

## Study Skills and Geography and Environmental Fieldwork

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### Abstract

Fieldwork is central to the GEES disciplines and is widely recognised as being key to the development of subject knowledge and skills. This paper focuses on the acquisition of study skills and the additional dimension that fieldwork contributes to the overall student learning experience. We define a study skill as a learned or inherent ability that assists in the gaining of knowledge. Using this definition our research indicates that fieldwork significantly influences the development of student study skills that can be applied elsewhere and build confidence in subject and personal abilities.

### Introduction

Fieldwork is widely recognised within geography and allied subjects as being essential for the development of the technical skills required to develop fully as a practitioner (Gold *et al.*, 1991; Fuller *et al.*, 2006; Hope, 2009). Additionally students are known to engage better with the active learning principles of field-based teaching as they evolve the ability to translate theoretical ideas into real-world situations (Gold *et al.*, 1991; Pawson and Teather, 2002; Harland *et al.*, 2006; Scott *et al.*, 2006). Fieldwork is also important as it helps in the development of an individual's social and intellectual skills (Herrick, 2010) beyond those required by the subject itself and allows them to take the lessons learned and move them into other spheres.

Fieldwork should be the means for acquiring knowledge and the attainment of subject benchmarks, and course outcomes are central to the planning of any activity with fieldwork lying at the core of many of these. However, course activity also links into desirable elements of a student's development such as transferable (or key) skills. The Higher Education Funding Council of England (1995, section 14) acknowledged that "there is no doubt that fieldwork adds an important dimension to the geography curriculum and aids in the development of subject-specific and transferable skills". This topic area and the link to field-based study has been relatively well-served (McEwen, 1996; Higgitt & Bullard, 1999; Fuller *et al.*, 2000; Fuller *et al.*, 2006; Hope, 2009) and staff, and students (McEwen and Harris, 1996; Fuller *et al.*, 2003; Scott *et al.*, 2006), therefore acknowledge the wider importance of fieldwork beyond the delivery of subject-specific knowledge and tend to assume that a range of different skills are being additionally serviced by fieldwork. Higgitt (1996) classified skills that fieldwork may target into four broad groups:

- Intellectual – to develop the student's understanding of geography;
- Personal – emphasising the importance of vocational and transferrable skills;
- Technical – competence at research methods, using equipment, etc;
- *Inter alia* skills – those skills that are acquired simply by virtue of being in the field.

In addition Haigh (1996) has argued that awareness of the ethical dimensions and implications of fieldwork should also be included in student skills development.

Fuller *et al.* (2006) suggested that there remains a need for more extensive research on the generic value of fieldwork. One potential, and largely unstudied, role of fieldwork is to assist in developing study skills that the student may then employ in their studies and also take into the world of work. Here we outline a study of information collated from a range of

different sources and covering several cohorts of students studying geography (BA and BSc), physical geography, environmental science and environmental management at the University of Wolverhampton to determine the impact their fieldwork experiences have had on influencing their study skills.

### What are study skills?

Defining what we mean by study skills is not always straightforward and is often quite a loose concept. Dunleavy (1987), researching within a social sciences framework, amalgamates study skills into six generic groupings: gathering material, critical reading and evaluation, note taking, analysing concepts and theories, conveying information (essays, presentations, etc.), and presentation style (i.e. neatness and attention to detail). McEwen and Harris (1996), when considering the assessment of an undergraduate field week, also identify six categories of study skills: writing skills, numeracy, graphicacy, independent study, IT skills and problem solving. By contrast Kneale (1999) discusses the whole range of aspects of a student's life and work as by implication being within the realm of study skills. However, she does narrow this down to a more manageable range of sixteen different types ranging from thinking through to using IT (Table 1).

In essence, study skills are those intellectual abilities that can be taken outside of the subject area and applied in other situations and with other subjects. They overlap in many areas with general ideas surrounding 'life skills' and also with the drive towards the 'transferable skills' and general intellectual development that enhance student employability and personal development.

**Table 1: Different types of study skills (after Kneale, 1999)**

<b>Process Common to all levels</b>	
Thinking → Reading → Researching → Presentation → Making connections	
<b>Basic Skills</b>	<b>Higher Level Skills</b>
Numeracy	Problem solving
Working individually	Organising ideas coherently
Speaking/questioning	Summarising information
Listening	Negotiating
Making notes	Open to new ideas
Using diagrams/sketches	Organised and systematic
Including accurate information	
Identifying key points	
Using IT	

Taking into account the range of potential contributing activities, the definition of a study skill that we use is therefore:

### ***A learned or inherent ability that assists in the gaining of knowledge.***

Fieldwork in its many manifestations provides as many opportunities to apply and develop these abilities as do traditional, class-based teaching contexts. If when undertaking fieldwork (or indeed any activity) you can add the comment that the activity then 'informs the development of knowledge' you can be confident it is a study skill being addressed and not purely a transferable or life skill. For example, setting a fieldwork task that requires students to use their initiative to locate information sources in an unfamiliar location can

reveal much about a student's ability to adapt their knowledge to a new environment and discover insights into the ways in which information can be gained and used.

At the University of Wolverhampton students progress through a sequence of skills designed to phase-in higher-level skills after introducing fundamental skills during the first year of study. In essence there is a progression from observational/descriptive skills at level 4 through to analytical/interpretive skills in level 5, and on to evaluative and synthesising skills at level 6. This phasing-in ensures a smooth transition between years and accommodates the diverse backgrounds of the student cohorts. As an example, a relevant first year skill is "*Record observations in a field notebook to an agreed format*" and by the end of level 6 this develops into "*Demonstrate the ability to produce a professional standard field note book*". Not only are these key fieldwork skills, but they demonstrate improving study skills (better notes/sketches) and link to employability issues as well.

### **Data Collection**

Data for this study was collected from two primary sources:

Firstly, two focus group meetings with final year undergraduate students at the University of Wolverhampton. These were held off-campus and in an informal environment where students felt confident of speaking openly about their experiences. The meetings were not recorded but detailed notes were taken and used as the basis for the information used.

Secondly, through the reflective review component of a final year fieldwork portfolio. The portfolio is an accumulation of fieldwork from undergraduate Years 4-6 used to identify key subject-related skills alongside a critical evaluation of the student's experiences of fieldwork and fieldwork skills development during their studies. What is interesting about the study skills information from this source is that for the purposes of the portfolio, and the associated modular assessment, the influence of fieldwork on study skills is not explicitly asked for. The portfolio, documenting students' field experience over three years, includes an element of formal reflection, providing students an opportunity to engage in deep learning (Drummer *et al.*, 2008; Waddington and Wright, 2007). The students' reflection enables them to review their experience of field practice, linking the 'doing' and 'understanding' of their experiential learning. Any information about study skills offered by the students is therefore unprompted and reflects very personal opinions about the link between fieldwork and study skills.

Additionally, there are some other pieces of information from other less structured or less formal sources and these are identified where they arise, for example additional evidence from emails, module feedback and tutors' anecdotal evidence. Conclusions are less able to be drawn from these sources as there is no systematic way in which these can be catalogued and compared, however they add weight to the information derived from the main two sources.

### **Results and Discussion**

The evidence from the student data did not always fall neatly or effectively into either the classification strategy of fine-grained divisions (as Kneale, 1999) or else summarised within straightforward generic headings (as Dunleavy, 1987). The way in which we have

therefore approached this is to group skills into direct (*i.e.* those skills that are explicitly addressed during the course of the fieldwork activities) and indirect (*i.e.* those skills that are acquired implicitly through fieldwork experience) categories and deal with the different types of skills under these very general headings.

### **Direct Study Skills**

#### Observation

Observation lies at the heart of fieldwork. Without good quality observation skills it is difficult to evolve higher level skills and make sensible approaches to critical thinking, hypothesis testing, report writing and synthesis.

*“...skills such as observation are something so easily done but completely unrecognised as an acquired skill. However, I soon learnt that it is a skill which becomes most important when pursuing fieldwork.”*

Making use of your observation skills can also inspire:

*“The ‘WOW’ Factor – positive motivation.”*

The basic necessity of the observation process, to direct you to where to find out information and how to find it out, is practised to its maximum in well-focused fieldwork activity. The necessary attention to detail required by the rigour of finding out the minutiae of field data and research information can then be taken to other topics away from the field-based situation. Or as a student put it fieldwork

*“...improves memory skills and provides visual memories for other work.”*

Allied to the ability to observe is the ability to make accurate records of what you observe. The unique pressures of fieldwork (time, opportunity, weather etc.) ensure good practice in making effective notes, a study skill essential across all academic endeavour.

*“[I] took relevant notes in the field which were easily interpreted for analysis and good report write up. The principals [sic] involved in this fieldwork can be applied to most other situations I will encounter.”*

*“I learnt a lot on this trip: river surveying, observations, interaction, field notebook writing, report skills, transect studies and most of all, teamwork. An unforgettable week that I would recommend to any student to gather skills.”*

The end point of the fieldwork observation process is the improvement of a skill that can fundamentally alter the way in which students experience the world around them, or as a student wryly commented:

*“Knowing about geography and the environment has spoiled my walks...I’m always thinking about what I’m looking at now!”*

#### Understanding and evaluation (including data)

It is rarely necessary to convince a geographical/environmental educator of the benefits of fieldwork to the understanding of the subjects. It allows the student to see *in situ* how things are done and clarifies the abstract nature of class-based sessions. Essentially

fieldwork gives the students ownership of information and data and therefore a vested interest in dealing appropriately and successfully with the relevant issues that arise.

*“Puts data in context and helps to identify associations because seeing how the data was generated allows you to establish what it really means”.*

*“When one thinks of fieldwork we seldom consider the implications this has for things outside the field such as data analysis.”*

The application of a wide range of subject-based and contextual information required in field-based situations shows how information starts to come together in a way not usually appreciated in a modular approach. The development of higher level study skills such as synthesis are therefore encouraged by such activity.

*“I felt that fieldwork was very necessary to fully understand some of the principles taught in the lectures, and to apply them in a working environment.”*

On a fundamental level, field-based study provides an immersive experience to give students time to do things such as understanding how equipment works in the context for which it was designed and trying different methods in an applied situation. It also provides the opportunity for the analysis of real data generated by the students. Opening up the time for the immersive field experience allows students the opportunity to see the full range of activity from planning to analysis and communication:

*“The fieldwork setting teaches you to hone the thought process and develop logical and structured investigation.”*

*“From the sampling methods a lot of results were gathered, all of which needed to be analysed. In order to make analysis easier I learned how to display the results graphically.”*

The ability of fieldwork to generate independence of thought and work activities through the application of stimulating and immersive experiences develops skills which lead on to critical analysis and the ability to formulate and evaluate different hypotheses. Such key study skills link directly into the kinds of competencies asked for in many job adverts and therefore undoubtedly enhance employability. Student-awareness of the applicability of such competencies is enhanced through maintaining a strong personal development thread throughout the study programme and encouraging student volunteering and work experience practice where they can apply their developing skills in a work-based environment.

### Integration of Information and Theory

The abstract nature of class-based study often makes it difficult to see where the information comes from or its relevance. It is hopefully the case that as students study they see the linkages and overlaps, not only between the narrow topic focus of their particular branch of the discipline but also between their discipline and others that may be closely or even more distantly allied. Fieldwork provides that opportunity to unpick the range of subtle and not so subtle interactions within the wider world.

*“Fieldwork has a greater interdisciplinary focus – not just one module”*

*“Mixing with students on other awards allows you to taste other subject areas and integrate with those subjects.”*

*“Helps to enhance the learning process by forcing you to look at the wider context.”*

### Problem Solving (Strategic and Spontaneous)

One of the most interesting aspect of fieldwork is working things out or, in study skills terms, problem solving. In many instances it is the separation from alternative sources of information or support that are intrinsic to a fieldwork scenario and provide the spur for applying knowledge and experiences. For students participating in field courses this is one significant factor that arises frequently:

*“...this degree has given me...problem solving [skills] and the ability to optimise my time in the field in order to get maximum results from minimum time to answer a specific question.”*

*“As well as a rich cultural experience, it helped to improve my problem solving skills, data/information acquisition from the field, time management and leadership skills.”*

This data acquisition and analysis in the field is a hugely important part of fieldwork and a significant study skill. For example, a common fieldwork activity is to make a field calculation of discharge. If this is done incorrectly, then the student gets a figure that is at odds with the field evidence, they can then check the calculation to look for the error. This integration of information, theory, and data analysis, i.e. the data is telling one thing but the evidence another, develops the problem solving skill and thus informs the development of knowledge...the main defining characteristic of a study skill.

### Discussion with student peers and tutors

Importantly, fieldwork allows groups of students and staff to discuss all aspects of gathering, analysis and evaluation of information free from the limitations of a classroom environment. The relative informality and characteristically relaxed atmosphere generated by fieldwork allows insight into issues and problems through less formal discussions as well as rapid feedback on activities. These discussions are often wide-ranging, from specific field examples to general points (both subject and general study points). Indeed students valued this space and recognised the importance of:

*“Time with staff and students”*

*“Discussion with staff in a less formal setting.”*

*“Allows you to have verbal discussion.”*

### Reflection

Although not widely recognised by the student cohort data here, just the mere act of using their fieldwork experiences to think about their personal and subject evolution is important, and can be considered transformative in nature (Herrick, 2010). The result of this in making their knowledge acquisition more effective and recognising the place of knowledge acquisition within their studies shows the effectiveness of fieldwork in directing and inspiring this. At the University of Wolverhampton this process is part of the fieldwork training from early in the first year of study and developed throughout the fieldwork experiences to a greater depth as the student progresses and we are confident we can draw this particular conclusion (Besenyei *et al.*, *in prep*). Indeed one student recognised this link by commenting that the reflective practice meant that

*“You have ownership of the tasks and the development of your study skills.”*

There is evidence of embedding such reflective practice elsewhere in other institutions (Thompson *et al.*, 2005; Waddington and Wright, 2007; Drummer *et al.*, 2008), and Park (2003) suggests that learning journals ‘help to engage students in the learning process’.

### **Indirect Study Skills**

Whilst they may not be explicitly study skills in the sense we have employed the term above, the development of these transferable/life (or indirect) skills help provide the appropriate learning environment within which the directly developed study skills can be employed. These are often considerably developed within the fieldwork environment.

#### **Time management and personal organization**

Although they are distinctly different skills, time management and personal organisation are treated here together as much of the relevant student data groups them together. In a significant sense they are linked; through personal organisation, students are more able to manage their time effectively, and so they become more personally organised. The fieldwork link here is one that is inherent in all aspects of fieldwork which is, by necessity, time-constrained and therefore requires organization in data collection, logistics and time management. Learning what is achievable in a specified time window and/or physical location is one that can often only be appreciated when the constraints are readily physically apparent.

*“Unfortunately the work was much harder and required more effort on the field and in the final work that we had to submit for each day. Time management skills were thus put to the test and we managed to finish the work for each day even if we were really tired from the day’s work.”*

One aspect of student work that is frequently lacking, at least in the earlier stages of study is the ability to organise, in terms of maintaining and using the correct personal information sources and materials. In a field-based situation the ability to direct this effort fruitfully is of paramount importance, and is a characteristic that is one of the most transferable of all study skills.

*“A lot of organisation and time was needed for the data collection, and this self-learning would aid me in other reports, investigations and collections in the future.”*

#### **Group working**

The recognition of group work and working with others in a variety of often challenging contexts is a theme that recurs throughout student reflective practice. It is one of the easiest study skills for students to recognise:

*“[Due to the weather] everyone was at their lowest spirits and was totally uninterested with the last day’s work which was even more challenging. This is where all the tensions start to emerge and my group-leadership and conflict resolution skills were seriously tested.”*

*“A lot of group work was done... I learned a lot of organisational skills here, as a good group report needs good organisation and cooperative ability within the group so work can be done effectively and efficiently.”*

From a mature student: *“Group work helped with leadership skills, communication and organisation, and at times could be very challenging with some of the younger students; diplomacy was the key to a happy group.”*

*“It also made me appreciate the importance of team working and cooperation which is encouraged at an early stage on the university field trips.”*

### Communication

Skills accumulated as a direct result of fieldwork activity are a direct influence on the ability of students to produce quality feedback in the form of reports, essays, presentations etc. Often the time constraints necessarily produced by field-based activity focus the minds of students towards a more effective conveying of material evidence to support their experiences.

More often than not, fieldwork includes an element of oral presentation, either as part of the discursive process or else as part of a fieldwork-based assessment. Again it is the time-constraints and physical constraints that challenge and develop student's study skills.

*“We had to produce a PowerPoint presentation to show our ideas...”*

### **Conclusion**

In concurrence with Herrick (2010) 'fieldwork retains a clear role as a basic tenet of the geographical educational experience'. However, general skills, including study skills, often get overlooked as a benefit in the drive for subject knowledge. Staff enjoyment and knowledge of fieldwork in a general sense helps to reinvigorate existing student knowledge and encourage the acquisition of new, different and complementary knowledge. Ultimately it is this relationship between staff and student that conveys the importance of both the topic and the process. These combine to develop study skills which can be applied elsewhere and build confidence in subject and personal abilities:

*“I believe that the fieldwork I have undertaken...has also given me the confidence to go out and put myself forward...”*

In addition, although not all students respond positively to reflection on fieldwork (Waddington and Wright, 2007), it is recommended that the fieldwork portfolio provides students with an opportunity to reflect on their field experience and identify the importance of their own skills acquisition, including study skills. Therefore, as noted by Brown and Knight (1994), the reflective student becomes better placed to become an autonomous and 'lifelong learner'. These skills, and employability potential, can further be enhanced through effective feedback on fieldwork assignments and portfolios, and also through well considered fieldwork debriefing sessions that raise students' awareness of all skills that have been addressed.

### **References**

Besenyi, L., Young, C. and Smith, J. (in prep.) Embedding fieldwork skills in the geographical and environmental curriculum.

Brown, S. & Knight, P. (1994) *Assessing Learners in Higher Education*. Kogan Page, London.



Drummer, T.J.B., Cook, I.G., Parker, S.L., Barrett, G.A. & Hull, A.P. (2008) Promoting and assessing 'deep learning' in geography fieldwork: An evaluation of reflective field diaries. *Journal of Geography in Higher Education* 32 (3), 459-479.

Dunleavy, P. (1987) *Studying for a degree in the humanities and social sciences*. MacMillan, Basingstoke.

Fuller, I., Rawlinson, S. & Bevan, R. (2000) Evaluation of student learning experiences in physical geography fieldwork: paddling or pedagogy? *Journal of Geography in Higher Education* 24 (2), 199-215.

Fuller, I., Gaskin, S. & Scott, I. (2003) Student perceptions of geography and environmental science fieldwork in the light of restricted access to the field, caused by foot and mouth disease in the UK in 2001, *Journal of Geography in Higher Education* 27 (1), 79-102.

Fuller, I., Edmondson, S., France, D., Higgitt, D. & Ratinen, I. (2006) International perspectives on the effectiveness of geography fieldwork for learning, *Journal of Geography in Higher Education* 30 (1), 89-101.

Gold, J.R., Jenkins, A., Lee, R., Monk, J., Shepherd, I.D.H., & Unwin, D.J. (1991) *Teaching Geography in Higher Education*, Oxford, Blackwell.

Haigh, M. (1996) Empowerment, ethics, environmental action: a practical exercise. *Journal of Geography in Higher Education* 20 (3), 399-411.

Harland, T., Spronken-Smith, R.A., Dickinson, K.J.M. & Pickering, N. (2006) Out of the ordinary: recapturing the liberal traditions of a university education through fieldcourses, *Teaching in Higher Education* 11 (1), 93-106.

Herrick, C. (2010) Lost in the field: ensuring student learning in the 'threatened' geography fieldtrip. *Area* 42 (1), 108-116.

Higher Education Funding Council for England (1995) *Subject Overview Report – Geography: Quality Assessment of Geography 1994-95*, HEFCE.  
[http://www.hefce.ac.uk/pubs/hefce/1995/go\\_11\\_95.htm](http://www.hefce.ac.uk/pubs/hefce/1995/go_11_95.htm)

Higgitt, D. & Bullard, J. (1999) Assessing fieldwork risk for undergraduate projects, *Journal of Geography in Higher Education* 23 (3), 441-449.

Higgitt, M. (1996) Addressing the new agenda for fieldwork in higher education, *Journal of Geography in Higher Education* 20 (3), 391-398.

Hope, M. (2009) The importance of direct experience: a philosophical defence of fieldwork in human geography, *Journal of Geography in Higher Education* 33 (2), 169-182.

Kneale, P. (1999) *Study skills for geography students: a practical guide*, Arnold, London.

McEwen, L. (1996) Student involvement with the regionally important geomorphological sites (RIGS) scheme: an opportunity to learn geomorphology and gain transferrable skills, *Journal of Geography in Higher Education* 20 (3), 367-378.

McEwen, L. (1996) Fieldwork in the undergraduate geography programme: challenges and changes, *Journal of Geography in Higher Education* 20 (3), 379-384.

McEwen, L. & Harris, F. (1996) The undergraduate geography fieldweek: challenges and changes, *Journal of Geography in Higher Education*, 20 (3), 411-421.

Park, C. (2003) Engaging students in the learning process: the learning journal. *Journal of Geography in Higher Education* 27 (2), 183-199.

Pawson, E. & Teather, E.K. (2002) 'Geographical Expeditions': assessing the benefits of a student-driven fieldwork method, *Journal of Geography in Higher Education* 26 (3), 275-289

Scott, I., Fuller, I. & Gaskin, S. (2006) Life without fieldwork: some lecturers' perceptions of geography and environmental science fieldwork, *Journal of Geography in Higher Education* 30 (1), 161-171.

Thompson, G., Pilgrim, A. & Oliver, K. (2005) Self-assessment and reflective learning for first-year university geography students: A simple guide or simply misguided. *Journal of Geography in Higher Education* 29 (3), 403-420.

Waddington, S.B. & Wright, P.N. (2007) Student reflection: An 'ideal world'? *Planet* 18, 51-54.

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