounter in their careers. With this approach, we honour the call for an 'ecological understanding of teaching' (Karlberg-Granlund 2019, p. 294).

Practicum placement may have a role in influencing student teachers to join rural schools as it may influence their attitudes and encourage them to seek jobs in this environment (Twomey, 2008). This should ideally begin in the first year of education, so there is scope for student teachers to plan whether these schools provide a potential job environment (Gemici et al., 2013), thereby increasing chances of teacher retention, whilst providing rural schools the opportunity to find suitable candidates when students graduate (Halsey, 2005).

If teacher education can be viewed as "placed learning" (Eppley, 2015) in bringing into play multiple contexts, these contexts could be defined as "constitutive places that shape identities and possibilities" (p. 70), thereby underpinning place as being pedagogical. This is a key factor as learning takes place within contexts that shape and enable teachers and students, while in turn, being shaped by them. The focus in teacher education must be on place as a dynamic environment - a melting pot of "social relations and cultural and political practices that are paradoxical, provisional, and constantly in the process of becoming" (Schafft and Jackson, 2010, p. 11). The exhortation for teacher education to guarantee that quality of teaching is enabled for all schools independent of socioeconomic contexts to facilitate teachers to ensure equity becomes meaningful (Çimen, 2021).

In this constantly developing flux of the educational environment, teacher education must place its student teachers armed with teacher and teaching competences to become meaningful members of communities. Knoblauch and Hoy (2008) indicate that teacher self-efficacy appears to increase for rural teachers. Given the challenges they often face with a dearth of resources and other challenges, teachers appear to have become creative and pragmatic in coping with the local environment.

Acknowledging the challenges inherent within the geographical locations of rural schools, Walker-Gibbs et al. (2018) identify liminal space inhabited by the beginner

teachers as they form their identity as teachers and highlight some of the advantages that teaching in such a location can bring for new teachers. More broadly, Walker-Gibbs et al. (2018) propose a 'Pedagogy of the Rural' which highlights that all education and teaching is geographically and culturally located. This allows an alternative stance to the deficit model and the metrocentric normative narrative that has dominated much research literature focusing on rural schools. The study is a timely reminder that conceptions of place, space and identity are relative, contrasting with most teacher education being conducted within metropolitan centres. It might be suggested that student teachers are predominantly prepared to teach in urban metropolitan areas as practicum is more easily organized for student teachers and their mentors near the teacher education centre. Although Goodnough and Muchay (2011) note some instances of opportunities for students to opt for a rural placement in their final practicum, these are not necessarily available for all student teachers globally.

Lack of widespread opportunities to experience a placement in a rural context is a challenge as many new teachers are offered positions within rural settings for their first teaching post (Çimen, 2021). As all teachers need to develop self-efficacy within a specific geographical and cultural societal context, our argument is that teacher education must prepare student teachers in their practicum and support qualified teachers to work not just in urban metrocentric schools but also geographically and culturally distinct rural schools.

Indeed, this argument highlights the need to prepare teachers to be aware of the cultural and geographical, place-based pedagogy/curriculum requirements of all schools. It might be suggested that most urban metrocentric schools also have distinctive cultural situations, which the teacher must take account of when planning to effectively teach diverse cohorts they might encounter.

Conclusion

The aim of this article was to identify the features of teachers' professional success in rural schools in the north through a desktop study of relevant literature. This study focused on the importance of three specific factors to be considered in the preparation of student teachers to work in rural areas if they are to develop self-efficacy in provision of quality, inclusive and equitable education for all. Both teacher and teaching competences were highlighted due to the specific demands of working in northern rural communities.

The final factor highlighted within the extant literature was the importance of place-based education. Emphasis was placed on the significance of teachers developing awareness of and knowledge about the rural northern communities in which schools are based, the cultural and historical context in which they exist and how they might most effectively work within these communities.

Mindful of the call from Reagan et al. (2019) to place geographically situated

findings related to rural education within the broader field of study, it was noted that whilst the identification of the three specific factors within the literature has implications for teacher education in the north, it was argued that they have implications for teacher education more widely. As all teachers are required to develop self-efficacy within specific geographical and cultural societal contexts, teacher education has a duty to prepare all students to work effectively and in culturally sensitive ways within particular community contexts - whether rural or otherwise.

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