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Between/within/across a landscape of practice: teaching, learning, and the ScotGEESE community

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ABSTRACT

This paper describes a new community for Scottish geography, earth, and environmental sciences educators (i.e. the ScotGEESE community). It explores the formation of our community including our aims, distinguishing features, and influences through the metaphor of geese behaviour: hatching, honking, flocking, and flying. We identify tensions that have arisen including the visibility and access to our disciplines and the lack of communication between the educational levels and GEES disciplines. We also present the community through the lens of social learning theory 'landscapes of practice' [Wenger-Trayner et al., 2014. *Learning in landscapes of practice: Boundaries, identity, and knowledgeability in practice-based learning*. Routledge] and describe the challenges and strengths of working between/within/across our professional communities. We invite those from early years, primary, secondary, further, higher, alternative and public education to come together to foster professional learning and to acknowledge and celebrate the similarities and differences of teaching between/within/across our disciplines.

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1. Introduction

With the climate emergency and other global challenges, the world needs geographers now more than ever. While recent trends suggest that a growing number of young people in the UK are choosing to study geography at secondary school (Brace & Souch, 2020; Selmes et al., 2022) and enrol in geography programmes at university (Selmes et al., 2022), students from lower socio-economic backgrounds (McKendrick, 2024) and minoritised ethnicities (Singh et al., 2023) are currently underrepresented in the discipline. As societies and educational landscapes change, curricula and teaching practices need to adapt to continue to engage with, encourage, and welcome conscientious and capable students and graduates from all backgrounds.

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ScotGEESE is a network for Scottish Geography, Earth, and Environmental Sciences Educators (established August 2023; ScotGEESE, n.d.) suited to all education phases and spaces, including early years, primary, secondary, further, higher, alternative and public education. This network is open to educators from all these disciplines and adjacent subject areas such as social studies and outdoor education. We formed the network to enable educators across these disciplines to come together to share and enhance our teaching and research practices through a variety of professional development and knowledge exchange activities.

Given the group's acronym, we wanted to play on a metaphor of geese and their behaviours to frame the story of our community of educators. Here, we share:

- How the ScotGEESE network formed (Hatching),
- How we communicate, collaborate, and learn from one another (Honking),
- How we support each other through 'weathering the storm' of changing educational regimes and reforms (Flocking), and
- How we will work together to face future challenges (Flying).

2. Hatching: forming a GEES education community

The community hatched from the 'Geoeducation day' in June 2023 where colleagues from the Center for Integrated Earth Sciences Education in Norway (iEarth) and the University of Edinburgh shared research and reflections on geosciences teaching. This event inspired Dan, Rachel, Jackie and Lauren to consider forming a Scottish community for GEES educators. Once we were underway, we invited a colleague, Conor, to support the community with his expertise in public education. In the UK context, GEES is defined by a past conglomeration of the subjects in higher education, often known as Geography, Earth and Environmental Sciences (at other times known as Environmental Studies). This choice of language emerged from the higher education context, but our community welcomes teachers and educators who also work in social studies, outdoor education, and other subjects connected with geography and studies of the earth and its environments.

GEES education is supported by organisations and communities differently in different places. For example, iEarth has built a community via local meetings, conferences, digital learning, and journal clubs supported by funding for a Norwegian Center of Excellence in Education (iEarth, n.d.). In the USA, the National Association of Geoscience Teachers (NAGT, n.d.) is a member-driven professional association with dedicated meetings of teachers through the Earth Educators' Rendezvous. The UK is a multistate nation, and this is reflected in the geographies and organisation of communities, networks and organisations. Relevant groups include the UK-based, teaching-focused network for GEES academics (THE GEES network, n.d.); Earth Science Teachers Association (ESTA, n.d.); The Scottish Association of Geography Teachers (SAGT, n.d.) which focusses on supporting school teachers and promoting geography education in Scotland; and the Geography and Education Research group of the Royal Geographical Society (GeogEd, n.d.) which represents the various phases of UK education from primary to tertiary. Some of these groups focus on specific phases of education, some are tied to national contexts, and others cater for the whole of the UK. Often, they are

focused upon sharing or supporting educational research. Our network seeks a broader approach in aiming to build a landscape of practice that spans subject areas and educational phases. It is as a result of this broader aim we have narrowed our geographical focus to work specifically within Scotland.

In this context, we actively invite educators from primary and secondary (first sector), further and higher (second sector), and public education (including museums, science centres, professional learning communities and networks; third sector) to join ScotGEESE activities and learn together. This inclusivity is important. As Stewart's, research on the relationship between school and university level geography highlights third sector organisations have an important role to play 'in facilitating communication' (2022, p. 177) and combatting what has been termed the 'gulf between educational systems' (Stewart, 2022, p. 165). This growing estrangement in both knowledge and practice is produced by an ever growing 'absence of shared discourse between [the various education] sectors' (Stewart, 2022, p. 164) and an associated lack of close individual and organisational connections. In response to these findings, we aim to provide a space for communication across these boundaries, one with the potential to break this cycle and ultimately support the navigation of ScotGEESE futures through our professional learning together.

In the first six months of ScotGEESE, we identified several key tensions that have directed our fledgling network. These tensions are drawn from our own experiences and reflections – across a range of education spaces and phases – and are not representative of all tensions that exist or may emerge in GEES education. But, they are intended as a stimulus for discussion as we collectively imagine a commons for GEESE in Scotland. Firstly, like Stewart (2022), we see discord in the nature of GEES education across the various phases, spaces, (sub)disciplines, communities, institutions and departments which contribute to GEES education in Scotland. Secondly, we see a need to build a social infrastructure to progress and protect teachers at all levels. Thirdly, as we shall address further below, we appreciate that these are changing times given the contribution of a pedagogic turn in higher education and the current period of curriculum change in Scotland (e.g. the Curriculum Improvement Cycle, Education Scotland, n.d.A). As the UK is a multinational state, and education is governed differently in Scotland, we felt it was important to work across a landscape of practice (described below) in GEES education that focuses on the Scottish context.

In forming our community, we also have found two relevant social learning theories that support and underpin our work together: communities of practice (e.g. Wenger, 1998) and landscapes of practice (e.g. Wenger-Trayner et al., 2014). Here, we explain these theories and how they relate to our work as a professional learning community.

The 'communities of practice' theory emphasises the importance of placing 'learning in the context of lived experience' (Hutchinson et al., 2014, p. 1). The 'landscapes of practice' theory recognises that most professions are 'constituted by a complex landscape of different communities of practice – involved not only in practising the occupation but also in the research, teaching, management, regulation associations and many other relevant dimensions.' (Wenger-Trayner et al., 2014, p. 15).

Communities of practice proposes that groups of professionals can learn from one another. Communities of practice are defined by three key aspects: (1) a shared domain of knowledge or interest, (2) shared practices (i.e. tools, resources, ways of

being and doing), and (3) members meeting and attending events together as a community (Lave & Wenger, 1991; Wenger, 1998). ‘Landscapes of practice’ look between/within/across communities at shared practices and differences in professions (Wenger-Trayner et al., 2014). The landscapes of practice theory introduce key questions about what makes someone part of a community of practice (membership). The lens of landscapes of practice also examines the boundaries between, within, and across communities; how communities change through time; and how organisations and roles are brokered and negotiated (Wenger-Trayner et al., 2014).

We propose that ScotGEESE can be a network that will foster professional growth in educators from across the ‘landscape of practice’ of GEES teaching in Scotland. In this landscape, our members are already a part of their own professional communities, working alongside other educators in primary, secondary, further, higher, alternative, and public education, including policy-making and advocacy within their respective subject areas. When we meet, we bring together different practices, accountabilities, and understandings that provide opportunities for shared learning. For example, across the phases and spaces of education, we are all facing the challenges of curriculum change (e.g. Hulme, 2025), precarious working conditions (e.g. Kimber, 2003); the (in)visibility of our disciplines (e.g. Stewart, 2022), and the relative paucity of research in GEES education from the Scottish context. When we come together, we learn from looking across the boundaries and negotiating how our practices are distinct (i.e. what makes teaching human geography unique from teaching environmental risk and management?) and how they are similar (i.e. what commonalities do we share?). We also learn from reflecting on the failures in transitions or translations between our communities.

GEES communities are dynamic and situated in place and time, allowing them to adapt to continued changes in the socio-political environment and driven by the members of the community. As the ScotGEESE community forms and develops, the lens of landscape of practice helps us to ‘see’ and negotiate our differences; learn from and support one another; as well as acknowledge and celebrate our similarities and differences. ScotGEESE can provide public recognition of our shared and unique practices helping to delineate and characterise GEES teaching in Scotland.

The next section will explore how we are collaborating and communicating to address the tensions and opportunities GEESE professionals are encountering.

3. Honking: collaborating and communicating across education phases and spaces

Just as geese honk to communicate with and maintain the integrity of their flock, in this section, we provide an overview of the current educational landscape in Scotland with the aim of setting out the significance of collaborating and communicating across GEES education. The ScotGEESE network actively seeks to bring together colleagues working across education phases and spaces, and different GEES disciplines and subdisciplines, who may not usually work with one another due to in/formal barriers to networking (Finn et al., 2022). This may be due to geographical distance, or the existence of what has been termed ‘gaps’ or ‘borders’ between schools and universities (Castree et al., 2007).

From their very first ‘sensory investigations and physical negotiations of space, young people effectively find out about the world around them’ (Owens et al., 2022, p. 20). As

they explore the world, children encounter different people, places, environments and spaces, and engage with (in)direct representations of the world; including through stories, books, travel, conversations, music, film and television programmes. When they reach school age, most children study geography through state-funded formal education.

In Scotland, the first phase of GEES education is situated within the Broad General Education (BGE) which begins in the early years and continues through primary school to Secondary 3 when young people are 14–15 years old. Geography is mainly constructed as part of Social Studies in the BGE through a strand called ‘people, place and environment’ (Education Scotland, *n.d.A*). However, geographical ‘knowledge, concepts, ideas and thinking’ (Hammond et al., 2024, p. 70) can also be identified in other curriculum areas such as Science, as part of Learning for Sustainability (Rushton et al., 2025; Scottish Government, 2023), and in the Four Capacities that underpin Curriculum for Excellence – successful learners, confident individuals, responsible citizens and effective contributors (Education Scotland, *n.d.B*). This curricula positioning has the potential to support interdisciplinary learning, but it also risks limiting the physical and environmental dimension of geography in schools (Stewart, 2022) and may impact the way the sciences and non-science topics are described in public education and outreach initiatives.

Conceptualising geography as part of social studies, also shapes both (initial) teacher education (ITE) about geography, and how geography is constructed, represented and explored in classrooms. For example, it might be that the terms geography and geographies are not used in some primary education or ITE.

Geography becomes a discrete subject in the Senior Phase in Scotland. Here, students can choose to study for National, Highers, and Advanced Highers, which are assessed via standardised national assessments administered by the Scottish Qualifications Authority (SQA). Perhaps in part due to the curricula positioning of geography in the BGE, uptake in the senior phase is in relative decline (Selmes et al., 2022). Additionally, there have been news reports of geography being dropped from the syllabus in some schools in Scotland (Scottish Daily Express, 2024), or of there just being a single geography teacher within the BGE and geography being taught by teachers for whom geography is ‘second subject’.

Students who continue in formal education in Scotland, may choose to go on to study Geographical or Earth Sciences ‘to degree and post-degree level at eight universities’, with three other universities including ‘some elements of geographical teaching within related subjects’ (RSGS, *n.d.*). It is worth noting that due to the funding landscape, the majority of undergraduate students attending university in Scotland are Scottish-domiciled (72% Scottish-domiciled in 2022/23, remaining proportionally constant between 2018 and 2023). And while Scottish universities aim to attract non-UK students to their undergraduate programmes, international student numbers are small compared with Scottish and Rest of UK domiciled students and this population is decreasing (proportionally between 2018 (16%) to 2023 (13%) according to HESA data analysis). Selmes et al. (2022) and Selmes et al. (2023) provide a closer analysis of the geographies and demographics of geography students in Scotland.

As a discipline, Geography has been described as composite and integrative due to its connections with contributing subjects and disciplines (e.g. historical geography and

biogeography) (Brock, 2016). While it has a distinct essence, research and teaching specialisms can vary within, and between, geography university departments (a.k.a., Schools). The development of Schools of Geography, Earth and Environmental Science began in the late 1990s as part of ‘administrative (re)locations’ which merged programmes and/or departments (Cupples, 2020, p. 3). However, Cupples (2020, p. 3) warns that through this process, some geography and geology departments merged to become part of ‘a reified configuration known as “geosciences”’, which does not always adequately include human geography. This could be seen as a particularly acute tension in Scotland, where the school subject is primarily constructed as part of Social Studies and young people may not have encountered the discipline as a whole unless they choose to study it in the Senior Phase.

The pathways into the other GEES subjects are even less clear. At the time of writing, there are no published case studies exploring geology and environmental sciences student pathways in Scotland. In geology, environmental sciences, and environmental studies the problem of invisibility in the national secondary curricula is even more pronounced. Environmental studies is offered as a Higher in some schools, while foundational knowledge for geology and earth Sciences curricula in University is distributed across a number of STEM subjects, but rarely in ways that identify how these might be applied at university in Earth Sciences programmes.

It is also significant to note that these subjects are taught, learnt and engaged with, in a range of other in/formal and alternative education spaces. For example, Scotland has a long-standing history of outdoor education and place-based learning (Education Scotland, 2011; Higgins & Nicol, 2018); GEES is taught in, and through, museums and science centres; and young people engage with geographies as part of their everyday lives through their interactions in, and with, the world. Children may also engage with GEES education through citizen science or taking part in a research project which explores their knowledges (see for example, Dunkley, 2022; Kraftl et al., 2025). Parents/carers may choose to send their children to private schools or alternative education provision, or to homeschool them. This means that children and young people may encounter GEES in a variety of spaces, with representations and understandings of the subjects varying between them.

Within a complex and unwieldy set of pathways for learning, we feel that it is imperative that educators have a space to come together across the sectors to learn together and bridge the gap across these professional boundaries. ScotGEESE seeks to provide this space.

4. Flocking and weathering the storm of changing educational regimes and reforms

To attend to the tensions noted above, a key ambition of the ScotGEESE network is to nurture spaces where educators can come together to reflect on, and respond to, the challenges of changing educational regimes and reforms. The avian metaphor of flocking is apposite here. In particular we want to play on the way in which flocking involves collaboration and collective action. By migrating in flocks, geese can travel further than going it alone. The flock also provides protection and support in tough times. Flocking also offers a metaphor for shared leadership in that ‘rotating the lead’ helps distribute

responsibilities. In ScotGEESE, we can flock together while we define, develop, and address agendas that engage with present moments of uncertainty in the GEES subjects at different stages and in different spaces of education.

GEES teaching has never been more urgent. The knowledges, skills and competencies developed in our subjects are key to supporting young people to make sense of and address, climate and nature crises, and other historical and contemporary injustices in a changing and uncertain world. But – at a moment where GEES subjects have never felt more important to imagining equitable, just, and liveable futures – our subjects face challenges. One of the reasons we came together to form ScotGEESE was a desire to build a community that could support and nurture educators, build community and connections across academic disciplines and different phases and spaces of education, and amplify our collective voice on key challenges and visions.

Of all the GEES subjects, geography is the most embedded in Scotland's Curriculum for Excellence, but in the pages of this journal commentators have reported concerns about the dwindling visibility of Geography in Scottish Schools (Sharp, 2022; Stewart, 2022). As highlighted above, Geography is first introduced to students in Scotland as part of the BGE, where geography is conceptualised as part of Social Studies, along with History and Modern Studies. This means that students often do not learn about the specific contributions of disciplines, and the specific ways of seeing, for example, that are engendered in a geographical education. In many schools, it means that a student's first encounter with GEES subjects falls to a teacher who may not be confident or trained in the discipline. One concern is that weakening the foundations of geographical education translates into diminishing numbers of students engaging with the subjects and continuing to study GEES in upper secondary, further, and higher education. This is where our community can come together to address the gaps between these phases of education, and spotlight GEES educational pathways, and help to support both teachers and learners to navigate these journeys..

Beyond subject matter and pathways, another core concern is care for the educators who teach these subjects. Precarity, casualisation, and poor working conditions at universities have increased (Kimber, 2003), and staff are subject to extreme time pressures, work intensity and high workloads (Poalses & Bezuidenhout, 2018). Scottish secondary teachers also face incredible challenges such as overwork, poor autonomy over tasks, and poor management support (Ravalier & Walsh, 2017). In particular, primary school teachers often struggle to secure permanent positions in the central belt (Pooran, 2024). Though many of these concerns are systemic, a landscape of practice can allow us to come together and identify, advocate, and resist collectively. It also provides inbuilt support for listening, seeing, and hearing our day-to-day challenges and can provide some protection from the turbulent winds and oncoming storms. Landscapes can also enact connections across the organisational structures (Wenger-Trayner et al., 2014) where senior and experienced colleagues can mentor and support early career colleagues and they can enable career pathways to become more visible. Finally, ScotGEESE could become a beacon for celebrating accomplishments to support professional recognition of our educators.

These goals and intentions for a supportive and protective cross-sector community are ambitious. But, we feel that by bringing us together will be stronger than traversing alone.

And in traversing the landscape together, we can learn from how our communities respond to the challenges they face.

5. Flying towards the future: where to from here?

This paper is an invitation to join our community. So far, we have gathered a cluster of educators from the social sciences and humanities, but we have yet to reach as many geology, earth sciences, and environmental sciences colleagues. As we move to grow the network, we want to cast the net more widely, incorporating educators from across the broad spectrum of GEES disciplines. Engagement to date has also been concentrated in the central belt but our ambition is to extend our reach across Scotland. As a consequence, we are seeking resources to make participation both possible and practical.

As we grow in numbers, we hope to provide a range of activities aimed to support individuals, the collective and the wider disciplinary grouping we represent. For example, in the future, we could incorporate support and facilitation for the various career structures (e.g. a teaching-focused pathway in higher education). We could also design and provide resources to bridge the transition from school to further and higher education. In a context where GEES education research is relatively limited in Scotland, we also aim to support and stimulate research(ers). Through these activities, we aspire to create a social infrastructure which brings together the key phases and spaces of education to not only share practice, but also to mobilise our collective strength to influence the future of GEES education. We can reimagine our teaching programmes, research and evidence the need for change and support those elements already working. It is important to stress that, while we have published our aims, future priorities and outcomes for ScotGEESE (n.d.) these are not fixed and thus as people join our flock we hope to incorporate their voices. The community we envisage will be always changing and evolving and members will have agency over the directions ScotGEESE takes.

This paper invites you to honk, flock, and fly with us. Practically this means browsing the website (<http://www.scotgeese.wordpress.com>), joining the mailing list, and coming along either in person or virtually to one of the upcoming events. We will continue to have an annual event and we would love to meet you there.

Disclosure statement

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