Assessment practices in Geography under COVID-19: Challenges and opportunities

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Abstract

The COVID-19 pandemic led in 2019 to a very rapid change in the mode of teaching activities globally, from dominantly face-to-face to almost entirely online. Although the initial emphasis in this rapid transition was on technical issues related to e-learning systems, software and internet access, it was also clear that online teaching requires different pedagogic approaches, as demonstrated through the use of online videos, discussion forums, social media as well as other ways of communication and learning engagement between teachers and students. In this process, consideration of the implications of online teaching for discipline-specific learning outcomes and modes of assessment has been very much an afterthought but is critical to address if a generation of informed and articulate global citizens is not to be lost. This paper reviews a range of different assessment types and styles, both individual and group, formative and summative, that can be employed under remote (online) teaching and learning environments, in the discipline of Geography and with a particular focus on the specific needs and challenges found in South Africa. The paper presents and discusses different types of assessment styles and considers their advantages and disadvantages. With respect to the discipline of Geography, the COVID-19 pandemic and its necessitated change in teaching and learning mode may provide an opportunity for different and more innovative styles of assessment than have been previously considered.

Introduction

The COVID-19 pandemic has, since societal impacts started being felt around March 2020, necessitated significant and very rapid shifts in the nature, style and mode of engagement in teaching practices globally, at all levels and in all contexts (Ferri *et al.*, 2020; Babbar & Gupta, 2021). The nature of transmission of the COVID-19 virus meant that face-to-face teaching and in environments such as classrooms where social distancing could not be observed could no longer take place. This then meant that, where these were available, e-learning platforms within the intranet of teaching and training institutions globally had to be developed to sustain full online teaching and learning delivery, rather than being used in most instances as only a support network for traditional face-to-face teaching (Mashau & Nyawo, 2021; Mbambo-Thata, 2021). Where these systems were not available, institutions had to very rapidly develop their infrastructure, hardware and technical capacity to maintain such a system, with appropriate technical support, whilst also providing training for teachers (and lecturers and other academic and support staff) and students (or learners) on how to access and make the most of the systems and resources available (Ferri *et al.*, 2020; Kulikowski *et al.*, 2021; Peñarrubia-Lozano *et al.*, 2021). The impacts of the COVID-19 pandemic on teaching and learning and modes of education and training globally cannot be underestimated: Babbar & Gupta (2021: 1) state that it has 'revolutionized the education system and forced fundamental changes in the teaching–learning process', and likely for decades to come. The peer-reviewed literature on the COVID-19 pandemic, cited here, is still emerging and really only exists from 2020 onwards. Several of these early studies however have shown that teachers had to adapt existing content very quickly to be accommodated by the changed mode of delivery, and that this was mainly done in an *ad hoc* manner without significant changes in content (Bryson & Andres, 2020; Pandya *et al.*, 2021). Whilst this is a pragmatic response to the needs of the moment, there are potential implications downstream for learning outcomes to be met, in particular those related to soft-skills such as teamworking, verbal discussion and collaboration on group and practical tasks, or such discipline-specific

skills such as laboratory analysis or fieldwork (Ng & Harrison, 2021; Orlov *et al*., 2021). These types of activities are key elements of the discipline of Geography where collaboration and the co-production of knowledge on pure and applied tasks set in a real-world context are critical (Knight & Robinson, 2017; Day *et al*., 2021). Several studies have shown how such skills can be comprised in an online teaching environment, and how such limitations might be overcome by, for example, 'making introductory courses as engaging as possible' (Day *et al*., 2021: 1) or 'the use of small group activities and projects' (Orlov *et al*., 2021: 1). Such obvious and generalised statements, however, are not very helpful. There is therefore a need for practical guidelines for teachers on specific types of activities that can contribute to student engagement and skills development, in particular in fields such as Geography and at all levels of the education system.

This paper presents and critically considers some of the assessment activities that can be undertaken by students in an online (or non-face-to-face) learning environment, where learners might have limited or no access to supporting institutional resources. These assessment activities can be undertaken as formative or summative, or individual or group tasks, meaning that they can be practically deployed in these different contexts or with different learning outcomes in mind. Some specific examples of the author's own online activities as part of undergraduate Geography courses are then presented, to illustrate the pedagogic opportunities and limitations offered by online teaching and learning. It is concluded that Geography as a discipline is well placed to respond to the constraints of online teaching and to develop different assignment tasks that are authentic, meaningful, based on content, and contribute to development of discipline-specific intellectual and transferable skills.

The nature of learning and assessment in Geography

The long intellectual development of Geography as a discipline entwines the physical and social sciences and develops key ideas of time, space, place and scale (e.g. Meentemeyer, 1989; Bonnett, 2003; Johnston, 2003; Cresswell, 2008). Geography as a discipline is thus environmentally and societally relevant and speaks to contemporary issues of resource

management, climate change, social justice, poverty and development (Knight & Robinson, 2017; Knight, 2018). This lends itself to developing assessments that speak to this relevance, and several studies have examined how assessments in Geography can be designed so as to emphasise their relevance, utility or application to real-world problems (Knight, 2018).

Another key theme is the development of 'active learning' approaches by which students are active agents of knowledge-generation through collecting and analysing their own data, critically examining their own viewpoints through a process of reflection, and engaging in group activities (Sivan *et al.*, 2000). Active learning is therefore commonly used in Geography, and several studies have shown how active learning can contribute to students' skills development (Maguire *et al.*, 2001; Knight, 2004, 2010). Consideration of active learning can help frame the design and management of student assessment tasks, including the nature of the assessment itself, the resources and guidelines provided for the assessment (including marking criteria and learning outcomes), and how this process is managed by the teacher (Maguire *et al.*, 2001; Healey *et al.*, 2005). Knight (2010) compared the performance of Geography undergraduates in coursework and exams with their strategies for interacting with e-learning materials. He identified three types of learning strategies. 'Early users' are those who look at or download all resources as soon as they are available, often not revisiting these resources again. 'Late users' are those who do not interact with any resources until the last minute, often immediately before an assignment is due. 'Constant users' are those who interact with resources little and often throughout the course. By examining students' marks, constant users do much better (by 4% on average) in coursework assessments; early users do better (by 3% on average) in examinations; and constant users do better overall (by 2% on average). Late users do worse by all measures. This shows how surface and deep learning approaches are demonstrated through how students use online resources (Cope & Staehr, 2005). In the context of COVID-19, several studies (albeit not in Geography) have explored how active learning can be encouraged using online teaching and assessment methods. Examples include virtual laboratories (Luse & Rursch, 2021),

co-creating of individualised learning 'roadmaps' between teachers and students (Bryson & Andres, 2020), using social media (Lungu & Lungu, 2021) and self-reflection journals (Ng & Harrison, 2021). The practical implications of some different assessment methods are discussed below.

Challenges for teaching, learning and assessment in the developing world

Several studies have considered the socioeconomic, technical and infrastructure challenges faced by developing world countries, such as South Africa, in delivering education outcomes that are both to a high quality and equitable across all of society (Robson & Chipeta, 2007; Knight, 2018). In South Africa this may be compounded by lack of resources and highly-trained personnel at all levels and therefore lack of institutional capacity to deliver these outcomes (Nel, 1999; Tengbeh, 2004; Mather, 2007; Beets & Le Grange, 2008). Under online teaching and learning, lack of uniform internet and computer access especially in poor and/or rural communities means that there is a significant and emerging

digital divide which is mainly related to socioeconomic status (Lembani *et al.*, 2020). As such, institutions across the country, and elsewhere in the developing world, have been loaning laptops to their students and providing free internet data access. However, such actions in themselves do not necessarily promote conditions under which effective student learning can take place, irrespective of the type or quality of resources available. These specific problems, which have not been fully explored in the literature (Cosser, 2009; Knight, 2018; Lembani *et al.*, 2020), include sometimes precarious home situations in informal settlements, where students may have to look after siblings, lack of access to computers or a quiet study space, power outages, and lack of internet/data. In addition, many of these issues are likely to have been amplified under COVID-19 where low-paid workers may have lost their jobs or been furloughed, with lack of money for food and, as reported in the media, increased gender violence and crime. These societal challenges lie outside of the scope of what schools or universities can have influence on, but they limit the ability of the individual to engage in or to benefit from online learning resources. Based on this,

it is therefore important to identify some key principles (identified by the author) for developing student assessments under online teaching and learning conditions. These principles refer specifically to Geography and in South Africa, but have wider application to other disciplines and contexts. Assessments, especially in online learning contexts, should be:

- Fair and equitable for all;
- Address specific learning outcomes;
- Authentic and have meaning and context;
- Where possible, not able to be plagiarised;
- Where possible, be self-contained, i.e. not dependent on access to the internet or other types of resources;
- Have clear benchmarks of attainment or marking criteria available;
- Where possible, demonstrate the link between theory and practice;
- Where possible, allow students to engage in knowledge-creation;
- Provide meaningful and supportive *post hoc* feedback from the teacher and/or peers as well as support and advice to individuals while the assessment is in progress.

This list is not exhaustive but it highlights that care should be taken in designing and curating suitable assessments and that simply putting existing activities online does not address the needs of students (Bryson & Andres, 2020). With reference to these key principles of online assessment, some different types of assessment are now presented and evaluated.

Evaluation of different types of assessments suitable for online teaching and learning in Geography

Several previous studies, including recent work in the light of COVID-19, provide examples of assessment activities that have been or can be deployed in an online environment. Table 1 presents some different types of online assessments suitable for Geography topics. These different assessments can be deployed as formative or summative, and as individual or group, depending on the learning outcomes and the context.

Table 1. Different types of assessments that can be usefully used in Geography courses operating under online teaching and learning conditions.

Assessment type	What the assessment involves	Advantages	Disadvantages
Analysis of social media data available in the public domain	This could include a Twitter profile from an organisation or NGO or on a particular theme (e.g. weather events)	Is up-to-date, data are publically available, can be accessed easily on a phone, students would be familiar with social media	Needs a clear direction in terms of thematic analysis and how to make sense of any thematic trends
Chain email	Where a question is asked to a student on email – the student replies to a different student, who adds to the previous reply and sends to a third student, etc, creating an email chain. All respondents can add to, change or challenge the previous responses	Creates an archived conversation and allows each student parity in their responses, it is very clear who said/ responded to what, group interactions can be achieved remotely	Needs a clear end point, and if formally assessed, the basis on which this will be done
Design and manage a web page	As an alternative to a written report on a topic (Suthren, 1998)	Development of coding in HTML or similar, design and communication skills, others can look at and comment on the content	Not clear about legacy of the web page (how long will it be available for?)
Design and present a series of Tik Tok videos on a certain theme (e.g. climate change, recycling)	Creation of social media content and analysis of user responses	Students would like the immediacy of the activity and its social media context	Has to be planned very carefully, including the narrative/story arc and exactly how viewers' responses are to be collated and analysed
Develop and maintain a blog, vlog, podcast or You Tube channel on a particular topic	Development of multimedia content on a specific topic (Morris et al., 2019; Halabi, 2021)	Can track the degree to which users interact with the content, and thus its use to different user communities, and provides a range of media and communication skills for the student, empowers the individual to develop their own voice. Different students can have different topics/ media	May need clarity on what the outcomes of this activity are and how it will be assessed, potentially issues with trolling/unwanted comments

Assessment type	What the assessment involves	Advantages	Disadvantages
Garden excavation	Digging a soil pit in a garden or open space and examining the properties of the soil	Useful information on soil properties can be recorded here and different soils in different locations can be compared. Simple home-made tests on things like acidity can be done. In the field of Archaeology, bones can be buried in a soil pit and then excavated to examine the nature of bone discolouration and decay	Clear direction on how to record a soil profile would be needed
Interview	Interview an elderly person (neighbour, friend or family member) about their recollections of environmental conditions, plants, animals and weather when they were young	This links social and environmental change and impacts together. Data can be analysed thematically	Possibility of coercion, ethical issues, questions posed need to be specific (and uniform if different students are to compare their responses)
Learning portfolio	Based on a certain project topic, such as climate change, biodiversity, recycling, poverty etc – the student assembles a multimedia portfolio of evidence for these things in their local area, which may include newspaper cuttings, photos, notes and observations, examples of plants etc	This is local-based and thematically integrated and so can link together aspects of physical and human geography. The portfolio can allow for creativity for different types of content	Need to emphasise the academic nature of the exercise, this is not a child's scrapbook! Needs to have some discursive element bringing all the evidence together
Measurement of leaves	Collecting up a certain number of leaves from different species of tree, and making simple measurement of size, shape etc	Very simple and can help develop numerical and analytical skills through calculation of mean, standard deviation etc	Might be considered as a childish activity unless backed up with some further analytical steps, e.g. calculation of chlorophyll content based on leaf colour

Assessment type	What the assessment involves	Advantages	Disadvantages
Nature counting	Counting the number/species of birds/animals/insects in a certain environment or at a certain time of day/year	Can build up a good spatial picture with respect to things like biodiversity, and can be supported by photos etc. Students can share their data with others in their locality, or with others who are looking at a similar environment	May be limitations of data quality and/or species recognition. A key could be provided?
Newspaper activity	(1) Writing a newspaper story on a certain topic, (2) writing a 'letter to the editor', highlighting a certain topical issue (Pande *et al.*, 2013), (3) analysis of a week (or a month) of newspapers and examining the frequency and type of content on certain geographical issues, e.g. climate, development, planning, health, food	Can be applied to a variety of issues in physical/human geography, and applied to local/national contexts	Needs some clarity on, for example, how data are to be analysed or integrated together – many historical climatology studies use qualitative scales of wet/dry, hot/cold that can be applied here
Photo comparison	Individuals take a photo of the sky in their area, at exactly the same time (e.g. 12 noon). Photos are collated. Based on observations of clouds or position of the sun in the sky, weather conditions or sunset timing can be evaluated	This would be a spatial analysis project, suitable for a GIS or similar, at a higher level. Doing the same thing at the same time as other students however is an attractive proposition. The same type of comparison can also be done to track phenological changes in the development of flowers or leaves on different plants	May be complex to manage and the data quality may be variable. A phenological study can also compare (for example) the number of flowers on a plant on different days with temperature/rainfall in a local area

Assessment type	What the assessment involves	Advantages	Disadvantages
Reflective journal	This documents development of the individual's understand of a certain topics, where entries are added (as a in a diary) every day (e.g. Ng & Harrison, 2021)	This can be used to encourage self-reflection and can be done in response to directed readings (i.e. read this paper and think about the content), or more experiential based such as responding to the surrounding environment and its properties	Clear instructions are needed here, such as the length/type or entries, their content, frequency etc. This should not become a 'Dear Diary' exercise
Transect walk	Common in human geography, this consists of walking along a proscribed route and making observations or responding to certain stimuli in the environment	Is local-based and thus suitable for all types of situations – the transect can be as long/short as needed and can be adapted to all types of environments	Students may not be clear about what or how to observe things or to make sense of their observations
Verbal discussion	Instead of an essay on a certain topic, the teacher could have a phone conversation with the student about the topic, as an informal *viva voce* examination (Hazen, 2020)	This is a clear way of evaluating student knowledge on a topic, if framed clearly as a conversation and not as an examination	Potential problems with student nervousness, replication across large groups, and quality control/moderation, unless the conversations are recorded
Virtual conference format presentation	Where students make an individual presentation on a certain topic, based on their own ideas/research (Suthren, 1998). A virtual conference format works quite well	A pdf of a poster or a Powerpoint presentation can be supported by a verbal description or a short written narrative, as a conference abstract. Can have the option of peer comments/questions in an online forum	Running a real-time virtual conference requires internet connectivity for all participants. Any upload of large files may use a lot of internet data
Weather observations	Making observations every hour of wind, clouds etc, as a weather diary	Based on standardised criteria such as oktas, and observations in different places can be compared and interpreted	Data might be difficult to interpret but would work well in a climatology course

The range of assessment types in Table 1 should be considered as indicative rather than all-inclusive. What it highlights however is that basic observations of different elements of the physical and human environment (i.e. Geography) can be made anywhere, at little to no cost and requiring little to no equipment. The format in which these observations or analyses are reported may vary however (essay, scientific paper, consultancy report, newspaper article, social media post, photo album, portfolio, poster, video/audio documentary, podcast) and may vary in length, depth, detail etc depending on the requirements. These different activities can also be used irrespective of learning level (from high school to Masters).

Online activities and assessments in action

Some anecdotal reflections on different student assessment activities, undertaken in an online teaching and learning context, are now presented. These are personal reflections by the author only, and thus described in the first person, based on his teaching of BA and BSc Geography and BA and BSc Environmental Studies students at the University of the Witwatersrand,

Johannesburg, in academic years 2020 and 2021. This was done entirely in an online environment. Please note that these reflections do not necessarily represent the views of the School or University, and are used simply as a case study approach in which different types of assessment activities are described. Their inclusion and discussion here does not mean that these activities are flawless or work for all students or situations, but will provide the reader with a flavour of how different activities leading to assessed work can be designed and deployed. (Detailed student feedback on these different activities has not been obtained, as this was not the original intention behind their inclusion in these courses.) I am also happy to share resources with colleagues.

Case study 1. Virtual Field Trip

This was used in a 3rd year Geography course called *Coastal Geomorphology*, in 2020. Previously, a compulsory fieldtrip to the South African coast accompanied this course in which students were (on day 1) trained in various data collection and observation methods related to coastal geomorphology, sediments

and ecology and using various standard equipment, and then (on day 2) undertook a small-group project investigating a specific topic that was randomly assigned to them. These field data and later laboratory analyses were then written up as a field report. Due to remote learning requirements in 2020, this fieldtrip could not be run. I therefore developed a Virtual Field Trip (VFT) in which the coastal geomorphology of a single location could be explored and interrogated using a range of multimedia resources and datasets, made available through the University's e-learning system. The area focused on was County Donegal in northwest Ireland, where I have been activing working on coastal and glacial research topics for over 20 years (e.g. Knight & Burningham, 2001, 2011a, 2011b, 2014; Knight, 2009, 2011, 2012). This VFT was based around five thematic modules (Geological patterns and history; Beach and dune systems; Wind processes; Boulder and rocky shoreline dynamics; Human activity past and present) to mimic five days of fieldwork at different sites around this coast. All sites presented in this VFT were within a 20 km coastal stretch. Each module had an introductory document that presented the various types of datasets or resources, and the

different assessment tasks associated with these. Different Excel datasets included: grain size data from beach samples, from which students had to calculate median grain size, sorting, skewness and kurtosis using the GRADISTAT program (Blott & Pye, 2001); laboratory measurements from dune soil samples from which students had to calculate soil organic and carbonate content; and boulder axial measurements from which students had to calculate boulder mass, shape indices and sphericity. Videos from the field were also used throughout, including of sand transport by wind, wave dynamics, and more general 'landscape' views. Field photos and maps were also provided, and students had to interrogate these by identifying landforms etc, as they would have to do in the field. I also provided up-to-date and relevant readings, so some activities were based on reading responses. In total, each of the five modules included 2 to 4 short written activities based on practical tasks. Some of these were simple 'answer the question' activities whereas others required graphs, maps or sketches. I also included, where relevant, appendices on how to calculate grain size moment measures, how to sample soil in the field etc. The various videos

and photos included in these modules also featured me (as the field leader) and previous student groups actually doing these activities for real at these sites. Each module took 2–3 hours to complete. This VFT took place in the final week of the course, in which there were no other course activities, with a submission of all written work at the end of the week. This schedule was done specifically to mimic what would be done on a real fieldtrip. I consider that the range and depth of information used here allowed for a holistic understanding of the region to be developed by the students, and this came through their written responses which were generally quite good and showed some reflection upon and interaction with the varied materials provided. Also I consider that providing a (non-African) global example is very useful because South African students are very insular and limited in their geographical knowledge and understanding (e.g. Tengbeh, 2004), and see the world through a very narrow lens.

Case study 2. Home Landscape

This was used in a 1styear Geography course called *Landscapes of Southern Africa*, in 2020 and 2021. This

assignment was founded on the motivation for students to observe their local environment, based on the fundamental observational skills required of a Geographer, wherever they happened to be located during remote learning. These locations included their family homes (in various urban, rural, mountain, coastal or informal settlement locations), or in University residences on campus, and some students were also located outside of South Africa. In this assignment, students were asked to name their location and describe its physical landscape elements (underlying geology, topography, vegetation, soils, rivers, etc). This is based on a simple 'describe what you can see' idea. Students were then asked to identify two of these elements and describe what they look like in detail and how they have formed. Typically this might include identifying that soil develops by weathering of underlying bedrock, giving rise to the physical properties of the soil (thickness, texture, structure, colour), and with input from and implications for overlying vegetation. Students were then asked to draw a flow diagram that illustrates the relationships between climate, geology, and formation of the physical landscape in their

area. (Flow diagrams and ideas of feedbacks and systems were discussed in the first lecture of the course.) The purpose behind this question was to get students to think about how the different physical elements of their home landscape are connected, fitting with the scope of the course (Knight & Robinson, 2017). The final question then asked about how the human landscape of their area is influenced by the physical landscape. Key things here include, for example, the fact that road and settlement patterns are influenced by topography and rivers. Each of these answers was assigned a 200 word limit. Although the motivation behind developing this assessment was to encourage students to critically observe their surroundings and see relevance and agency in their very local and familiar areas, based on the student responses it was clear that they either did not know how to observe or make visual sense of something, or that they lacked the vocabulary or descriptive imagination to convey what they could see. I am inclined to think the former is the case. In lectures I use photos of real landscapes globally, and describe what they show, and in face-to-face classes I would then ask the group questions about what and why certain landscape elements are

there (e.g. Fraile-Jurado *et al.*, 2019). Under conditions of online teaching I was unable to do this or to develop such student observational skills.

Case study 3. Photo Essay

This was used in a 2nd year Environmental Studies course called *Nature, Climate and Society*, in 2021. This assignment, which is located at the very start of this semester-long course, is based on students identifying the nexus of physical and human environments in their local areas (e.g. Van Melik & Ernste, 2019). This can be, for example, litter caught in a tree, a plant growing up the side of a house, a cow grazing in a garden, or sand in the bottom of a drain. This photo essay assignment is inspired by the artistic and considered photography found in *National Geographic* and similar glossy publications that evoke space, place, meaning and identity. The aim of this assignment is for students to present five photographs (that they take themselves, using their phones) from their local area that demonstrate examples of this nexus or entanglement of the physical and human. Each of the five photos must be presented in a single document as a portfolio, and accompanied by a

100-word description of what each photo shows and why it is relevant to the topic. As part of this activity, through an online tutorial I describe how to take a scientifically-informed photo (i.e. not for Instagram) that shows a specific element of their local area. This training includes consideration of framing the relevant item within the photo borders, issues of light and shade, texture and pattern, zooming in on the item concerned, and demonstrating the intention of the photographer. This assignment therefore favours creativity whilst also having a serious purpose in reflecting on and articulating physical–human relationships. With permission and following the assignment, photos will be collated into a single document and circulated to all students, which is a fun element but also allows students to see into the lives of their peers – a critical personal contact often missing in online activities. (Copyright of photos remains with the photographer in this process.)

These different case studies illustrate that a range of assessment types can be devised for different academic contexts, and that these can specifically address both conceptual and skills-based outcomes. Key to ensuring that these assessments fulfil their outcomes is by providing clear and step-by-step instructions to students, and by being explicit as to the format, style and nature of the required work. Although, in the author's view, these different assessments achieved their aims and the students did well in and appeared to enjoy these activities, explicit student feedback was not obtained to support this. This may be a future area of research in order to more critically evaluate the effectiveness of different types of online assessment activities.

Discussion

Due to the ongoing nature of the COVID-19 pandemic, online teaching and learning activities are still in development globally. What is clear, however, from the emerging literature is that linking online teaching and learning to student assessments and learning outcomes remains problematic. Several studies state that a switch to online teaching has had no impact on student learning quality (e.g. Jacques *et al.*, 2020; Pócsová *et al.*, 2021; Scoular *et al.*, 2021) but the basis for such statements is not clear. In a developing world context in particular, where there are significant problems with computer availability,

internet connection and internet data, there are marked disparities in interaction with online content and thus student engagement and achievement. Anecdotally, just providing online resources and hoping that students will engage with them is not enough – without direction of their online activities, students are not engaging with the materials, resulting in a low level of academic understanding and limited active learning. Online teaching content and activities should therefore be more carefully considered since they require a completely different pedagogic approach to face-to-face teaching (Babbar & Gupta, 2021; Orlov *et al*., 2021; Pandya *et al*., 2021). In addition, the motivations, wellbeing and online engagement patterns of students need to be much better understood, and mechanisms put in place to support student learning more effectively. Several studies note that students report a significant increase in stress, isolation, anxiety and depression during online learning (Petillion & McNeil, 2020; Camacho-Zuñiga *et al*., 2021) and all of these negatively impact on academic performance. Increasing social visibility and sense of community are critical for student wellbeing and also to foster better engagement with academic content (Ferri *et al*., 2020). However, there is no clear way by which this can be done. Rapanta *et al*. (2020) identify three types of 'presence' (social, cognitive and facilitatory) that describe the different ways in which teachers can interact with students. *Social* refers to the communication channels that exist between teacher and student, to facilitate their interactions; *cognitive* refers to the design of interventions that can facilitate student preparedness and participation; *facilitatory* refers to processes of mentoring and provision of resources. Thus, the nature, style and quality of teacher–student interactions have to be considered in detail. Gares *et al*. (2020) also note that strong interpersonal relations between teachers and students can promote a high level of student engagement.

The interdisciplinary and real world-focused nature of Geography may mean that there is an opportunity for different and more innovative styles of activities and assessment under online and low-resource teaching and learning conditions than have been previously considered (Table 1). Several key questions remain, however:

- How can online activities and assessments in Geography be

designed to promote active learning?

- How can online communities and group activities be best facilitated?
- How can the digital divide and access to computers, internet data or learning support systems be made more equitable in a South African context?

These may be considered as future research strands.

Conclusions

This study critically examines the challenges and opportunities of remote (online) teaching and learning for assessment practices in Geography, specifically in a South African public university context. The main outcome of this analysis is that a variety of different types of activities and assessments, relevant to the discipline of Geography, exists. These can be deployed in both formative and summative, and individual and group, contexts. Three different types of assessment activities derived from the author's own teaching were described in order to illustrate how these can be used in practice. The main outcome of this analysis is that, especially where

multimedia or different data types are used, active and experiential learning approaches can be encouraged. This is especially the case where students are able to investigate a certain topic area founded on their own observations. The examples discussed here show how assessments related to online teaching can promote active learning methodologies that speak to the integrated and real-world nature of Geography as a discipline. Geography is therefore well placed to respond to the constraints of online teaching and to develop different assessment tasks that are authentic, meaningful, based on content, and contribute to development of discipline-specific intellectual and transferable skills.

Acknowledgements

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