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Technology-enabled professional learning in remote rural minority language classrooms

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Abstract

Participation in professional learning is a challenge for teachers in small remote rural schools, particularly those who teach in a minority language. Multiple factors isolate Gaelic Medium education teachers and make professional learning more difficult to participate in: remote rural location; language; pedagogical approaches; school size; and technological infrastructure. To address this challenge, we piloted the development of a professional community, across four widely distributed Gaelic Medium education primary schools, using the LOCIT approach (Learning-Oriented Critical Incident Technique) which is a form of technology-enabled professional learning. Based on identifying and analysing learning moments to trigger deep discussion, reflection and action by teachers and pupils, the study involved over 150 pupils and their eight teachers as researchers. Class-based inquiry was used to collect video evidence of 'successful practice'. Teachers then documented how they and their pupils identified learning moments from the video recordings. Individually and collectively the teachers reflected on their professional practice. The LOCIT repository provided both a resource and profile of evidence-based practice. Research data for this paper consists of audio-recorded semi-structured interviews with four of the participating teachers. The interviews were analysed by the researchers through an inductive coding process. We found that the use of the LOCIT approach was able to overcome the challenges identified in relation to the development of professional learning in remote rural areas but there were still challenges in this type of remote learning. These findings highlight that remote rural and linguistic minorities can create professional learning opportunities together if identified challenges are overcome.

Keywords: Remote rural; professional learning; Gaelic Medium education; digital technology; learning moments.

Introduction

This study set out to investigate the development of a professional learning community of Gaelic Medium Education (GME) teachers engaging in practitioner enquiry across a remote rural region in order to understand the challenges and opportunities for professional learning. Involving both teachers and pupils in piloting a technology-enabled approach to professional learning, it was hoped that the collective experiences would serve as a model which could be further explored and adapted across a wider range of contexts.

The global rural agenda has gathered momentum with different organisations supporting and promoting rural education development such as UNESCO's Education for Rural People, the Society for the Provision of Education in Rural Australia, the World Bank's Rural Education project and the European Rural Parliament. In the European context, tensions which exist between national governments and 'place-based', 'locally focussed' needs are especially prevalent in the education sector. Increasingly debates concerning support for rural schools pose problems for governments, local authorities, communities and parents as funding formula applied to more urban areas threatens small rural schools with closure or reorganisation. On a global scale, rural schools, teachers and pupils face a lack of parity with their urban counterparts in relation to factors such as isolationism, size and socio-economic advantage (Lyons, 2009).

GME teachers in remote rural locations face a number of the factors identified by Lyons (2009) in accessing professional development and without tailored support the quality of Gaelic Medium education may be affected in the longer term. Unlike their English medium teacher colleagues, GME teachers are affected by factors such as pupils' linguistic competence, the language(s) pupils speak outside of school and the available resources for teaching, As with Sámi and Inuit education in Canada, Gaelic Medium Education in Scotland has challenges such as a lack of learning resources and problems in recruiting teachers (Keskitalo, Frangou and Chohan, 2020; Snow, Tulloch, Ochalski and O'Gorman, 2018). It is worth noting that the Gaelic language in Scotland, while sharing some vocabulary with Irish Gaelic, is a distinct language. Like the Sámi language in Finland, Norway and Russia (Keskitalo, Frangou and Chohan, 2020) Scottish Gaelic was banned and then side-lined for a long period. In this study an ICT-focused professional learning community was initiated to see if it could address some of these factors. The advantages of 'growing' professional learning communities are well-documented in the literature (Stoll, 2004; Field and Spence, 2000; Lave and Wenger, 1998). However, developing sustainable and cost-effective communities which connect schools with different strengths and needs across large geographical areas are especially challenging. A range of contextual barriers – both apparent and hidden - must be addressed in order to provide a shared space and place in which potentially isolated individuals, working in remote rural areas, can profitably engage (Fisher, 2010).

The aim of the project being researched was to establish a professional learning community focused on class-based enquiry to enhance the variety of learning opportunities available to both the teachers and their pupils. The intention was that members of the professional learning community would share their investigation of classroom practice with each other by allowing the other teachers access to their videos and other artefacts in the LOCIT tool (Learning-Oriented Critical Incident Technique). The

researchers were interested in both the outcomes of the activities of the professional learning communities and the processes which involved the learners and teachers. Professional learning communities have been described as a learning model through which 'new ideas and strategies emerge, take root, and develop, and where competence can be truly cultivated and nurtured' (Lieberman and Miller 2008, p.2). Furthermore, 'an effective professional learning community has the capacity to promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing pupil learning' (Bolam, McMahon, Stoll, Thomas and Wallace, 2005, p.iii).

In our study, the need to better understand the barriers to professional learning in rural areas was a key driver for investigating the potential of a technology-enabled, inclusive community and to understand the impact of 'the tyranny of distance' on engagement in professional learning.

Gaelic Medium Education in Scotland

Gaelic Medium Education (GME) (Foghlam tro Mheadhan na Gàidhlig) was established in 1985, the outcome of a grass roots movement by parents who exercised their right to have their children educated in their native language. However, the vast majority of children currently entering GME do not come from Gaelic-speaking homes. Shortage of qualified teachers impedes growth in certain geographical areas, as does the lack of peer support experienced by teachers, often newly qualified, who find themselves working in isolation, often in remote rural locations. While there are some GME schools in non-rural areas most GME is located in remote rural Scotland. There are difficulties for GME teachers due to the limited opportunities for professional learning. The national inspectorate, Her Majesty's Inspectorate of Education (HMIe, 2005), reported that while Gaelic Medium teachers took part in their school's monitoring and self-evaluation, not all schools or local authorities addressed Gaelic Medium teachers' specific needs in their CPD programmes, for example teachers' skills and confidence in improving their own language or in assessing and addressing the needs of pupils. In their 2011 report, HMIe noted that Gaelic Medium teachers prioritised the need for regular sharing of expertise in teaching and learning.

In the Donaldson Report (2011), covering all teacher education in Scotland, it was recommended that CPD should 'shift from set-piece events to more local, team-based approaches which centre around self-evaluation and professional collaboration, and achieve an appropriate blend of tailored individual development and school improvement' (p.65). Having considered the context for the study we now turn to the issues related to professional learning for teachers in remote rural locations.

Professional learning and isolation in rural communities

It has been noted that the specific circumstances of teachers in rural areas make it imperative to collaborate (Muijs, 2008). Like Inuit teachers in Canada (Snow, Tulloch, Ochalski and O'Gorman, 2018) Gaelic Medium Education teachers in Scotland experience isolation. While the distances involved are much smaller in Scotland compared to Canada, geography still prevents GME teachers from regularly accessing traditional in-person professional learning opportunities as it would take a day to travel to an event and another day to travel back. Snow, Tulloch *et al*. (2018) identified isolation, in terms of

geography and it is also to do with the lack of opportunities for joint professional learning. As with Inuit teachers in Canada there are a lack of teaching resources for GME teachers in Scotland, so they face an extra burden of resource development compared to their colleagues who teach in English (Snow, Tulloch, *et al.*, 2018). As has been found for Inuit teachers in Canada, for GME teachers building networks for communication will mean 'a safe place to share and to learn from each other on an ongoing basis' (Snow, Tulloch, *et al.*, 2018, p. 127).

The rise or fall of a professional learning community depends not on the merits of the concept itself, but on the most important element in the improvement of any school—the commitment and persistence of the educators within it. For example, in useful professional learning communities the teachers recognise their interdependence, have high standards for their own work, readily share their knowledge and promote everyone's continuous learning; while in weak communities of practice teachers are left to fend for themselves and find themselves competing rather than collaborating with colleagues (Johnson and Birkeland 2003). These useful professional learning communities can also be understood as expansive learning environments (Fuller and Unwin, 2004; Attard Tonna and Shanks, 2017).

The concept of learning as participation or communities of practice can provide a useful mechanism for organisations to understand collaboration, integration and development (Senker and Hyman, 2004). Lave and Wenger's *Situated Learning* (1991) has been useful in moving the debate from concern about the application of knowledge in particular sites of practice to an interest in how knowledge is used and how it is (re-)produced in practice.

A key aim of professional learning is meant to be to allow teachers to identify and explore their knowledge from their own practice (Castle, Holloway *et al.* 1998). Professional learning can be a journey inwards and/ or outwards (Clarke and Hollingsworth, 2002). To create a professional learning community, participants need to be willing to take part and share common expectations. In this study the teachers worked together and with their pupils in their experimentation of using video cameras to record classroom practice and to review that practice. The teachers decided what they would focus on and planned when they would video record in the classroom and they investigated and celebrated the learning with their colleagues and pupils.

Professional isolation is a particular challenge for teachers in remote rural schools. Tytler, Symington, Darby, Malcolm and Kirkwood's (2011) study on professional development in rural Victoria found that teachers felt especially disadvantaged in relation to professional learning and impact on pupil learning, identifying the need for release time and professional networking for their own development. This brings to the fore concerns about rural teachers and professional effectiveness due to a paucity of professional development opportunities (Harrison and Busher, 1995) as well as the stress associated with geographical isolation (Wilson, 2007). Whilst Rossi and Sirna (2008) promote building communities of practice to overcome the 'tyranny of distance', they caution against a 'solution' to isolationism as simply connecting professionals.

In addition to the isolation from being in a remote rural location and working in a minority language, the teachers we worked with also encountered other isolating factors. We identified more types of isolation

which were relevant, firstly these teachers were engaged in different pedagogic approaches compared to teachers in mainstream English language provision: immersion language teaching; teaching composite classes; and learners having a wide range of fluency in Gaelic. There was additional isolation from being in small schools, thus having fewer colleagues to collaborate with, as well as more roles and responsibilities. The final type of isolation was technological, while digital technology can help to alleviate some of the other types of isolation this relies on infrastructure support and access which can be lacking in remote rural areas.

One way to overcome isolation is to group schools and staff into clusters. The concept of school clusters as a means of providing a platform for collaboration is not new (Dowling, 2009; Sandholtz, 2002; Galton and Hargreaves, 1995). However, Snow-Gerono (2005) poses a fundamental question: how does a school culture cultivate a shift to community if it is still practising within an ideology of isolation? This raises issues about the complexity of the underlying nature of professional learning, its many interpretations and its role in contributing effectively to teacher development. In the current technological age, digital professional learning networks abound, which appear to provide quick solutions to connecting educators and supporting on-line dialogue. However, the digital networks alone will not deliver collaboration and digital connectivity in some rural areas is unreliable which makes networking problematic. In other words, whilst digital networks may enable teacher some professional learning communities to include isolated schools, they are not a 'solution' to isolationism. This paper analyses these issues drawing on professional development experiences across four rural primary schools in the north west of Scotland.

Before explaining the method of data collection and analysis we provide contextual background to the study and our theoretical framework.

The Scottish Context

Over 80 percent of Scotland can be defined as rural including the islands off the west and nothern coasts (Dowling, 2009, p.129). Scotland has 9 percent of the UK population living in an area of more than one third of the total UK land mass. With a population of 5 million people, 4.6 million live in areas within a 30-minute drive to a settlement of 10,000 people or more, whilst 400,000 live in 'remote' areas. There are approximately 750,000 children of school age in Scotland with 56 percent of those in remote areas living within 1km of their primary school compared to 70 percent of their urban conterparts. There is no single definiton of rural or sparsely populated which can be used across different contexts (Somekh, 1995), including categorising 'small' and 'rural' in terms of Scottish schools. Using pupil-teacher ratios is unhelpful, since there are many small rural Scottish primary schools that have fewer than 100 pupils on roll and many schools have composite classes. Shucksmith's (1990) typology of four types of rural areas (pressured, i.e commuter belts or national scenic areas; intermediate and gaining population due to new developments; intermediate but losing population through decline in traditional occupations; and remote sparsely populated areas usually associated with crofting and farming) suggests that 22,000 pupils attend 413 primary schools in remote rural areas. The schools in this study fall into this last category of remote sparsely populated, the schools were all in one local authority with

three schools situated on one island and one school on the mainland. Scotland has four groups of inhabited islands: the Shetland islands; the Orkney islands; the Outer Hebrides; and the Inner Hebrides.

Arguments about the advantages and disadvantages of education in small rural schools are well-rehearsed. Whilst closely knit learning communities are usually portrayed positively, Bell and Sigsworth (1987) highlight that educational provision in small schools is not necessarily good. A report by the Commission on the Delivery of Rural Education (2013) noted that there are particular challenges to teaching in remote areas (paragraph 30) and that some teachers felt isolated by the remoteness or rurality of their situation (paragraph 31). For these teachers their remoteness made it difficult to access Continuing Professional Development (CPD) and peer interaction was significantly restricted, and they did not see that technology could bridge this gap. This was not shared by all the teachers that the Commission spoke to and other teachers had experienced positive and regular CPD sessions in a 'cluster' group with colleagues from other schools in twilight or weekend sessions. The Commission encouraged all local authorities to consider innovative delivery of CPD to make sure that the effects of isolation are lessened, for example by using cost effective means to deliver effective CPD and learning from international research.

It is often assumed that access for people in remote rural locations is all to do with roads and broadband access (Macintyre and Macdonald, 2011, p.1). The assumption is that if people have internet access then it does not matter where they live, they will be able to access distance learning equally well. Macintyre and Macdonald (2011) argue that understanding access must include the individual as well as the spatial because the feeling of isolation and rurality is an individual one (p.3). In Macintyre and Macdonald's (2011) study distance learning higher education pupils understood their remoteness 'in relation to what they were trying to access, to how they accessed it, and to their personal circumstances' (p.11). While online tools and online access are useful, they are not the total solution because there is also the individual's experience of place to consider (Macintyre and Macdonald, 2011, p.12). The teachers in our study were not only isolated by their geographic location, in addition they were all working in Gaelic Medium Education (GME), either in a GME school or GME unit within a school.

The LOCIT process: the identification of learning moments
Learning-Oriented Critical Incident Technique is a class-based enquiry with video capture and analysis of learning moments (Coyle, 2013). There is co-reflection by pupils and teachers and a digital space where learning can be analysed and shared. The technique produces practice-based evidence for both teachers and learners to act upon. The digital tool provides a space for further reflections and collaboration between teachers, between schools and even between countries. It was designed as a process to celebrate success rather than to look for deficits or weaknesses of either the teacher or the learners.

The LOCIT process begins with the capture of classroom practice by digital video camera, then the video-recording is reviewed and analysed by both the teacher and learners. The teacher may watch separately while the pupils work in pairs or groups. The teacher and learners independently identify critical incidents, for example learning moments and then proceed to have (respectful) conversations

about what they see happening in the video, explaining what and why they have identified certain instances as being learning moments. Teachers may come together to discuss their results in terms of their theories of practice. The LOCIT process allows teachers and learners to reflect on what has happened, on how learning has occurred, on what led to the learning and these reflections can then be used to help develop learning and teaching in their classroom. Like action research, LOCIT can be seen as a tool for 'teachers' learning in and from their own practice in order to improve practice' (Ponte, 2007, p.275). It is a form of self-reflective inquiry undertaken by teachers in order to improve their own educational practices, their understanding of these practices and the context in which the practices take place (Ponte, 2005, p.279 citing Carr and Kemmis, 1986). This is not just a deficit model as it can develop professional knowledge through analysing what works and theorising about why it works. While the LOCIT process differs in some ways to a traditional teacher action research project there is a step-by-step plan and an evaluation of concrete actions; a (digital) logbook is created to record and evaluate the work; and teachers function as critical friends who help each other to reflect on what they were doing and why.

It has been argued that successful professional learning communities must focus on learning rather than teaching, work collaboratively and be accountable for their results (DuFour, 2004). The project discussed in this paper was focused on the learning of pupils but also included the teaching that led to this learning. The basis for the community was that the Gaelic Medium teachers would collaborate with each other in their own schools (where this was possible) and with teachers between schools as well as collaborating with pupils. The LOCIT tool was one means of collaboration as teachers could give each other online access to their uploaded video recordings and analysis. Teachers could then discuss each other's work in the face-to-face sessions that were scheduled for the participating teachers. These teachers were given some time to work together but it would have been beneficial for there to have been more time scheduled for face-to-face or online working.

The study

This was a one year, three-stage study, which involved four schools and eight primary school classes. In stage one, teachers familiarised themselves with LOCIT processes, content-based instruction and related technologies (e.g. flip cameras, using the web-space). In stage two, pupils (learning detectives) and their teachers, collaboratively recorded and analysed classroom learning. Stage three involved using interactive digital tools for community building and knowledge sharing. After the school and teacher recruitment process there was an initial seminar to explain the LOCIT process. Each of the teachers and schools was then visited by one of the researchers and a second twilight session was held in one of the schools with five teachers. Digital video cameras and tripods were bought for each class that did not have easy access to these pieces of equipment in order to make it easier for teachers to organise videoing of classes. Towards the end of the project the teachers and schools were visited by all three researchers.

Stage one was the 'teachers as researchers' phase with the teacher being a reflective learner. This stage was focused on a class-based enquiry (for example, Gaelic literacy across the curriculum, languages skills in maths, reading). Each teacher chose a different focus. Learning sequences were

captured on video and then the teacher reviewed the video clips of their practice and the pupils' actions. The classroom work was videoed on small flip cameras either held by a pupil or a teacher or placed in a tripod. The shared web-space was used to store and review the lesson analysis, lesson plans and reflections, learning moments and comparisons. The teachers were able to review, analyse and reflect on this 'evidence' from their classroom.

In stage two the pupils were researchers or 'learning detectives' and they identified and defined learning moments. In this project the pupils used a paper detective grid to write down their reflections due to technology barriers. The pupils were asked to choose some learning moments and to explain why they chose those particular moments. They went on to consider how this could help them and their teacher using the detective grid provided by the researchers.

In stage three the teachers shared their work. They were collaborating and growing their learning community of pupils and colleagues in and across schools. Learning conversations were used between pupils and their teachers to inform planning, learning intentions and sequencing. There was sharing of video clips and commentaries with colleagues and their classes in the same school and then similar sharing with colleagues in other schools. The teacher and pupil identification of 'learning moments' acted as a trigger for teacher learning and professional [inter]action.

In the study we posed the following research questions:

1. In what ways do 'learning moments' act as a trigger for inclusive professional learning?

2. How can the 'evidence' gathered during the LOCIT process be used?

3. What are the challenges in introducing an ICT-focused professional learning community in a remote rural location?

Method

Eight teachers, all female, participated in the project. They were based in Gaelic Medium education schools or units with a combined total of just over 150 pupils in their classes. Two of the eight teachers had completed their initial teacher education through distance learning programmes. Four teachers agreed to be interviewed at the end of the project with interviews in Gaelic or English, depending on whether the interviewer was a fluent Gaelic speaker. Three interviews were conducted in English and one in Gaelic. Research ethics was granted by the researchers' institution and the interviewees all voluntarily agreed to take part after considering information on participation in the interview process with the consent form in Gaelic and English. Semi-structured interviews were chosen as the best data collection method to elicit the teachers' personal experiences and perspectives (Kvale and Brinkmann, 2009). Interview questions related to the school context, for example the community the school operated in, the language/s used in the school; their role in the school; the Gaelic Medium approach used; the learning focus which was chosen for the video recording analysis; the number of lessons that were filmed; and the evidence obtained for pupils' 'learning moments'. The teachers were asked about how learning took place from the pupils' perspective and from their own perspective. Finally, the

teachers were asked what they had learnt from taking part in the professional learning community and how would they be using this in the future.

The teacher interviews were conducted over the telephone, audio-recorded and transcribed shortly afterwards. The interviews were short as they were fitted into the teachers' busy schedules lasting, on average, 20 minutes. The one interview conducted in Gaelic was translated into English. The transcripts provided a mechanism to understand how the teachers viewed learning for their pupils and for themselves. The videos that were made and the teacher and pupil reflections on these classroom experiences were watched in order to compare the video extracts to the teachers' accounts of their activities and reflections. The three members of the research team analysed different artefacts and met to discuss the common themes they noted in their analysis. Inductive coding was used by each of the research team to identify themes in the data (Cohen, Manion and Morrison, 2018). Over a series of meetings consensus was reached in relation to the key findings and themes. Below these findings are illustrated by providing detail from each of the interviews.

It is understood that there are limitations with this research method as four of the eight participating teachers were interviewed rather than all the teachers. Furthermore, due to different geographical and other features in remote rural locations and minority language classrooms the findings may be unique to these particular teachers and schools. However, the findings highlight potential issues to explore in further research in other peripheral communities and document the challenges that are faced when introducing new ICT-focused professional learning.

Findings

The findings are presented with a portrait of each teacher's experiences in relation to learning moments and teacher professional learning, followed by the challenges the teachers experienced.

Teacher A at School 1 was a newly qualified Gaelic Medium teacher who had completed a distance learning teacher education programme. She taught a P4 to P7 composite class. The interview was conducted in Gaelic and translated into English.

She stated that she had 'no fear of the technology' and 'no worries that problems ... could not be sorted out'. The focus of the classes that were video recorded were Gaelic literacy across the curriculum. Eleven lessons were filmed and the pupil discussions of the eleven lessons were also filmed and pupils noted their observations. Pupil engagement throughout the project was observed and noted by the teacher. She felt that she had learned that she had to make time to give pupils enough time to reflect on what they have learned. The teacher said that the pupils enjoyed using the LOCIT tool as it was like a recap of the learning. Reviewing the lesson helped with the words and phrases that were not picked up first time round and helped to consolidate learning. While reviewing videos with a colleague she and the colleague both discovered they had missed some of the things that the pupils had picked up.

Teacher A found it difficult watching herself in the recordings the first time but found it useful to observe her reaction to pupil responses and to note the tone of voice she used. She felt that the LOCIT process

could be incorporated into Curriculum for Excellence (Scottish Executive, 2004) lesson evaluation and said: 'I would like this to be part of my CPD in the future'.

Teacher B taught in School 2 which had an even split of GME and English language provision. There were 3 composite GME classes: P1/2, P3/4 and P5-7. Teacher B had the P3/4 composite class. All three GME classes were involved in the project. Teacher B tried to create an all-Gaelic atmosphere in the classroom. The focus for the LOCIT process was maths, with some drama and reading, and developing language skills in all the activities.

Teacher B said she 'found [the LOCIT process] quite useful for even my own teaching, and language'. She felt that the pupils needed 'a bit more training' on how to use LOCIT but the pupils had picked up learning that the teacher had missed while reviewing their learning. The teacher looked at herself first when watching the video rather than focusing on what the pupils were doing. She said: 'Well I think probably it's really fitting with the new curriculum and we're all trying to become more reflective, and even the children to become more reflective learners.' Teacher B found the process useful: 'it's been really valuable in a lot of ways, and it is just time sometimes as well, making time for it.' She saw it tying in with a Curriculum for Excellence.

She noted two challenges in the project, firstly the time it took to upload videos and meeting up with the other teachers more often. The actual and potential benefits she referred to were:

> "I think that pupils are not used to reflecting on their learning and I thought the LOCIT process was very good in this respect. My children really enjoyed it. Through this project we also started a reflective learning diary with pupils in the school whereby the reviewed what they were learning on a weekly basis."

> "I think the use of the flip cameras in the classroom is something we should be using as a means of assessing and reflecting on both the learning and teaching taking place."

Teacher C at School 2 taught the P5-7 composite class. She found that one of the difficulties of teaching GME was being interrupted throughout the day in English. She was attempting to have total immersion in Gaelic because pupils were exposed to English the rest of the time:

> "The majority of the children don't have any Gaelic at home so it's really just what we do in school, and obviously they're interrupted quite a lot during the school day with lots of English so sometimes there isn't a continuum of Gaelic speaking throughout the day which then takes a wee while to get them back on track."

She was aware of pupils speaking in English in the background while others were being videoed as part of the LOCIT process. The focus for the LOCIT work was maths. She has found that for certain pupils 'it's quite difficult for some of them to explain themselves properly in Gaelic as well [as they can in English].' She enjoyed the LOCIT process, videoing the lessons and reviewing them and 'would like to use it quite a bit more'. She saw it as 'another set of eyes for you to see what's going on in the classroom'. She found it useful to discover 'really just how I'm interacting, the things that I say to the children. Did I try to explain things too quickly, were they not getting it?'

Overall Teacher C 'thought it was very helpful, actually, because although we're trying to go round each other's classrooms to do peer ... you know the teachers assessing each other, it's really difficult when we don't have extra staff and time is of the essence.' She felt that it was 'another good tool for self-evaluation'. It appeared that for Teacher C the LOCIT process is more useful for her own CPD rather than as a tool for learning with the pupils.

Teacher D was at School 3 and taught a composite P1-7 GME class in a school with a similar number in the English-speaking P1-7 composite class. The teacher tried to have total immersion in the Gaelic language with the entire curriculum delivered in Gaelic, even English language. The pupils, in negotiation with the teacher, had chosen a project topic to be studied between January and Easter and this was the focus of videoing for the LOCIT process. The videoing was watched by the pupils in pairs. The teacher felt that there were three 'really good moments' in the video review process: firstly 'we really know how to keep quiet when it's necessary'; secondly 'we really know how to come in on the beat of a drum'; and thirdly 'how to work with music'.

She felt that the pupils were 'just going a little more profoundly into their own personal subjects, and I think that's that brought on the learning moments and that that allowed them to identify them'. She said that she was:

> ",,,trying to create a classroom that isn't just based on knowledge-acquisition. I'm trying to create a classroom where the children think for themselves, but that doesn't mean "go to the computer and work it out for yourself". But they're being guided, and they're being stretched, and they're being challenged."

Teacher D felt that the LOCIT process 'is potentially a very good learning strategy that I would like to use, but only about once a term. And as they get more confident with it, they'll get more confident at identifying moments and maybe saying 'I didn't see anything', you know?'

While the project team envisaged that using the tool would be a useful professional development tool due to the isolation the teachers faced, in fact they enjoyed the coming together physically that the project enabled. This highlights the difference between GME teachers in remote rural areas and those in centres of population; they are isolated in multiple ways and while digital technology tools can provide professional learning opportunities, they were keen to meet up with their counterparts 'in the flesh'. There were also challenges identified by the interviewed teachers.

In relation to the technological aspects, teachers had issues with firewalls and the LOCIT tool.

> Teacher A: "Firewalls were really problematic. I could not do any of the uploading in school and had to find time to transfer lessons from the school computer to pen drives so that I could do this at home. This lost some of the immediacy."

> Teacher B: "My main problem has been getting round to actually uploading it onto the website and following it up in that respect. … See my problem is I've put them all onto my laptop in school and they're deleted from the video [camera]. I didn't really want to take the video out from school."

Teacher D: "You know how I was having problems getting onto LOCIT, … but I am finding LOCIT not as easy to manoeuvre once I get onto it."

Time was another challenge identified by the teachers.

Teacher B: "Especially if you get interrupted or anything, that's maybe when you might stop the filming then and then you're trying to restart it again, because quite often if it's a message or that that come round that'll break in and I've tended to maybe stop then and to restart. … reviewing videos and things it can take a bit of time if you've got a busy schedule or…I was trying to do it on a Friday or maybe if there was some of the class out I would take some of them and we would look at a video, but getting the time to do that as well, you know…"

Due to the firewall issues the project did not start at the start of the school year as planned and introducing the tool midway through the school year was identified as a challenge by more than one teacher.

Teacher B: "I think probably you would need maybe to introduce it at the beginning of the year and be continually viewing. This is a very new process for them where they're actually reviewing what they're learning."

Feeling confident in the process was also a challenge for some of the teachers.

Teacher B: "That's the process I could probably do with being trained in a wee bit more as well, you know, like the whole evaluation of learning, because I think sometimes you're so busy concentrating on all the things that maybe you've done wrong or how it could be improved…"

Another challenge included the pupils' ability to express themselves in Gaelic.

Teacher C: "So, it's getting them to talk more about that, and it's quite difficult for some of them to explain themselves properly in Gaelic as well."

This was explained by Teacher D in relation to the lack of time that pupils were in school in their GME class:

"Gaelic is now the language of the school rather than the language of the home, and so children are you know, even if I meet them in the street and speak Gaelic, it's "oh miss it's not school day today". You know and I say, "No Gaelic isn't just for Christmas it's for life."

In the following section the issues raised by the teachers in their interviews are discussed in relation to literature and the implications this raises for professional learning of GME teachers in remote rural locations.

Discussion

In answer to the first research question: In what ways do 'learning moments' act as a trigger for inclusive professional learning? We found that the LOCIT process enabled teachers and pupils to identify pupil 'learning moments' and acted as a catalyst for professional learning individually and collectively for the teachers in the professional learning community. There were four distinct ways in which the process facilitated this professional learning: by enabling teachers to deconstruct and reflect on their practice; by providing a shared basis for professional learning conversations; by hearing pupils' articulation of their learning; and by providing a starting point for ongoing dialogue between pupils and teachers. This showed that the process could be a way of providing professional learning for remote rural teachers (Harrison and Busher, 1995).

All four interviewed teachers used the video recordings of everyday classroom practice, which they edited and annotated, to deconstruct and reflect on their practice. From the interviews we saw that the teachers were able to learn from watching their own classroom practice. They could see when and how the pupils learned and they could use this to inform their future classroom practice, for example by increasing the amount of time in class that they spoke in Gaelic rather than in English.

The process provided a shared basis for professional learning conversations with their colleagues within and beyond their school. The process of watching video recordings, editing, annotating and sharing clips with pupils and colleagues in the project illustrated the potential for on-going dialogue between pupils and teachers about learning in and outside the classroom. The teachers spoke about how the identification of learning moments led the pupils to recognise their learning and talk about their learning with their peers and with their teacher. In addition to the analysis of the video clips, the 'pupil as researcher/detective' activity provided an opportunity for pupils to recognise and articulate their learning in a new way. Furthermore, this provided the possibility for ongoing dialogue between pupils and teachers. The teachers saw a benefit in continuing to use the LOCIT process for ongoing dialogue with their pupils about the pupils' learning.

We had a second research question: How can the 'evidence' gathered during the LOCIT process be used? The videos, lesson plans and annotations constituted a digital repository with professional insights on practice-based evidence. The interviewed teachers could see how this digital repository could be a useful professional learning resource as Gaelic Medium teachers do not have as many resources as their counterparts in mainstream English language classrooms. In addition, they suggested it could provide practice-based evidence to exemplify pupil attainment and achievement.

In response to the third research question: What are the challenges in introducing an ICT-focused professional learning community in a remote rural location? We found that firewalls, the LOCIT tool itself and time to use this technique were all challenges. Furthermore, due to the firewall issues starting the process midway through the school year was also a challenge. Other challenges identified by the teachers were their level of confidence using the LOCIT tool and the pupils' ability to express themselves in the Gaelic language. These challenges highlight the complex and interconnected issues facing GME teachers in remote rural locations as local authority staff who needed to fix the firewall

issue were located in the administrative centre far away. Providing the opportunity to use the LOCIT tool is not enough as Rossi and Sirna (2008) reported. Like their counterparts in other minority language contexts (Snow *et al.* 2018), GME teachers have many competing demands on their time and thus may find it difficult to devote time on their own professional learning.

While this was a small-scale project and our findings are based on interviews with four of the eight participating teachers, the interviewed teachers suggested that the LOCIT process could be used to create inclusive learning communities both within classrooms and schools with all teachers and classes participating. The interviewed teachers saw the LOCIT process as a way to establish and maintain a wider professional learning community beyond their own school and this could redress the isolation they encountered as a GME teacher in a remote rural area.

Conclusion

This project promoted class-based inquiry to provide a greater variety of learning opportunities for both teachers and learners in remote rural schools. HMIe (2011) encourages the use of technology to disseminate emerging good practice to share and develop expertise. This is an example of such an initiative, where Gaelic Medium Education practitioners in four schools located at a considerable distance from each other used the LOCIT approach to capture learning moments and to reflect on those with their pupils. The project showed how both teachers and pupils can take on the role of researchers into learning. Some of the teachers were able to use the resulting evaluations of learning not only to analyse the pupils' learning but also to critically reflect on pedagogy and to share reflections with fellow practitioners. The network established through the project could be extended to the wider Gaelic teaching community. Shared critical analysis of practice could be of benefit to Gaelic Medium Education methodology.

We found that the LOCIT process enabled teachers and pupils to identify pupil 'learning moments' and acted as a catalyst for professional learning both individually and collectively for the teachers in this professional learning community. As well as investigating how the LOCIT process could enhance professional learning we wanted to find out how the 'evidence' gathered during the LOCIT process could be used. The videos, lesson plans and annotations constituted a digital repository with professional insights on practice-based evidence. For GME teachers this digital repository could be a useful professional learning resource. In addition, it could provide practice-based evidence to exemplify pupil attainment and achievement. This study shows that professional learning communities can reduce the isolation of remote rural minority language teachers who use different pedagogic methods and encounter other challenges which teachers in mainstream English classrooms do not face. However, there are interconnected challenges for remote rural GME teachers such as technological support, time and pupils' ability to express themselves in the Gaelic language.

This approach in creating a professional learning community to investigate everyday practice could be used by other professionals in remote rural locations, for example GPs, nurses, social workers and Community Learning and Development practitioners. Research over a longer timespan with teachers or other professionals using the LOCIT approach would help to identify the key factors necessary for

the establishment and sustainability of professional learning communities for those in remote rural locations.

The project highlighted some of the challenges that need to be overcome when developing digital professional learning communities. It is important that all key stakeholders are committed to the project and that technical issues are speedily resolved, for example ensuring that firewalls do not prevent access to the project website and tool. As noted by Rossi and Sirna (2008) connecting professionals is not enough, our study showed that support and infrastructure are important for success.

The impact which initial teacher education by distance learning can have on continuing professional practice was observed as the project developed. The teachers who had qualified by distance learning were very comfortable with the use of the online environment, had little fear of not being able to address any technological problems, and quickly formed an online community for peer support. They spoke of wishing to continue to use the LOCIT tool to reflect regularly upon their practice and thereby continue to improve their professional practice.

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