INCLUSIVE, ACCESSIBLE, ARCHAEOLOGY
(HEFCE FDTL5)

Phase 2

A CHARACTERISATION OF ARCHAEOLOGICAL FIELD TECHNIQUES:

ASSESSED BY PHYSICAL AND COGNITIVE DEMANDS

(March 2006)

Justine Embleton, Tim Phillips,
Stephanie Scoullier, Susan Gillham &
Roberta Gilchrist

LAYOUT OF THE REPORT

	Introduction	5
I	Methodology	11
II	Characterisation of Archaeological Field Techniques	13
III	Other Learning Outcomes	41
IV	Student Feedback	45
V	Discussion	77
	References	79
Appendix I	Details of the Characterisations	81
Appendix II	Summary Tables of the Characterisations	135

INTRODUCTION

This report summarises Phase 2 of the 'Inclusive, Accessible, Archaeology' project, funded by the Higher Education Funding Council for England (HEFCE FDTL 5) for developments in teaching and learning. The project is directed by Professor Roberta Gilchrist of the Department of Archaeology at the University of Reading in partnership with the School of Conservation Sciences at Bournemouth University and in collaboration with the Research Group for Inclusive Environments (School of Construction Management) at Reading. The Council for British Archaeology (CBA) is involved in the dissemination of the project's results and the project also has the active support of the Institute of Field Archaeologists (IFA), Oxford Archaeology and English Heritage.

PROJECT SUMMARY

GOALS

The project aims to address the dual issues of disability and transferable skills in the teaching of archaeological fieldwork. It will:

- Increase awareness of disability issues in archaeology;
- Improve the integration of disability in fieldwork teaching; and
- Improve all students' awareness of their development of transferable skills for the transition to employability through participating in archaeological fieldwork.

PROJECT OUTCOMES

- The integration of disabled students into archaeological fieldwork and related activities according to, and consistent with, the mandatory legal requirements of disability legislation.
- A change of emphasis from 'disability' to 'ability': rather than excluding or categorising individuals, all students will be engaged actively in assessing their own skills. This will be achieved by developing a generic self-evaluation tool kit suitable for use by all students being taught fieldwork in archaeology and other fieldwork related subjects.
- Dissemination of the results through published guidelines, websites, workshops and conference presentations carried out in association with the project's professional stakeholders (the Institute of Field Archaeologists, the Council for British Archaeology, English Heritage, and Oxford Archaeology).

PROGRAMME OF WORK

- Phase 1 – Assessment (February – July 2005, 6 months):

Evaluate through questionnaires the issues surrounding, and current practices relating to, disability and archaeological fieldwork.

- Phase 2 – Characterisation (August – December 2005, 5 months):

Develop a generic method of assessing physical and cognitive abilities of disabled/non-disabled people to participate in archaeological fieldwork training.

- Phase 3 – Controlled Testing (January – June 2006, 6 months):

Test and refine characterisation of archaeological field activities and environments through real-world tests in controlled laboratory conditions; produce pro-forma of self-evaluation tool kit.

- Phase 4 – Field Trials (July – October 2006, 4 months):

Assess suitability of controlled tests and generic method of evaluation through field trials on archaeological excavations.

- Phase 5a – Evaluation (November 2006 – January 2007, 3 months):

Refine the project's deliverables.

- Phase 5b – Wider Dissemination (February – April 2007, 3 months):

Wider dissemination of project results.

- Phase 6 – Continuation After Funding Ends (May 2007 on):

Integrate awareness of disability into archaeological fieldwork in training, employment, and the development of transferable skills in conjunction with archaeology subject providers and professional bodies.

MODELS OF DISABILITY

Disability has been described and understood through a number of different models which attempt to define the experience of being disabled.

THE MEDICAL MODEL

This considers a disabled person as ‘ill’, a subject for treatment and cure. It does not address the social, economic and environmental experience of a disabled person.

THE CHARITABLE MODEL

This sees a disabled person as a tragic individual. They are an object of pity that needs to be cared for and protected from the rigours of everyday life.

THE SOCIAL MODEL

This shifts the emphasis of considering that there is something ‘wrong’ with the disabled person to the view that disabled people are often excluded from participating in everyday activities because of the physical, social, economic and attitudinal ‘barriers’ created by society.

This model is behind the spirit of the recent disability and access legislation (Disability and Discrimination Acts 1995 and 2005, Special Educational Needs and Disability Act 2001) and forms the basis for the ethos of inclusiveness.

In reality, it is unlikely that it will be possible to provide environments or develop activities where everyone can do everything, and this will certainly be the case with some tasks undertaken in archaeology. People, both disabled and non-disabled, will have different levels of ability to undertake tasks. For some, restrictions in their ability may preclude them from full participation. However, the criteria used to establish whether a person can take part in an activity should always be based on their individual abilities, not simply whether they are a ‘disabled’ or ‘non-disabled’ person.

Adopting the social model also requires us to examine the nature of the activity and determine if it is *how* the activity takes place that precludes involvement, and could the process be altered to facilitate greater inclusion. The fact that it has always been done in a particular way is not the answer, especially if the procedure could be altered so that the

number of people that can be included in the activity would be increased.

To determine the extent to which disabled and non-disabled people can effectively participate in the activities associated with archaeology, it is necessary to determine their individual abilities to undertake the typical tasks that comprise the 'archaeology experience'. The self-evaluation tool kit that the project is developing will, therefore, be for use by all disabled and non-disabled students. In using it, all students will be able to evaluate their own developing archaeological and transferable skills.

Such self-evaluation by all students will ensure that the opportunity of full participation and inclusion is based on an 'ability to do' which is the driving force behind most disability and access legislation.

THE PHASE 2 REPORT

The purpose of this characterisation of archaeological field activities is to inform Phase 3 of the project – Controlled Testing. It will do this in three ways:

- Descriptions of the archaeological fieldwork techniques being characterised – describe the purpose of, and what is involved in, each activity and are based on what is taught by the subject providers in Universities as revealed by the Phase 1 questionnaire survey (Phillips & Gilchrist 2005)
- Learning outcomes – describe the skills that a student can expect to gain from participating in archaeological fieldwork training, these are based on information from a sample of ten subject providers detailing what they expect the learning outcomes are from field work
- Characterisations – summarise the physical and cognitive demands involved in participating in archaeological fieldwork.

From these three analyses of archaeological field techniques, the methodology for the controlled testing will be developed.

The report also includes a section on student feedback. This is based on questionnaires filled in by first year undergraduate students participating in the University of Reading's Field School at Silchester and Bournemouth University's Field School at Knowlton. These provide information on a number of aspects of archaeological fieldwork:

- The archaeological skills that students feel they are learning by participating in archaeological fieldwork training
- The transferable skills that students feel they are gaining by participating in archaeological fieldwork training
- The ‘experience’ of participating in archaeological fieldwork training.

I METHODOLOGY

The aim of the characterisation was to closely observe archaeological field techniques and to detail the physical and cognitive demands involved. To achieve this it was decided to conduct site visits to recreate field techniques for analysis and to observe genuine techniques being carried out on an archaeological excavation. The techniques included in the analysis are those taught and assessed as part of undergraduate courses currently being provided by university Archaeology departments in England, Scotland and Wales. This information was obtained from the results of a questionnaire survey (Phillips & Gilchrist 2005) which formed the basis of Phase 1 of the project. The National Vocational Qualifications in Environmental Conservation, Archaeology and Field Archaeology (NVQ 1994), and the National Occupational Standards for Archaeological Practice (Carter & Robertson 2002) were also consulted. These include machine excavation and, in the case of the Institute of Field Archaeologists (IFA), auguring as major archaeological field techniques. These are not generally taught by the subject providers in field training and have not been included in the characterisation. The techniques considered in this report include:

- Excavation
- Planning
- Processing of Artefacts
- Environmental Sampling
- Surveying
- Surface Survey
- Geophysics.

The observations took place at three locations: two test sites at the University of Reading and at the archaeological field school run by the Reading Archaeology Department at Silchester in Hampshire. The field techniques were demonstrated by Dr. Tim Phillips of the Reading Archaeology Department, as well as various volunteers, supervisors and students both at the University of Reading, and at the Silchester field school.

During the observation periods the weather was varied and included heavy rain, wind and hot sunshine. Extreme weather changes can increase risk hazards when on site and change the appearance of the excavation area. This was taken into consideration during the observations.

Disabled and non-disabled people were observed carrying out field techniques and agreed to discuss the methods and approaches,

including any adaptations. The analysis included a detailed break down of the various physical movements required to conduct the individual techniques, as well as the cognitive components. It must be emphasised that the detailed use of each muscle was not a requirement, but the physical movements of body parts needed to complete the techniques were assessed.

The field techniques demonstrated at The University of Reading included excavation, planning, surveying and surface survey. The field techniques observed at the Silchester field school included excavation, planning, surveying, processing of artefacts, environmental sampling and geophysics.

Health and Safety issues were adhered to during the observations and relevant equipment was used at all times. Detailed notes and digital images were taken to record the characterisations.

The learning outcomes detailed in each section of the report are a synthesis of the information gathered from eleven of the subject providers. Information was provided by five departments, the remainder was collected from the websites of six others. This synthesis represents the learning outcomes that the subject providers consider that students gain from participating in archaeological fieldwork training.

II CHARACTERISATION OF ARCHAEOLOGICAL FIELD TECHNIQUES

A. EXCAVATION

DESCRIPTIONS

1. CUTTING AND LIFTING TURF

Although usually associated with gardening, this is often the first physical operation carried out on an excavation. On fertile land with a good depth of soil, the turfs would be cut into sections and stacked nearby ready to be replaced after the excavated area has been backfilled. On shallow soils, typically found in upland areas, the turf may not come up so ‘neatly’ with the turfs being ragged and thin. In this case it may be necessary for the excavator to keep an eye out for artefacts because of the shallow overlying soil, even checking the undersides of the turfs. The exact technique used depends very much on local conditions.

Physically, the operation involves cutting the turf into manageable pieces using the edge of a spade or a ‘half-moon’ turf cutter. These pieces are then lifted by undercutting them using the blade of the spade. The cut piece of turf is then lifted on the spade and placed in a wheelbarrow for removal, or directly onto the turf stack if located nearby. The neater that this job is done, the easier it is to replace the turf after the excavated area has been backfilled.

2. USING A PICK

A pick may sometimes be used to break up a consolidated surface, such as compressed rubble, or to lever out consolidated material. The use of this somewhat ‘destructive’ technique may be when the decision has been taken to remove a thick compressed layer in one operation or to rapidly cut a section through a consolidated feature such as a road surface.

The physical operation involves holding the pick with two hands: one at the base of the handle, and one near the ‘head’. The pick is raised over the excavator’s head and brought down forwards employing the weight of the tool for its downward momentum. As the pick is brought down, the hand grasping the handle near the ‘head’ is slid down the handle to its base. This technique allows the excavator to keep the pick under his physical control and ensure that it strikes the ground in the desired place. Only on very few occasions should it be necessary to use a pick

in such a manner on archaeological sites. Indeed, there are a range of Health and Safety issues involved in using a pick. The excavator must ensure that other people are at a safe distance from the area of working, especially the area of the ‘back-swing’ of the pick. The excavator should also be experienced and confident in using this implement.

The ‘head’ may be partly buried in the ground surface and to help break this up the operator uses the pick like a lever, holding the handle at its base and pushing or pulling it forwards so that the buried part of the ‘head’ moves upwards in the ground. This technique is also used to lever out consolidated material. The excavator works moving backwards over the area being broken up.

3. USING A MATTOCK

A mattock is a long-handled tool like a pick, although its ‘head’ is designed differently. One end of the ‘head’ is shovel-shaped, and the other consists of a hard cutting edge. A mattock can be used to rapidly remove an archaeological layer of thicknesses greater than about 2cm. Its cutting edge can be used to cut through plant roots.

A mattock should not be raised above the excavator’s head like a pick as the centre of gravity of the tool’s ‘head’ is offset from the middle due to its shape. This makes it unwieldy and difficult to control if it is raised high in the air. Instead the operator grasps the handle in two hands, one at the base and one about half way along. Using the shovel-shaped end of the head, the excavator breaks up the surface of the area being excavated, but only lifting the mattock about 30cm to 45cm above the ground. The excavator works moving backwards over the area being broken up. The other end of the tool’s ‘head’ can be used for cutting plant roots. The handle of the mattock is grasped as described above; the tool is lifted in the air, no further than about 90cm or 120cm, and brought down hard on the root to be cut. As with a pick, this is a heavy implement being lifted off the ground and similar issues of Health and Safety apply.

4. USING A DRAW HOE

A draw hoe (or ‘swan-necked’ hoe) has a hoe blade pointing downwards mounted on the end of a long handle. It can be used to rapidly remove, or scrape off, a layer of a thickness greater than about 1cm. The handle is grasped with two hands, one near the base and one about half way along its length. Working backwards, the hoe is pulled across the ground.

5. DISPOSAL OF WASTE MATERIAL

Large piles of waste material, or spoil, are disposed of by shovelling into a wheelbarrow. The shovel is grasped with one hand at the base of the handle and one hand on the handle near the shovel head. The shovel is pushed into the pile of waste material, lifted and the material is deposited in a wheelbarrow. Using a shovel, spoil can also be 'thrown' onto a spoil heap for a distance of up to 5m, but there are Health and Safety issues involved in this with other people in the working area. The more neatly this job is carried out, the less work will be involved later.

6. BARROWING

Spoil is usually removed from a site in a wheelbarrow. This may also be used to carry tools.

The excavator bends down, grips the handles and lifts the rear end of the barrow so that it is balanced on the wheel at the front. It is moved by walking forwards and pushing the barrow along. To reach the spoil heap, the barrow may have to be traversed along a series of planks laid across the site to minimise damage to archaeological deposits. Alternatively, a specific barrow 'run' across the site may be designated. The barrow is emptied by lifting the handles in the air so that it is vertical and the contents spill out.

7. TROWELLING

Trowelling is the main method of excavation used. This can be fine or rough trowelling to remove from between a few millimetres to 1cm thickness of the surface being excavated. Effective trowelling is a skilled operation and the technique used will depend on the circumstances; a strong trowelling action, or delicately with millimetre accuracy. The objective is to remove each archaeological layer one at a time, even if a layer is only a few millimetres thick. The excavator works with a trowelling kit consisting of four main tools:

- Trowel
- Dustpan
- Bucket
- Kneeling Pad.

Brushes and secateurs may also be used.
The excavator kneels on the pad leaning over the area in front. The trowel is held with the side of the blade against the ground. It is scraped across the surface to remove a thin layer of material. The waste material is gathered up into the dustpan which is then emptied into the

bucket. When full, this will be emptied onto a spoil heap or into a wheelbarrow. The excavator works backwards over the area being excavated. In stony conditions the trowel may be held at different angles and the point used to clear material from between stones. The excavator may be working with other people trowelling backwards across the site in a line. Delicate and fine trowelling may be necessary when excavating finds or a small feature. This technique will also be used, often with the aid of brushes, when cleaning an area ready for photography. This is not just for ‘cosmetic’ reasons, but can be important to ensure that features are clearly visible in a photograph.

Cleaning the ‘face’ of a section involves a similar procedure except that a vertical surface is being worked on and the trowel is moved from the top edge downwards using the point of the tool. The objective is to reveal the various horizontal layers, or stratigraphy, in a vertical section through an archaeological site or feature.

Whilst trowelling, the excavator is concentrating on the nature of the deposits being excavated looking for any changes in colour, texture or the general ‘feel’. These attributes may indicate the presence of a feature, such as a pit or a posthole, or a different archaeological level. In this, the excavator will be communicating with, and asking the opinion of, colleagues and supervisors. The excavator is also looking out for the presence of artefacts in the ground or in the excavated material. Small finds need to be excavated with the greatest care, as touching them with the trowel or other tools can mark or damage them.

Brushes ranging from stiff bristled hand brushes to paint brushes of between 1cm and 5cm in width may be used to clean the dust off a surface or around features such as artefacts or bones. However, the use of brushes is dependent on the local conditions. Some soils will ‘smear’ when damp. Secateurs are used to cut small plant roots.

This describes the general technique of excavating with a trowel. However, the excavator may need to adopt a variety of physical positions, such as lying prone or leaning down into a hole if excavating a ‘cut’ feature such as a pit or posthole. They may also be required to work squatting in a trench.

8. DRY SIEVING

Excavated material can be put through a sieve in order to recover small artefacts. The mesh size can vary.

The excavated material is loaded into the sieve with a shovel or poured from a bucket. The sieve is held in the air with both hands over a

wheelbarrow or a spoil heap to collect waste material. It is shaken from side to side and waste material falls through the mesh. It may be necessary for the excavator to break up lumps of soil with their fingers. The material remaining in the sieve is sorted by hand and any items of interest removed and retained.

9. USING A SPRAYER

The surface of the area being excavated may be wetted. Through differential wetting and drying out features, such as the outlines of pits and postholes, may become visible. This is because the nature and texture of their ‘fill’ can be different from the surrounding material.
A simple garden pressure sprayer is most commonly employed. This is used by pumping up and down with the handle on top to build up the pressure within the sprayer bottle. The sprayer rod is operated by applying hand pressure to a handle at its base.

10. COMPLETING SITE RECORDS

Excavation involves the destruction of the archaeological levels, so the on-site recording of all information is of the utmost importance. This will involve photographs, drawn plans and sections, and the use of notebooks. However, the basic record used on most sites is the recording of information about individual features and contexts on a record card. This is called ‘single-context recording’. It is from these records that the analysis and interpretation of the excavated data will be undertaken. The actual layout of these record cards may vary on different excavations, but the minimum information recorded should include (Barker 1993, 163):

- Abbreviated site name
- The specific area on the site and any site grid numbers
- The feature number
- The position of a feature in relation to the site grid
- Its relation to other features above, around or below it
- A description of the feature and any filling present
- Finds directly associated with the feature
- A sketch drawing of the feature
- Cross-references to any plans, section drawings or photographs of the feature
- On-site interpretative notes.

A record card usually has a set format with separate boxes to be filled in with the information required. When completing a record card, an excavator will often be conferring with colleagues and supervisors. How

the information is recorded (notes and annotations) may be subject to a number of pre-determined site conventions.

LEARNING OUTCOMES

The student/participant will be able to:

- Apply theoretical and practical skills in excavation practice – gain an overview of the acquisition of primary data
- Understand the advantages and disadvantages of different archaeological techniques in different specific situations
- Understand and undertake a range of practical tasks integral to the operation of an archaeological site
- Gain experience in the use of tools on an archaeological site
- Gain a sound understanding of archaeological stratigraphy and context and gain experience of the methods and application of stratigraphic excavation
- Understand and apply the requirements of on-site recording procedures
- Experience in using appropriate archaeological terminology.

In addition, the following transferable skills will be developed and enhanced:

- Data collection and sampling strategies
- Team working and independent working
- Communication skills, written and oral
- Assessing risk and health and safety on a site
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting.

CHARACTERISATION

The initial excavation methods of a site include cutting and lifting turf, using a pick, mattock, draw hoe and spade. All these activities require good spatial awareness, full body strength and the use of upper limbs due to the physical movement involved in being able to lift and lower the equipment with controlled movements and use strength, as well as momentum, to break up the surface area. Cutting and lifting turf and using a pick require the use of the whole body. Upper body and lower back strength and a good grip are essential and cannot be compromised due to the nature of the activity.

The methods to dispose of waste material include using a spade or hand shovel and wheelbarrow. Again, both activities require full body strength, especially good upper arm and lower back strength, movement and hand grip. Using a wheelbarrow and associated activities, such as traversing a barrow run and tipping contents on to a spoil heap, require the movement of the whole body; good standing/walking balance; and strength to push, lift and empty the barrow.

The main process of excavation includes the use of a trowel, brushes, secateurs, sprayer and sieve (dry sieving). This involves using a trowel, brushes and secateurs whilst kneeling/bending over a site and using the equipment to reveal different layers, whilst also looking for artefacts and changes in soil texture and colour. Using a sieve or sprayer is generally completed whilst standing. However, these pieces of equipment could easily be used from a seated position if required. Good upper limb strength, movement and manual dexterity, as well as good sensation, are required to complete all these aspects of excavation. Visual acuity, in the form of contrast sensitivity, is required in order to identify artefacts and differences in soil texture and colour.

Excavation is often completed in a trench or test pit which requires the archaeologist to climb down into the feature. Physical movement of the whole body is required when negotiating deep trenches and test pits accessed via ladders.

Good hand/eye coordination and spatial awareness are requisites for the Health and Safety of the person carrying out any of the above activities, and of others working on a site. Stamina is also an important factor. Suitable levels of cognitive ability are required to process the importance of Health and Safety, as well as being able to communicate both orally and aurally with team members and to recognise artefacts and changes in the soil.

The completion of site records is also a crucial factor that requires an acceptable cognitive ability and literacy skills to be able to retain information, record information accurately, process information and for discussions with colleagues.

B. PLANNING

Despite the advanced techniques of photography, site plans remain the basic visual record of an archaeological excavation. A well-drawn plan can record an excavated area or feature in much greater detail than is possible with photographic methods. There is a certain level of subjectivity involved in that particular features can be emphasised on a plan. This is often a case of highlighting anthropogenic features in contrast to natural features. This means that there is an element of on-site interpretation involved in planning. Plans can also be annotated with notes. Some aspects of planning can involve a team of people and there is some degree of flexibility regarding the abilities of individuals.

DESCRIPTIONS

1. PREPARATION FOR PLANNING

The most common method of planning is to use a drawing frame. This is a simple wooden or metal frame one metre square. It is sub-divided by fine string into smaller units 20cm, or even 10cm, square. This is laid on the excavated surface to be planned in relation to the site grid so that it can be located on an overall site plan. To keep the frame horizontal on an uneven surface it may be necessary to support one or more of the corners or, alternatively, a frame with adjustable legs can be used.

2. DRAWING A PLAN

The technique of drawing through a frame involves the planner drawing the features that can be seen in each of the sub-divided squares. They must stand directly above each smaller square and look vertically down. The planner holds a drawing board made of wood or hardboard which can vary in size from 30 x 30cm to 60 x 60cm, or larger. The size of the board will depend on the size of the area being planned. Ordinary metric graph paper is mounted on this board with an overlay of drawing film. Plans are most commonly drawn in pencil at a scale 1:20. This means that on the graph paper each 1cm square represents one of the 20cm sub-divided squares on the drawing frame. The planner draws what they see by ‘eye’ in each of the subdivided squares on the frame. A number of notes and annotations may be added to the plan. Annotations, such as colours or sloping stones, will be designated by a series of pre-determined conventions that have been applied to the site recording methods.

3. TAKING OFFSETS

Another method of drawing a plan is to take ‘offsets’ from a ‘base-line’. A base-line is a reference point consisting of a straight line laid out across a part of the site. This is described in more detail in the section on ‘Surveying’ below. The basic concepts behind this technique are straight lines and right-angles. A measurement is taken at 90° from the base-line to the feature to be recorded. The distance along the base-line is also measured. These measurements can be recorded in a notebook, or plotted directly onto a plan overlain on graph paper and mounted on a drawing board. The complete plan of an area is made up of a number of such measurements. Points on features above the ground surface can also be measured by this method. One end of a measuring tape is held against the point to be recorded and the tape is held above the base-line and parallel with the ground. Looking down at the intersection between the tape and the base-line, the planner ensures that they are at right angles to each other. A plumb-bob is carefully lowered from the edge of the measuring tape onto the base-line. This marks the intersection of the base-line and the tape giving a measurement on each.

Unlike planning with a frame, taking off-sets requires two planners working together. To do this effectively they require to have standardised ‘conventions’ for communicating information to each other.

4. TRIANGULATION

Using triangulation is similar to taking off-sets. The method is used when the feature to be measured lies at a distance of usually more than 3m away and the technique may involve two or three people working together. Three, or sometimes only two, measurements are taken from points along the base-line to the feature to be recorded. These are then plotted on the plan using a pair of compasses set at the recorded distances from the points on the base-line. The point where the arcs of these compass measurements intersect marks the location of the feature. As with taking off-sets, this method requires the planner to work closely and communicate effectively with work colleagues using pre-determined verbal conventions.

5. SECTION DRAWING

This involves the drawing of the vertical face seen in the side of a feature that has been partially excavated, such as the filling of a half-sectioned pit or posthole, or the side of a trench cut through an archaeological site. The objective is to record the different

archaeological layers, or stratigraphy, that make up the section and any artefacts or features that are visible.

A piece of string, usually secured by nails at each end, is placed across the section to be drawn. A small spirit level (called a 'line level') is hung on the string which is adjusted to ensure that it is level. A tape measure is then laid out along the string. This forms a 'base line' from which measurements of the location of features to be recorded can be taken. The base line is drawn onto drawing film overlaying graph paper on a drawing board. Two measurements are taken to a feature, or part of a feature, in relation to the base line. Firstly, using a second tape, the distance from a feature at 90° to the base line is measured. This can be above or below the line. Secondly, the distance along the base line to this point is measured. From these two co-ordinates the location of a feature can be plotted on a section drawing. Section drawings are usually produced at a scale of 1:10 to allow for greater detail to be included than on a surface plan. At this scale, 1cm on the drawing represents 10cm of the section being recorded. As with planning, the drawing is annotated according to a set of pre-determined conventions.

6. COMPLETING SITE RECORDS

For plans and sections produced on site, a plan register may have to be completed. This will contain basic, but essential, information:

- A reference number for the drawing
- The location on the site, related to the site grid
- The context
- Description of what the drawing records
- Name of the planner and the date.

Data from taking off-sets, triangulation and similar planning methods may be recorded in a site notebook. The readings need to be laid out in a systematic and consistent format with explanatory notes. This is to ensure that the plan can be accurately reproduced from this record by another person if necessary.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand and undertake the methods of producing accurate archaeological plans and section drawings
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced:

- Critical thinking
- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting
- Analytical and practical skills
- Numerical skills.

CHARACTERISATION

The process of planning requires both physical activity and cognitive ability. The physical activity includes bending over to position the planning frame accurately, levelling it (if required), and holding a drawing board whilst drawing objects seen through the frame in the excavated area. This requires whole body strength and movement including good standing balance; strength in legs and back to maintain a flexed position whilst drawing; upper limb strength; and movement and dexterity to position planning grid or baselines (when completing section drawing) and to hold a drawing board and pencil. A degree of stamina is also required to maintain the different body positions. Some of the surveying activities require full physical movement of the whole body, such as to position and secure lines and tapes. Cognitive skills are required to retain and process information, and to calculate measurements.

As with excavation, planning is often completed in a trench or test pit, therefore the same recommendations with regard to physical capabilities and sensory skills are relevant.

Planning also requires a suitable level of cognitive, numerical, visual and spatial ability. These are in order to process detailed instructions using scales, graph paper and drawing film to reproduce an excavated area in a drawing; to recognise artefacts or unwanted material, as well as changes in texture and colour; to retain information; understand Health and Safety issues; to complete site records; and oral and aural communication with team members as necessary.

C. PROCESSING OF ARTEFACTS

DESCRIPTIONS

1. COLLECTION

When artefacts are found during excavation they are dealt with in a number of different ways, depending on the system being used on a particular site. The most common method is to place them individually in a finds bag. This is a simple plastic bag with a self-seal strip and a white stripe on the side which can be written on. The bag has to be clearly marked with a Finds' Number and any other relevant information required. It may also be necessary to record information on a record card. The location of the find will be recorded by other methods being used on the site. This may involve a note on any plans or section drawings (see above), or plotting the location by one of the surveying methods outlined below. Where a large number of finds are present in an archaeological context, they may be collected in a tray as the excavation of that context proceeds. Again this must be clearly marked with any relevant information. This method may be chosen when excavating a context such as a destruction layer where large numbers of broken roof tiles and other similar material are present. However, the excavator will also be keeping an eye out for 'other' small finds such as worked flint, pottery and metalwork. These would probably be dealt with individually as described above.

2. TREATMENT

The on-site treatment of finds may involve washing, drying and sorting. At this stage the most important consideration is to keep track of individual finds' numbers and any other related information.

The washing of finds involves a container of water, usually a plastic bowl, in which the finds are placed. These are then cleaned with a toothbrush or a nail brush. However, it should be noted that not all finds are washed. Unglazed pottery, metalwork, ancient bone and other organic finds would be damaged by washing. These may require specialist treatment by a conservation expert.

Finds that have been washed are then air-dried. This usually involves laying them out on newspaper. A record of individual find numbers and any other relevant information must be clearly visible. This may involve a written label or the placing of the labelled finds bag/tray beside the drying artefacts.

After drying, the individual finds may need to be sorted. This can be a hierarchical process with the finds first being sorted by general group (lithics, metal work, pottery etc), and then types within general groups.

3. IDENTIFICATION AND MARKING

After sorting into groups and types, the finds need to be dealt with individually. The process of identification involves the close inspection of an artefact by eye, using a hand lens if necessary. Aspects of lithic analysis may also involve touch. Comparisons will be made with finds already recovered and from text books. The analyst will also be asking advice from work colleagues and supervisors.

Individual finds are often ‘marked’ on site. This involves writing a code number on each piece using special writing pens and ink. This is very fine work as, preferably, the inscription will be as small as possible. Marking stamps which are effective on uneven surfaces are also available. The settings on these stamps need to be calibrated with care to ensure that the correct code is used.

4. COMPLETING SITE RECORDS

For artefacts collected on a site, a small finds recording sheet may have to be completed. The register will contain basic, but essential, information:

- The reference number of the small find
- A description of the small find
- The location of where it was found in relation to the site grid and the context on the particular site
- Any surveying information such as levels and co-ordinates (see section on Surveying below)
- Any photographs of the small find, either before or after lifting.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand and undertake the methods of handling and processing artefacts on an archaeological site
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced:

- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting
- Critical thinking
- Analytical and practical skills.

CHARACTERISATION

Many of the techniques involved in processing artefacts are ‘table top’ activities. The main focus of processing artefacts is the ability to pick up objects of varying sizes, clean them and identify them; this requires manual dexterity, upper limb movement, hand/eye coordination, intact sensation in fingers and hands (to detect sharp objects) and sitting balance (if seated).

Good cognitive skills are required to process detailed information, recognise artefacts or unwanted material, follow referencing procedures, label artefacts, complete site records, retain information and oral and aural communication with team members as necessary. Visual acuity in the form of colour and contrast vision is also necessary for the accurate description of artefacts.

D. ENVIRONMENTAL SAMPLING

Environmental samples are taken from archaeological excavations to recover a wide range of evidence contained within the soil from a context. Some sampling, such as pollen cores, is a specialist task. However, a range of evidence can be recovered from ‘bulk’ soil samples taken from archaeological contexts:

- Macro botanical remains
- Burnt and charred material
- Insect and Snail remains
- Small artefacts/pieces of artefacts
- Bone fragments.

DESCRIPTIONS

1. TAKING BULK SAMPLES

The important factor with taking a sample is that all the material should be from the context that is being sampled. This involves some of the skills associated with trowelling: the recognition of different colours and textures. The material is usually removed with a trowel and either put directly into a large plastic sample bag, or transferred to a hand shovel before being deposited in the bag. It is essential that the bag is clearly marked with the relevant site codes.

2. FLOTATION AND WET SIEVING

The bulk sample needs to be broken down to separate the different materials that may be present. One method is to put the material through a series of sieves of decreasing size using running water to help break down the soil. Different material will be trapped in the different sized sieves, artefacts and bones in the larger mesh sizes and insect remains in fine mesh sizes of about 2mm. Another method is called ‘flotation’. The material is placed in a tank of water and broken down by hand. The lighter material, such as insect remains, will float to the surface. This ‘flot’ can be scooped off or, if water is running through the flotation tank, it can be carefully drained off and collected in a fine sieve. The heavier material at the bottom of the tank, the ‘residue’, is cleaned as the tank is drained and placed in a tray to air dry. Both the flot and the residue should be clearly labelled.

After drying, the flot is sorted and remains identified. This may require the use of tweezers and hand lenses, or even microscopes. The residue is sorted by hand, artefacts and items of interest being removed by the analyst as they work methodically through each sample tray.

3. COMPLETING SITE RECORDS

For environmental samples collected on site, an environmental sample form will be completed. This will contain basic, but essential, information:

- The sample reference number
- The location of where the sample is from in relation to the site grid and the context on the particular site
- Any surveying information such as levels and co-ordinates (see section on Surveying below)
- A general description of the sample
- Details on how the sample has been treated
- Details of the small finds and other material recovered from the sample.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand the range of sampling methods used on an archaeological site
- Become proficient in environmental sampling procedures – the taking, processing, sorting and identification of samples
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced:

- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting
- Critical thinking
- Analytical and practical skills.

CHARACTERISATION

Flotation and wet sieving involve the opening of sample bags and emptying the contents into a bucket to measure the amount of material, and then tipping this into a tank where the sample is processed. These

activities require good manual dexterity, upper limb strength and range of movement, as well as cognitive skills.

Fine finger dexterity and good sensation in the fingers is required to process the sample once it is in the tank. The majority of flotation tanks require archaeologists to stand whilst working. Cognition skills are required to recognise artefacts or unwanted material, to sort artefacts into identification trays, label appropriately and record findings. Oral and aural communication with team members and supervisors is also essential.

E. SURVEYING

Accurate surveying of an archaeological site is an essential part of any excavation. Surveying methods are used to tie in the location of trenches, features, artefacts, plans and sections. This will ensure that an accurate plan of the excavation can be drawn up from the site records. Most of the surveying techniques used require two or more people working closely together. In this, effective communication between the members of a surveying team is essential. There is a degree of ‘error’ in all surveying methods and a surveyor has to decide before hand how much error they can ‘afford’ in the task being undertaken. This means the potential error present in each of the different methods must be known and understood by the surveyor.

DESCRIPTIONS

1. LAYING A BASE LINE

One point beside the excavation will be designated as a ‘Temporary Bench Mark’ (TBM). Any grid imposed on a site and the location of all trenches, features, artefacts and plans will be related to this point. Other TBMs may be established around a large site for convenience in taking measurements, but these will all be tied in to an original TBM.

The essential aspects of many surveying tasks are straight lines and right angles. This is because these can be easily and accurately reproduced on a drawing representing a site. The basis of any grid made up of straight lines and right angles will be one straight line called a ‘base line’. This can be easily laid out using a tape measure or a piece of string secured at each end by thin metal rods pushed into the ground. These are about 22cm long and are called ‘arrows’.

The length of the base line being laid out is only restricted by the length of the tape measure or string being used. On occasions it may be necessary to lay out a base line over a long distance, such as across an area of landscape that is being covered by field survey or field walking (see below). A straight line can be established by using three straight poles. The ones usually used are two metres in length with a metal point at one end and marked off alternatively in red and white in half metre sections. These are called ‘ranging poles’. Two poles are placed vertically in the ground about 20 metres apart to form the start of the base line. One surveyor stands holding a third ranging pole in line with the first two poles in the direction that the base line is to be extended. A second surveyor stands behind the first pole and, by eye, lines up the three poles. This involves instructing the surveyor holding the third pole to move to the left or the right until all three poles are in line. Because

the two members of the team may be at a distance from each other, these instructions often consist of hand signals. It is essential that the members of the surveying team establish a set of conventions for these hand signals to ensure effective communication. Using more ranging poles, the base line can be extended over greater distances. As this method is done ‘by eye’, there is potentially a high margin of error present.

2. EXTENDING A BASE LINE AT 90°

It may be necessary to extend a base line at a right angle to form part of a grid across a site. This can be done using simple geometry in the form of Pythagoras’ Theorem: ‘The square of the hypotenuse is equal to the sum of the squares of the other two sides’. This will be the case in any and all triangles which have a right angle in them. These are often called ‘3-4-5 Triangles’, as these are the lowest whole numbers that such a triangle can be broken down to. The formula works thus:

$$3^2 + 4^2 = 5^2 \quad \rightarrow \quad 9 + 16 = 25$$

This can be easily recreated on the ground using three measuring tapes. The operation involves at least two or, preferably, three surveyors. A tape is laid out to either 3 or 4 metres from the point on the base line tape that is to be extended at 90°. A point is marked on the base line at either 3 or 4 metres from the original point (the distance depends on the distance used for the extension). A third tape is laid between the second point on the base line and the end of the extension. The extension tape is moved to each side until the distance between the two pints is exactly 5 metres. This extension will now be at a right angle to the base line. The degree of error involved in this method is dependent on the accuracy of measurement by the surveyors. This will involve keeping the tapes taut and using conventions such as measuring from either the inner or the outer side of each tape every time.

3. LEVELLING

A ‘level’ is an instrument that records the height of a point in relation to another point. On an archaeological site, this is usually in relation to the TBM. Levels are taken to measure the ‘height’ of trenches, features, artefacts and other elements on the site.

A level consists of a small telescope which can be focussed and has an integral mounting that allows it to be rotated through 360°. It also has an integral horizontal spirit level. Using a fixing screw, this is mounted on a tripod. The tripod is put up with the centre of the mount exactly over the

TBM. This is achieved by a plumb-bob suspended from the mount being dangled over the TBM until the centre of the mount is lined up. The level is then attached to the tripod using the fixing screw. The level then has to be accurately ‘levelled’. That is, the line of the short telescope has to be parallel to the ground. This is achieved by turning three adjusting screws on the level’s mounting until the bubble in the spirit level is in the centre of a circle marked on its covering glass. The instrument can now be used to take measurements.

One surveyor holds a measuring staff on the point to be measured. The staff is marked off in 1cm units and can be extended up to height of four to five metres. A second surveyor rotates the level in the direction of the staff and, looking through the telescope, focuses cross-hairs visible in the eye-piece on the measuring staff. Lining up the level on the centre of the staff involves the fine adjustment of the level to the left and the right using adjusting knobs. The measurement is read off from the staff and recorded in a notebook along with the details of what is being measured. Levels may be taken at a distance across a site and it may be necessary for the surveyors to communicate by hand signals. As with laying out a base line, there should be a set of established conventions to ensure effective communication. The level mounting has the 360 degrees of the compass marked on it and the instrument can also be used to lay out a right angle.

The amount of error involved in this method will relate to how accurately the level is set up: an exact location over the TBM and the instrument being exactly level. There is also the potential for error in the taking of the readings. The measuring staff needs to be exactly on the point to be measured and vertical. The reading should be taken in the centre of the staff and recorded accurately in the surveying notebook using set conventions.

4. USING A GEODIMETER (EDM – ELECTRONIC DISTANCE METER)

An Electronic Distance Meter (EDM or Geodimeter) is essentially an electronic theodolite. It measures horizontal and vertical angles. From these, the location of a point can be measured in three dimensions: distance north, distance east and the altitude in relation to the TBM. The EDM is similar to a level in some ways; in that it has a short telescope on a mounting that rotates through 360° and it also has a horizontal spirit level and adjusting screws to level the instrument. This is mounted on a tripod in a similar fashion. The mounting has a small ‘periscope’ looking downwards so that the instrument can be centred over a TBM. It also has a panel of buttons and a digital display and controls to move

the telescope moves up and down. The instrument is packed in a solid box with straps so that it can be carried on the surveyor's back.

The EDM is mounted on the tripod and levelled as described for the level (see above). The instrument is attached to a battery and switched on. Fine levelling is then carried out with reference to a digital display. The instrument is then calibrated to the desired settings by entering the relevant information. One surveyor holds a circular measuring staff on the point to be recorded. On this a glass crystal 'reflector' enclosed in a plastic holder is mounted at a pre-determined height. The EDM operator focuses the cross hairs seen through the eye-piece of the telescope on the centre of this crystal. When the EDM is 'on target', it emits a high pitched 'whine'. The tone of this whine will vary if the instrument is slightly 'off-target'. When satisfied with the alignment, the operator presses a button on the machine and a pulse is sent out to the crystal and reflected back to the instrument. The angles and distances are then calculated and displayed on the digital screen. These can be written in a surveying notebook by the operator or, alternatively, downloaded directly into a data logger which can be attached to the instrument. The two surveyors may have to communicate using hand signals based on a pre-determined set of conventions.

The causes of error involved in using an EDM are similar to those when using a level. In addition, the correct information must be entered into the instrument when it is calibrated.

5. USING A PRISMATIC COMPASS

A prismatic compass is used to take a compass bearing from one point to a distant feature. It can be used whilst conducting field surveys (see below) or to establish the orientation of a feature.

A prismatic compass is an ordinary compass with the additions of a hinged lid and an eye-piece on its upper edge. The hinged lid is made of glass and has a fine 'hair-line' mark down its centre. This opens up at right angles to the compass. Opposite this, the eye-piece is in two parts. Through the upper part the view through the glass lid and the hair-line mark can be seen. The lower part consists of a mirror which reflects the compass reading. The compass is held up to the eye and the hair-line aligned on a distant object. The bearing can then be read-off from the reflection in the lower part of the eye-piece.

There can be a margin of error of several degrees in using a prismatic compass as it is a hand-held instrument. More accurate readings can be obtained by using a theodolite or an EDM, but these are very bulky instruments to carry when conducting a field survey.

6. USING AN OPTICAL SQUARE

An optical square is a hand held instrument that can be used to lay out a right angle. This can be used when setting out a grid over a large area such as when conducting a field survey or a field walking exercise.

Looking through the eyepiece, three views can be seen, one on top of another: left at 90°, straight ahead and right at 90°. By looking through the instrument at a point directly ahead, usually a ranging pole, the surveyor can line this up with a pole held by a second surveyor to their right or left. By eye the operator gets the two poles in line in the views that can be seen through the instrument. This requires instructions to be given to the second surveyor, often hand signals. A right angle is then established from the point where the observation is taken to the two ranging poles.

This is a hand-held method, and there may be a substantial degree of error involved.

7. COMPLETING SITE RECORDS

Surveying data will normally be recorded in a notebook, except where a data logger is used with electronic equipment such as an EDM. The readings need to be laid out in a systematic and consistent format with explanatory notes. This is to ensure that the survey can be accurately reproduced from this record by another person if necessary.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand the methodology and appreciate the effectiveness of individual archaeological survey techniques, including issues of accuracy and ‘error’
- Become proficient in setting out a measured survey and carrying out an archaeological survey to a professional standard
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced

- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills

- Recognition, description and reporting skills
- Accuracy in working and reporting
- Critical thinking
- Analytical and practical skills
- Numerical skills.

CHARACTERISATION

Some of the surveying activities require full physical movement of the whole body for example: to insert ranging poles, to position and secure surveying lines/tapes, to set up and level a tripod. However, many other activities do not require the full use of the body, for example; taking readings from a Geodimeter, holding measuring staffs, using prismatic compasses and optical squares. Visual ability is important to involvement in some surveying activities, as hand signals are often used to direct team members whilst completing field techniques. Cognitive and numerical skills are required to retain information, calculate measurements (i.e. Pythagoras Theorem), read and interpret readings from a Geodimeter, optical square and prismatic compass and to document findings.

F. SURFACE SURVEY

DESCRIPTIONS

1. FIELD WALKING

Field walking is a non-intrusive archaeological technique. It involves the collection of artefacts brought to the surface by cultivation. This is done in a number of systematic ways. One method is ‘line-walking’. The archaeologists walk across a cultivated field in straight lines at a set distance apart from each other. The distance between walkers will vary depending on the intensity of the survey. They can be 5, 10, 15 or even 20 metres apart. An area about one metre in width is scanned by eye on each traverse and any artefacts on the surface are picked up and placed in a finds bag. The bags will be marked according to the recording system in use. Another system is to pick up artefacts within a set area in a set time limit. The area may vary, but a square 10m x 10m is the most common. This method is usually used when there are a large number of surface artefacts present.

The setting out of the grid for both line-walking and timed walking involves the surveying methods described above. There will also be an element of close team work with both verbal communication and hand signals across a distance necessary.

2. FIELD SURVEY

Field survey also involves walking across the landscape, but not necessarily cultivated ground. The objective is to note the presence of upstanding features such as buildings and earthworks. Some of these may be very slight features marked only by a difference in the nature of the overlying vegetation. This is done systematically and is similar to line-walking in some ways (see above). The main difference is that this is usually extensive survey covering much larger areas of landscape than an intensive field walking survey. The surveyors walk across the landscape noting the presence of features. The recording will consist of written comments in a notebook using set conventions for description, location and other relevant information. Sketch plans and photography may also be used.

The setting out of the grid will involve the surveying methods described above. There will also be an element of close team work with both verbal communication and hand signals across a distance necessary.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand the ways in which non-intrusive survey techniques can contribute towards an archaeological investigation
- Become proficient in undertaking an archaeological surface survey
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced:

- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting
- Critical thinking
- Analytical and practical skills.

CHARACTERISATION

Good standing balance, weight bearing and gait are required, as is stamina. Health and Safety issues are involved, as uneven surfaces can present tripping hazards.

Hand/eye coordination is required to see artefacts on the ground and pick them up. Upper limb movement and manual dexterity skills are necessary for handling artefacts and bagging them up whilst field walking. Good visual acuity, especially contrast vision, is required to scan the ground surface and to see artefacts, as well as above surface features such as buildings and earthworks. Spatial awareness is also required to maintain set distances from team members whilst field walking. Good oral and aural communication skills are required whilst working as part of a team.

G. GEOPHYSICS

A number of pieces of equipment can be used to measure anomalies beneath the surface. From these results the location of actual excavation trenches can be planned. This is necessary because very rarely is site totally excavated; only a sample is dug. By having a general picture of what lies beneath the surface, excavation trenches can be targeted to recover a ‘representative’ sample. These methods are described under the generic heading of ‘Geophysics’. Although several different methods are available, the two most common in general use are ‘Magnetometry’ and ‘Resistivity’.

1. MAGNETOMETRY

A Magnetometer, or Gradiometer, measures the different levels of magnetic anomalies beneath the ground. It consists of a rectangular tube which is held in one hand. The operator walks up and down across the area being surveyed at a constant speed and holding the machine at a constant distance above the ground. Maintaining a regular speed is aided by the machine bleeping at constant intervals. The operator must not have any metal on their clothes or their person as this will interfere with the readings. The area to be surveyed is walked over systematically, usually in large square blocks of 30m x 30m. This requires the laying out of ‘guide’ lines across the block for the operator to follow. The position of these have to be moved by a second surveyor as individual traverses are completed. The guide line may also have markings at a set distance along its length. These are a guide to the surveyor in timing their speed of walking to ensure that the machine bleeps as they pass each mark.

On the completion of each block, the information is downloaded from the magnetometer onto a PC where the results can be analysed.

2. RESISTIVITY

Resistivity measures the ‘resistance’ to an electrical current passed through the ground. The electrical resistance within the ground will be dependent on the moisture that is being held. Therefore, a filled in pit or ditch will have a different moisture content to the soil around it, and a stone wall will possess very little moisture content.

The most commonly used method in archaeology is a twin electrode configuration. One pair of electrodes is placed in a fixed position in the area being surveyed, whilst the other pair is mounted on a movable frame. This consists of a rectangular frame with a data logger mounted on the top and two short probes which enter the ground on the bottom.

The operator moves along a traverse marked by a guideline. The frame is held at the top in two hands, lifted and the probes pushed gently into the ground at, usually, half metre intervals as the operator walks forward. A wire connecting the instrument to the fixed position electrodes has to be carefully trailed behind the operator as they move forwards. As each traverse is completed, the guideline will require moving to a new position.

LEARNING OUTCOMES

The student/participant will be able to:

- Understand the methodology and appreciate the effectiveness of individual geophysical survey techniques, including the applicability of different techniques in different archaeological circumstances
- Become proficient in setting out a geophysical survey and carrying out a survey to a professional standard
- Understand and apply the requirements of on-site archaeological recording procedures.

In addition, the following transferable skills will be developed and enhanced:

- Team working and independent working
- Communication skills, written and oral
- Observational skills
- Problem solving skills
- Recognition, description and reporting skills
- Accuracy in working and reporting
- Critical thinking
- Analytical and practical skills
- Numerical skills
- Dealing with digital data.

CHARACTERISATION

Both Magnetometry and Resistivity involve similar physical and cognitive skills and therefore can be addressed simultaneously.

Geophysics requires surveying lines to be set up and moved at regular intervals. This requires full physical movement of the whole body and hand/eye coordination; for example, to position and secure surveying lines or tapes.

Both Magnetometry and Resistivity involve carrying a piece of equipment up and down a site at set distances to collect data. This requires good walking balance (often over uneven ground), weight bearing, upper and lower limb strength, power grip to hold equipment, fine finger dexterity to press controls, spatial awareness (to maintain uniformity of carrying equipment), stamina and communication skills with team members to realign surveying lines.

Visual acuity is also required to see potential trip hazards on the surface (including electrical cables), see the indicators on surveying lines, read meters, and to see hand signals from other team members. Good hearing is also required when using a Magnetometer to detect audible indicator.

Due to measuring magnetic disturbances when using the Magnetometer, anyone fitted with a pacemaker, metal plates or glasses cannot complete this technique. This will exclude some people, but cannot be compromised as inaccurate data will be recorded. Good cognition skills are required to download and interpret the data as specialist software is used.

III OTHER LEARNING OUTCOMES

Relevant information from the National Occupational Standards and the NVQ can be added to the learning outcomes identified by the subject providers. The latter set of standards has been superseded by the former, but is included to show the range of skills expected within the profession. Although these are not specifically ‘learning outcomes’ in themselves, they illustrate the professional standards that archaeological fieldwork training is intended to teach.

NATIONAL OCCUPATIONAL STANDARDS

PERFORMANCE REQUIRED (Carter & Robertson 2002, 42)

- Contributing to the investigation efficiently and systematically and in accordance with the method statement
- Identifying and accurately recording relevant features
- Making observations and measurements that are accurate and fully meet specified data requirements
- Recording investigation data clearly and accurately and securing it securely for later analysis
- Adapting work procedures and practices if instructed to allow for different circumstances and conditions
- Consulting with senior managers when uncertain about any aspect of the investigation or own responsibilities for action
- Maintaining the integrity of the site, observing safe working practices and ensuring disruption to other activities on the site is kept to a minimum
- Using equipment appropriately, maintaining it in operational order and storing it securely.

REQUIRED SKILLS (Carter & Robertson 2002, 43)

- The use and calibration of measuring equipment
- The safe and appropriate use and care of hand tools
- Lifting and handling techniques
- Techniques applicable to intrusive archaeological investigations
- The use of forms for recording and of the recording materials.

NVQ ARCHAEOLOGY STANDARDS

CARRY OUT SURFACE COLLECTION (NVQ 1994, 12)

- The collection process is consistent with the requirements of the specified method, and is complete for the specified area/location
- Collection involves minimum impact on land, its features and wildlife
- Archaeological material is distinguished validly from non-archaeological material, and its distribution and quantity is accurately defined and recorded
- Where there appear to be unexpected or unusual archaeological features or material, location is recorded and appropriate people informed
- Records relating to surface collection are accurate, complete and up to date
- Activity is carried out in accordance with relevant Health and Safety legislation.

CONTRIBUTE TO THE EXCAVATION OF A SITE (NVQ 1994, 18)

- Removal of archaeological material is at the right location, is systematic and at a speed consistent with specified requirements, and involves equipment and techniques consistent with the expected and revealed nature of site and deposits
- Identification of stratigraphic and other features and changes is accurate and exhaustive
- Discrimination between archaeological material and non-archaeological material is accurate
- Removal of spoil is systematic, using specified methods and equipment, and does not hazard the integrity of excavated and non-excavated areas
- Recovery and handling of archaeological deposits revealed is consistent with the nature and condition of the deposits and the priorities of the project
- Storage of recovered deposits is as specified for their location
- Excavation conforms to Health and Safety legislation, organisational requirements and recognised good practice.

CONTRIBUTE TO THE PRIMARY RECORD (NVQ 1994, 19)

- Identification and classification of archaeological deposits are accurate and in terms of specified characteristics
- Recorded primary data uses conventions and style required by the project, is of the level and accuracy of detail, and is complete

enough to permit reporting of the relevant part of the excavation without further investigation
- Where primary data is insufficient, the nature of missing data is noted
- The conventions and style used in the preparation of records are appropriate for the destination of records
- Records of excavation method and progress are complete and accurate, and include unusual occurrences and necessary adaptations in procedure.

CATALOGUE ARCHAEOLOGICAL MATERIAL (NVQ 1994, 20)

- Catalogue entries for finds identified and selected in consultation with supervisor and/or team are up to date and accurate
- Numbering, description and classification of finds are systematic, use conventions required by the project, and cover all required details
- Where certain details are unknown, or where finds are of an exceptional or unknown nature, team members are consulted.

PREPARE SITE PLANS, SECTIONS AND ELEVATION DRAWINGS (NVQ 1994, 35)

- Individual drawings are clean and accurate and represent views of sites and structures that convey the basic information for each view
- Sets of drawings taken together convey complete information and allow further information, interpretation and comparison with similar and related sites and structures
- Drawings of a single site or structure are effectively cross-referenced and inter-related
- Where data from different sources is inconsistent, differences are resolved by discussion and further investigation
- Lines used are economical, and shading and stippling add information to the drawing
- The conventions, style and medium used for the drawings are appropriate for their destination and the nature of the site or structure concerned
- Where drawings cannot convey all basic features of a site or structure, photographs are obtained to supplement them.

TRANSFERABLE SKILLS

In researching the intended learning outcomes gained through participating in archaeological fieldwork training, a number of 'other' outcomes, or 'transferable skills', were identified by the subject providers. These are included in each individual 'Learning Outcomes' section above. In this section they are listed below as a separate entity as further information to inform Phase 3 of the project.

- Critical thinking
- Independent learning and working
- Problem solving
- Health and Safety
- Accuracy
- Team working:
    - appreciate its personal demands
    - within a hierarchical structure
    - co-operate and learn from peers
    - group discussion, asking pertinent questions and responding to comments
    - listen and share knowledge effectively
    - reflect on self-progress in a group environment
    - manage own work as part of a team
- Skills learned:
    - practical
    - observational
    - analytical and graphical
    - data collection and sampling strategies
    - numerical
    - dealing with digital data
    - problem solving
    - recognition, description and reporting
- Written and oral communication
- Managing time efficiently and effectively in both practical and intellectual situations
- Capacity and desire to learn in both subject and non-subject areas
- Experience of a professional environment and maintaining a positive and professional attitude to colleagues and supervisors
- Precision and cautiousness in the assessment of evidence, evaluating what it can and cannot say
- Apply an understanding of relevant archaeological concepts and methods in non-archaeological situations
- Research and writing skills – tested by assessment methods (eg. fieldwork report, diary, portfolio).

IV STUDENT FEEDBACK

This feedback consists of the skills that the undergraduate students feel that they are learning through participating in archaeological fieldwork training. It also indicates which of those skills they deem to be most important, as well as reflecting their personal experiences of fieldwork. The following data is extracted from questionnaires returned by students attending the University of Reading's Field School at Silchester and Bournemouth University's excavations at Knowlton during the 2005 season.

THE SILCHESTER QUESTIONNAIRES

1. ARCHAEOLOGICAL AND TRANSFERABLE SKILLS

This questionnaire was given to 50 undergraduate Archaeology students who had just completed their first year of study and were embarking on their first training excavation. 37 completed questionnaires were returned, 74% of the total. The questionnaire addressed the archaeological and transferable skills that the students felt they had gained by participating in archaeological fieldwork training. The students were asked to suggest the key skills themselves. The individual responses were categorised into a number of grouped themes derived from the replies.

1. What three key archaeological skills do you think you have learnt during your time at the Field School? (skills that you did not previously possess).

Table 1 Key archaeological skills learnt on the Field School

Key Archaeological Skill	No. of Responses	%
Archaeological planning	25	22.5%
Excavation skills	24	21.6%
Understanding stratigraphy	18	16.2%
Archaeological recording techniques	10	9.0%
Processing of finds	8	7.2%
Archaeological interpretation	8	7.2%
Archaeological surveying	6	5.4%
Geophysical survey	6	5.4%
Environmental sampling	5	4.6%
Site etiquette	1	0.9%
Total responses	111	100.0%

The key skills identified by the students reflect the techniques that the subject providers reported that they are teaching in archaeological fieldwork training in the project's Phase 1 questionnaire survey (Phillips & Gilchrist 2005). These include excavation and recording techniques, planning, instrument survey (surveying), environmental sampling, processing of artefacts and geophysics. The only technique not represented in the student feedback is field survey; this is because the Silchester project does not involve this technique. From these responses, it is clear that the students consider that they are learning the key archaeological fieldwork techniques.

2. What three transferable skills do you think you have learnt during your time at the Field School?

Table 2 Transferable skills learnt on the Field School

Transferable Skill	No. of Responses	%
Team working	25	23.2%
Recording information	19	17.6%
Social/communication skills	15	13.9%
Analytical skills	12	11.1%
Adapting to a new environment	7	6.5%
Time management skills	6	5.6%
Motivation/self-confidence	6	5.6%
Labouring/using hand tools	4	3.7%
Decision making skills	3	2.8%
Health and Safety	3	2.8%
Interpretation skills	2	1.8%
Problem solving skills	2	1.8%
Organisational skills	2	1.8%
Patience	1	0.9%
Observational skills	1	0.9%
Total responses	108	100.0%

Not all the transferable skills recognised by the sample of subject providers were identified by the students on the Silchester Field School. However, they did recognise other transferable skills:

- General skills of recording information
- Adapting to a new environment – work, social and domestic
- Motivation and self-confidence
- Decision making skills
- Labouring and using hand tools
- Interpretation skills
- Patience
- Organisational skills.

3. List any two skills (either archaeological or transferable) which have been developed during your time at the Field School (ie. skills that you already possessed).

Table 3 Archaeological and transferable skills developed at the Field School

Key Archaeological Skill	No. of Responses	%
Processing of finds	7	9.6%
Archaeological planning	4	5.5%
Excavation skills	3	4.1%
Archaeological interpretation	2	2.7%
Archaeological surveying	2	2.7%
Archaeological recording	2	2.7%
Geophysical survey	1	1.4%
Understanding stratigraphy	1	1.4%
Total	22	30.1%
Transferable Skill	**No. of Responses**	**%**
Team working	17	23.3%
Social/communication skills	13	17.8%
Analytical skills	5	6.8%
Recording information	4	5.5%
Decision making skills	2	2.7%
Time management skills	2	2.7%
Self-confidence	2	2.7%
Patience	1	1.4%
Labouring/using hand tools	1	1.4%
Responsibility	1	1.4%
Organisational skills	1	1.4%
Physical fitness	1	1.4%
Common sense	1	1.4%
Total	51	69.9%
Total responses	73	100.0%

The responses from the students tended to identify transferable rather than archaeological skills as, for many of the students; this was their first experience of fieldwork. Three further transferable skills not mentioned in the responses to Question 2 were also identified: responsibility, physical fitness and common sense.

2. THE EXPERIENCE OF FIELDWORK

This voluntary questionnaire was distributed to 54 students and consisted of a general question about the students' experience of participating in archaeological fieldwork training and a more detailed question about their own personal experiences. The first question was answered by 25 students (45% return rate), and the second one by 21 students (39% return rate). The students in this sample were overwhelmingly positive about their experiences and had obviously enjoyed themselves immensely. The responses have been grouped into themes which are derived from the content of the answers.

1. In a couple of sentences please give a general statement on the most striking aspects of participating in an archaeological excavation. This can include any aspect of your experience at the Field School, not just digging.

The striking aspects for the students participating in an archaeological excavation can be grouped under two major themes: work and social life.

WORK

The correlation between what was learnt on fieldwork and what was being taught in lectures was an important aspect that was identified by several of the students:

> 'For me, the most striking aspect is the past coming to life. Lectures can be interesting, but they cannot compare with actually digging up a piece of history.'

> 'It's a valuable aspect to allowing understanding of Archaeology in the course.'

In one case, the student felt that they were actually benefiting more from fieldwork than from lectures:

> 'I have learnt more here in a month than in a year at University.'

There was an overall feeling amongst the students that they were learning useful archaeological skills at the Field School:

> 'The organisation of the Field School was good and training efficient. The range of skills very wide such as for 4 weeks I've learned a lot.'

> ‘Learnt a lot of skills and generally had a great time.’
>
> ‘I feel that the most striking aspects of the dig was the practical training itself. There is no other course quite like it and I have really enjoyed having the availability of the dig.’
>
> ‘It was also really good that we got the chance to do every aspect of excavation.’

There was a general feeling of enjoyment and satisfaction over participating in fieldwork. Despite it being hard work, it was seen as a rewarding experience:

> ‘The hours of work can be a bit tedious but the work is interesting and stimulating.’
>
> ‘Enjoyed the hands on experience, it was hard work but very rewarding.’
>
> ‘Learning to excavate and being in a working research site is something I want to do lots again.’
>
> ‘The level of trust that the supervisors have in us. I think it’s a really beneficial experience……you leave having taken part in a worthwhile archaeological excavation.’
>
> ‘The other aspect is the dirt, which I enjoy immensely.’

Along with this enjoyment, for some of the students, there was a realization that archaeological fieldwork was very different from their preconceptions. This was seen as a very positive aspect:

> ‘The most striking aspects were the realisation of the variety of jobs there is on an excavation and the other that it isn’t like the TV programmes.’
>
> ‘Coming to the Field School has made me realise just how much planning and preparation goes into excavation. I’ve learnt so much about drawing plans, doing levels accurately, distinguishing finds and also the history of the site, as well as learning how to excavate properly.’
>
> ‘I discovered that there is far more to Archaeology in the field than the discovery of artefacts. There is far more science and common sense needed to distinguish between layers on site.’

> ‘Didn’t think I’d enjoy finds washing, but it was quite interesting for putting the site into perspective. This was the same with site tours.’

In one case, the student felt they were getting a real experience of practising field archaeology:

> ‘It brought the idea of Field Archaeology and its practices to life and made me see exactly what life in Field Archaeology would be like.’

SOCIAL ASPECTS

There was a strong emphasis on both the friendliness of, and the friendships made, during the Field School:

> ‘Everyone is friendly and the atmosphere is generally welcoming and fun.’

> ‘The atmosphere both off site and on site, very friendly people.’

> ‘One of the best things about going on the Field School is also that you make a lot of new friends.’

The social activities were seen as an essential part of this:

> ‘The social life is amazing and I’ve made loads of new friends.’

> ‘Wide range of activities organised both on and off the site, friendly cheerful atmosphere.’

The shared experience of living and working on a site was a major factor in this social atmosphere and the making of friendships:

> ‘I enjoyed the atmosphere and the company. It is a fantastic way to meet others in your department. I feel that it makes the department friendly and close knit.’

> ‘…..also how close everyone is in just two weeks.’

> ‘Being able to live here for a month.’

This was radically different from the social interaction gained from participation in on-campus teaching:

> ‘One of the most shocking things is just how quickly you get to know everyone on your course, where as before in a lecture you may know a couple of people; when you get here, that all changes.’

SUMMARY

The responses from this sample of the general experiences of students at the Silchester Field School can be summarised as number of basic points.

Work:

- a positive correlation with on-campus teaching
- the learning of useful archaeological skills
- a personally rewarding work experience
- a positive realization that it was very different from their preconceptions
- a real experience of field archaeology.

Social Aspects:

- an overall friendly atmosphere
- the friendships made
- the importance of social activities
- this positive atmosphere seen as growing out of the shared experience of participating in archaeological fieldwork training.

It should be emphasized that the students did not consciously refer to any transferable skills in their responses to this questionnaire. However, there are indirect references to some of these skills such as social interaction and team working.

2. ‘My most abiding experiences in participating in the Field School involved…’

This question managed to illicit more of the individual, rather than the shared, experiences of the students. As in the first question, the major themes are the actual work done and the social aspects. Some responses referred exclusively to only one of these themes, whilst others referred to both.

WORK

The discovery of archaeological artefacts and features appeared to have the greatest impact on the students. There is an element of excitement in the responses as the students recalled the experience:

> ‘Finding a small find!’
>
> ‘Unearthing a perfectly preserved piece of leather from the well.’
>
> ‘Finding a house using gradiometry that aerial photography did not see.’
>
> ‘Helping to uncover round house.’
>
> ‘Roman hair pin.’
>
> ‘The numerous Fe objects.’
>
> ‘Finding pottery and bone.’

There was a sense of ‘ownership’ and satisfaction in having the responsibility of working on a particular area:

> ‘Having one area that was mine. I planned it, excavated it and completed the context card for it. Some kind of permanence is much more satisfying than being moved around often to different areas.’
>
> ‘Finding that the pit I was excavating was a cess pit; nobody told me, I overheard during a tour. Getting in and out of my pit so much that by the end of the day I couldn’t move my feet.’

Some students expressed a feeling of achievement in successfully tackling specific tasks:

> ‘My first successful context card.’
>
> ‘Was really getting to grips with layers of sediment.’
>
> ‘Digging in the well and washing finds.’
>
> ‘The excavation of the well and learning to plan using different techniques to what I had learnt before.’

In other responses, the students gave a more general reply about their experiences of excavation. They found that having the opportunity to practice a number of activities was beneficial:

> ‘Getting the chance to have a go at everything, working down the well.’

> ‘Getting the chance to experience every aspect of an archaeological excavation (digging, planning, finds washing, etc).’

SOCIAL ASPECTS

As with the general question about their experiences of fieldwork, the students identified the social elements as memorable. This included the general friendliness and the making of friends:

> ‘Meeting everyone, both off and on my course.’

> ‘The most memorable thing will actually be the amount of friends I made during my two weeks and all the fun we had even though we were in the middle of nowhere.’

Along with general impression, there were individual memories of specific incidents and experiences. Many of these were shared experiences and included sharing difficulties:

> ‘Activity after 8:00pm, such as Amphitheatre.’

> ‘Being licked by a cow when I thought I was at a safe distance. Will be scarred forever after the Portaloos. Walking home from the pub in pitch blackness at the back of the line with the other two ‘seeing’ things and ‘hearing’ things in the night.’

> ‘The earwigs, Craig’s ‘love’ of cheese.’

> ‘The evening parties, the pub, the earwigs, the Beer Festival and public indecency, Dave in a kilt.’

SUMMARY

Work:

- excitement at finding archaeological artefacts and features
- pride and satisfaction at being given the responsibility to work on particular areas
- a sense of achievement in tackling new tasks
- general enjoyment of being able to do a variety of tasks.

Social Aspects:

- friendliness of the Field School and the friendships made
- shared social activities and difficulties.

THE KNOWLTON QUESTIONNAIRES

Two questionnaires were distributed to a total of 49 students; one prior to going on the Field School and the other after participating in the Field School.

1. PREVIOUS EXPERIENCE

This question was answered by 36 students, a return rate of 74%. As most of the students were going on their first archaeological excavation, they had limited experience of many of the techniques that would be involved (Table 4). The exceptions were some of the surveying techniques (set out a grid) and, to a lesser extent, planning. The activities where the students had the least previous experience included survey involving specialist equipment (GPS and Geophysics) and field walking.

Table 4 Previous experience in particular activities

ACTIVITY	YES – No.	YES – %	NO – No.	NO – %
Processing finds	10	27.8%	26	72.2%
Manual excavation	10	27.8%	26	72.2%
Geophysics	5	13.9%	31	86.1%
Total Station survey	9	25.0%	27	75.0%
GPS survey	4	11.1%	32	88.9%
Set out a grid	29	80.6%	7	19.4%
Planning	15	41.7%	21	58.3%
Field walking*	5	22.7%	17	77.3%
Total	87	31.8%	187	68.2%

n=36 students
*n=22 students

2. SKILLS

The students were asked to evaluate their abilities in a number of tasks before going on the Field School. This question was answered by 35 students, a return rate of 72%. The students tended to rate themselves as ‘average’ in most of the skills listed in the questionnaire (Table 5). It was only in observational drawing that an appreciable number (40%) considered themselves as having a ‘low’ ability. The skills that students evaluated themselves as possessing a ‘high’ ability included punctuality, regular attendance and teamwork and, to a lesser extent, communication and following written instructions.

Table 5 Students self-evaluation of skills before participating in the Field School

SKILL	H – No.	H – %	A – No.	A – %	L – No.	L – %
Punctuality	26	74.2%	8	22.9%	1	2.9%
Regular attendance	26	74.2%	9	25.8%	0	0%
Organisation	8	22.9%	25	71.4%	2	5.7%
Decision making	9	25.8%	20	57.1%	6	17.1%
Teamwork	21	60.0%	13	37.1%	1	2.9%
Neatness/tidiness	7	20.0%	23	65.7%	5	14.3%
Following written instructions	14	40.0%	20	57.1%	1	2.9%
Writing reports	4	11.4%	28	80.0%	3	8.6%
Reading maps/plans	9	25.8%	22	62.9%	4	11.3%
Observational drawing	4	11.3%	17	48.7%	14	40.0%
Communication	15	42.9%	18	51.4%	2	5.7%
Calculation	11	31.5%	18	51.4%	6	17.1%
Total	154	36.7%	221	52.6%	45	10.7%

n=35 students **H** – High **A** – Average **L** – Low

After the Field School, the students were asked to re-evaluate their abilities in a number of tasks. The question was answered by 34 students, a return rate of 69%. Overall, the students considered that their abilities in particular skills had increased by the end of the Field School (Table 6).

Very few of the students rated themselves as having a ‘low’ ability in most of the skills. The only appreciable numbers were in observational drawing (21%) and Total Station/GPS survey (18.5%). In all the comparable categories, the numbers of students evaluating themselves as ‘low’ in ability decreased in comparison to the Outset Survey.

The students evaluating themselves as ‘high’ in ability increased in all the comparable categories except regular attendance (a decrease of 0.7%). The highest increases in ability were considered to be neatness and tidiness (33%), communication skills (31%), following written instructions (25%) and punctuality (23%).

Table 6 Students self-evaluation of skills after participating in the Field School

SKILL	H – No.	H – %	A – No.	A – %	L – No.	L – %
Punctuality	33	97.1%	1	2.9%	0	0%
Regular attendance	25	73.5%	9	26.5%	0	0%
Organisation	12	35.3%	22	64.7%	0	0%
Decision making	12	35.3%	20	58.8%	2	5.9%
Teamwork	24	70.6%	10	29.4%	0	0%
Neatness/tidiness	18	52.9%	16	47.1%	0	0%
Following written instructions	22	64.7%	12	35.3%	0	0%
Reading maps/plans*	9	27.3%	23	69.7%	1	3.0%
Observational drawing	9	26.5%	18	52.9%	7	20.6%
Communication	25	73.5%	9	26.5%	0	0%
Calculation	17	50.0%	16	47.1%	1	2.9%
Site recording	9	26.5%	22	64.7%	3	8.8%
Manual excavation	20	58.8%	14	41.2%	0	0%
Geophysics*	10	31.3%	20	62.5%	2	6.2%
Total Station/GPS survey*	7	25.9%	15	55.6%	5	18.5%
Sampling*	10	30.3%	21	63.6%	2	6.1%
Processing finds*	6	20.0%	23	76.7%	1	3.3%
Total	268	47.6%	271	48.1%	24	4.3%

n=34 students
* not all students participated in these activities

H – High **A** – Average **L** – Low

3. EXPECTATIONS AND FULFILMENTS

A. Before the Field School:
At Knowlton, you are taking part in an important research project. Give a brief description of what you think will happen during the time that you are on the site.

This question was answered by 34 respondents, a return rate of 69%. The major expectation of the students centred on the work that they would be involved in. Although there was an amount of uncertainty about what to expect, there was also a feeling of positive expectation. The fieldwork was seen as an opportunity to gain new skills and develop existing ones:

> ‘I expect that I will be given an opportunity to sample various archaeological methods and techniques and be given a chance to do things that I can’t do elsewhere.’

> ‘During my time on site I hope to learn a variety of techniques, which will aid my abilities in the future as an archaeologist.’
>
> ‘On site I will hopefully take part in a number of different activities and use a number of archaeological techniques.’
>
> ‘On site I am expecting to experience all of the archaeological activities.’
>
> ‘I think I will get to try out different sorts of techniques and methods.’
>
> ‘I think I will develop new skills and develop ones I already knew.’
>
> ‘Increase my experience of all types of field archaeology, including areas I have had no practice in.’
>
> ‘Develop previous skills and learn new ones.’
>
> ‘I think that the site will be an interesting and enlightening experience that will widen my range of skills and increase my archaeological knowledge and, perhaps, test it too.’

The specific field activities alluded to directly included geophysics, excavation techniques, finds processing, environmental surveying, planning and recording. These are the activities that the subject providers report they are teaching undergraduate students (Phillips & Gilchrist 2005). There was also an expectation of learning how to use the different tools correctly:

> ‘I expect that I shall have to do heavy digging using a spade to get the turf off and use a trowel, as well as other aspects such as geophysics and analysing finds.’
>
> ‘I will learn to use the geophysical equipment, and hope to partake in other activities that I have no experience in as well.’
>
> ‘During the time I am on site there will hopefully be chances to work with geophysics equipment, try surveying, learn how to process finds and record them.’
>
> ‘Become more confident with my observational drawing. Use other types of geophysical equipment, other than what I have used before.’

‘Hopefully I will gain a better understanding of the locating and recovery of artefacts within an archaeological context.’

‘Taught how to treat finds in an orderly way.’

‘Hopefully learning new techniques such as processing finds, environmental analysis and maybe improving previous skills.’

‘To develop my field survey techniques to a competent standard.’

‘We will gain first hand experience of what it is like on an archaeological dig, learn practical skills, such as section drawing’

‘I think I will learn how to use the tools correctly and learn more about the hands-on experience of archaeology.’

‘Learn how/what equipment used.’

‘We will learn how to use tools associated with fieldwork.’

There was also an expectation that participation in fieldwork would help in, not just understanding an individual excavation, but also in understanding archaeology in general, especially in relation to on-campus teaching:

‘Gain an understanding of what concerns the excavation.’

‘We will gain first hand experience of what it is like on an archaeological dig.’

‘I will get to see the operation of an archaeological dig and how it is maintained over a number of weeks.’

‘General experience of an archaeological site.’

‘I have never dug using a trowel before or been on a site and experienced all the various processes, so I am interested in how everything ties together.’

‘Gain basic understanding of different areas concerning an archaeological site.’

‘The execution of a dig. I do not have a good understanding of what this entails in terms of a step-by-step process and hope to develop this understanding.’

‘I will gain a larger perspective and range of ideas, to be enhanced also by a greater capability of process on a site.’

‘I am hoping to increase my overall knowledge of archaeology.’

‘During the project I expect to gain a greater understanding of how archaeology in the field works and applies to the theory work previously undertaken.’

‘I hope to practise with equipment and procedures that we have practised with throughout the year.’

‘I expect to learn a great deal about practical archaeology (reading is different from doing), having no previous experience.’

‘By working hard, I will be able to gain a further understanding of all the information I was given during lectures at University.’

Few transferable skills were alluded to, but these were not specifically mentioned in the questionnaire. In their responses, the students identified team working and confidence building, as well as making a contribution to something important and worthwhile:

‘I will be working with a team of others learning some new practical skills, and be part of a real excavation, contributing to the work needing to be done here.’

‘I hope to gain more confidence.’

‘…..and bond as a group.’

‘…..and developing my confidence in the field.’

‘My expectations are to feel confident in using the skills I have learnt over the first year.’

‘Working as a team to reach a goal.’

‘Learn self-confidence in dealing with finds increasing our independence; learn to make assumptions and predictions (framed expectations); observe our supervisors and take note of advice they give and respect their experience.’

‘…..and working in an archaeological team.’

A number of the students identified areas where participating in fieldwork would help them in the future:

> ‘I would like to get a better idea of which direction I want to go with my second and third year options.’
>
> ‘I also think I will get a good idea of how I like the various jobs on site and what I might want to specialise in.’
>
> ‘I also hope to identify what I enjoy and excel at.’

One (mature) respondent recognized that there were a lot of unexpected things involved, as well as admitting their own nervousness at the prospect:

> ‘Lots of work, spending lots of time wondering what I am doing and how it is to be done. A bit nervous at having to become a student again.’

The major expectations of the students can be summarised in this statement from one student:

> ‘Hard work, learn lots of new skills. Remember why I took this course.’

SUMMARY

The major expectations of the students going on the Knowlton Field School revolved around the actual work that this would involve:

- Gaining new archaeological skills and developing existing ones
- The skills mentioned include those that the subject providers have identified as the ones that they teach and assess (Phillips & Gilchrist 2005)
- Gain an overall understanding of what an archaeological excavation involves and archaeology in general
- The specific transferable skills of team working and self-confidence
- Additional help in their future progress.

B. After the Field School:
Outline those aspects of your site experiences that lived up to your expectations or that you found particularly rewarding.

This question was answered by 28 respondents, a return rate of 57%. The feedback from the students after the Field School reflects an extremely positive and enjoyable experience, in many cases exceeding their initial expectations. Many of the students found that they had learnt new skills and had developed ones they already possessed:

> ‘During my past week here we had the chance to take part in all types of survey including geophysics, GPS and the use of Total Stations. During the rest of the excavation I also had the chance to try out environmental processing and tried out excavation techniques. This made it a very rewarding experience as I got a real taste of all different aspects of archaeology.’
>
> ‘I enjoyed environmental sampling and processing. I think this was because it was an area that I had not come into contact with before. Also, being able to experience finds processing developed my skills in identifying objects found on site.’
>
> ‘It was gratifying to find that those excavation skills I’ve learnt in commercial archaeology transferred well to a research environment.’
>
> ‘I found that I enjoyed all aspects of the work. In particular I enjoyed using GPS. The environmental work exceeded my expectations.’
>
> ‘I really enjoyed the environmental sampling a lot more than I thought I would.’
>
> ‘I found the excavation work more rewarding than environmental sampling. However, I also found learning to use the geophysical equipment enjoyable also.’
>
> ‘The magnetometry and other geophysics was particularly interesting. The wet sieving was also particularly interesting.’
>
> ‘I have never been on an archaeological excavation before, so all the activities were new to me. I found trowelling interesting, as you scrape back the surface to reveal a past layer of soil.’

‘The majority of the dig met my expectations as I thought I would find it interesting and enjoyable, but very tough and quite demanding.’

‘I enjoyed learning how to use all the tools (especially mattocks).’

‘I enjoyed doing the planning and drawing of contexts and sections as this was new to me.’

‘I now know by looking at a piece of flint whether it is nothing or whether it has been worked by hand. Before the dig I had a limited idea of what to look for, but now I can see the characteristics of the worked piece.’

‘The actual digging was good, and I was pleased that I was able to do things like spot new contexts and keep up with others who had dug before.’

‘I enjoyed using the various geophysical instruments. I found working on environmental sampling particularly rewarding. I had already completed similar work on my placement, so was able to use the techniques I had already learnt.’

‘The dig has been an interesting and enlightening introduction to field archaeology that has widened my range of skills more than I expected.’

Several students felt that they had gained an understanding of what is involved in an archaeological excavation and archaeology in general:

‘I think that the most rewarding part of working on site was being able to record the stratigraphic layers within my section, as it meant it clearly showed all of the layers we removed.’

‘Seeing all the features that were found on the site and finding out the story behind them.’

‘I quite enjoyed working in the trench and thinking about what that area of the site might have been used for.’

‘I did not expect the site to be run so efficiently and neatly, but I can now understand why it is done. Other rewarding activities included the environmental work. It is very interesting to understand how and why it is being undertaken at this site.’

> ‘I found it interesting when finding new context layers as it is nice to know that you can judge what is a new context from an old context. It is very rewarding to find things because it can show that you are going the right way.’

> ‘I really enjoyed getting to grips with how an excavation works. I liked how every day something new was discovered that changed our opinions of the site, or was unexpected.’

> ‘I have got to see how a site operates and is maintained over a number of weeks.’

> ‘The site work along with the atmosphere all lived up to my expectation, especially working on the barrow which gave me an insight in to the prehistoric world.’

As with their expectations prior to the Field School, very few direct references were made to transferable skills:

> ‘I liked working in small groups on my section and when doing other things such as geophysics and environmental sampling.’

One student did feel the benefit of being given responsibility over one particular task:

> ‘I found environmental rewarding as I was trusted to be left in charge while the supervisor worked on site.’

In two examples the students were able to identify where their specific interests and skills lay:

> ‘I really found working with the artefacts rewarding and would love to develop my skills further.’

> ‘I found that my talent came from digging the trench and spotting context layers.’

Several of the students related that the whole experience being involved in an archaeological excavation was rewarding in itself. This involved aspects such as the feeling of making a valid contribution, the general atmosphere of the Field School and a sense of achievement and satisfaction. In some cases the excitement of the whole experience was expressed, especially in finding artefacts and seeing the past revealed in layers as it was excavated:

‘Simply knowing all the work I was doing was contributing to 3 years of work. This was rewarding.’

‘It was also very pleasant to work in an environment with so little pressure of time.’

‘It was rewarding when you looked back and had seen how much you had dug or found each day. Also, looking back at one trench at the end of the dig and knowing that you took part in digging that trench by hand was a great achievement.’

‘Really enjoyed the laid back, but energetic, environment when new ideas were being discussed and the ever-changing interpretations.’

‘I got a great deal of satisfaction when looking back over what I had done at the end of the day on site.’

‘The general excavation of features I found to be the most enjoyable part of the dig, as once you had finished the part you were excavating it was really rewarding to know that you had helped uncover that piece of the past that no one had seen in thousands of years.’

‘To be able to excavate human remains on my first dig was amazing.’

‘The quality of the archaeology itself was very high. I’ve never worked on such a well-preserved barrow.’

‘I enjoyed being asked to take back the layers in an area, such as a ditch, and watching it go down, peeling back the layers, identifying the different layers and the artefacts within them. Finding a piece of Bronze Age pottery that nobody has seen for thousands of years is a feeling like no other.’

‘My whole time on site was beyond what I expected.’

‘It has also been a fun experience.’

‘I wanted to be there every day.’

SUMMARY

The expectations of the students were fulfilled and, in many cases, exceeded. To this can be added aspects of the whole experience of participating in archaeological fieldwork.

- New skills were learnt and existing ones developed
- These included the core skills taught by the subject providers (Phillips & Gilchrist 2005)
- For many students an overall understanding of the process of excavation and other general aspects of archaeology was achieved
- Transferable skills were not overtly mentioned to any great extent
- In a couple of examples the students were able to identify where their talents lay
- Participating in archaeological fieldwork training was seen as a rewarding experience including a feeling of making a contribution, the atmosphere of the Field School, a sense of achievement and satisfaction and a general feeling of excitement, especially at finding things.

4. SKILLS DEVELOPMENT

A. Before the Field School:
Which skills do you hope to develop whilst you are on site?

This question was answered by 34 respondents, a return rate of 69%. Most of the students identified the acquisition and development of practical archaeological skills as their main objective. The core techniques taught by the subject providers were referred to in their replies including excavation, finds processing, surveying techniques, planning, geophysics. These are all activities of which a majority of the students declared they had no previous experience (Table 4). Environmental processing, recording procedures and field walking were also mentioned, but to a lesser degree:

> ‘I hope to develop skills that are used out on the field in practical conditions.’
>
> ‘I hope to develop practical skills which include observational drawing.’
>
> ‘I would also feel proud if I could make my archaeological drawings more understandable.’

‘Skills in geophysics and excavation.’

‘I hope to develop all my skills. I especially hope to develop my observational drawing skills.’

‘I hope to develop some competence in the areas of surveying and geophysics.’

‘Excavation skills and use of surveying instruments.’

‘GPS skills, excavation skills, finds skills such as identifying worked flint.’

‘I have never used a trowel before and so hope to develop a good technique.’

‘Excavation and finds primarily, all others to some extent.’

‘I would like to develop my trowelling skills and get to understand GPS better by using it.’

‘I hope to develop trowelling skills and increase my skills in recognising different contexts.’

‘I hope to develop my surveying skills as I specifically enjoy this area. I hope to learn more about processing finds and the environmental side of excavation.’

‘Observational drawing and reading plans, trowelling and mattocking, geophysics.’

‘I hope to develop good practical skills in the excavation process. I want to be able to identify different types of worked flint. I also am interested to learn about and use geophysics and GPS equipment.’

‘Finds processing, try new/develop existing excavation techniques.’

‘To be able to tell changes in context layers, how to use a trowel correctly and to identify artefacts. I also hope to be able to learn different surveying techniques.’

‘Digging with a trowel as I have not used one in this sort of context before. Use of geophysics equipment.’

‘Having not been on a site before I am hoping to develop my excavation skills. Also to implement some of the post-excavation skills learnt and developed on placement: finds and environmental. I also need to develop my recording and observation skills.’

‘I hope to develop new skills on site due to me never been on an archaeological dig before. I hope to learn trowelling, field walking, environmental analysis, processing of finds and other things.’

‘Field skills and learning usage of equipment.’

‘Observational drawing I would like to improve as at another site last year I rushed it and did not complete it to the best of my ability.’

‘I hope to gain experience in the environmental side of archaeology and practice the geophysics skills we have been taught in the first year and at another dig.’

The other specifically archaeological aspects that the students referred to included a better understanding of the organisation of an excavation and archaeology in general, and the understanding of the things that had been taught in lectures, especially theory:

‘I also hope to develop my understanding of archaeological features in context to their surroundings.’

‘I also hope to learn many skills that have been taught in lectures in a practical condition and I hope that theory work can make more sense to me after I have been able to work outside in the field. I also hope to learn how excavations work and how they are organised.’

‘I hope to improve my skills of interpretation whether it is a map or a plan of the site.’

‘Being able to come to conclusions while using evidence from the site.’

‘I would like to improve my knowledge of archaeology and be able to come up with my own interpretations.’

‘How areas of the site are targeted through various methods for excavation.’

‘To see and understand how a dig is interpreted in the context of the hypothesis of the site.’

‘.....to improve as an archaeologist overall.’

Some respondents also felt that participating in the Field School would also help with their report and essay writing skills:

‘I would also like to increase my abilities in essay writing which I will be able to achieve writing my project report.’

‘My main aim is to develop my essay and report writing, as this will help me get my degree.’

‘…..writing essays and reports.’

In comparison to the questions on expectations and fulfilments, the students referred directly to transferable skills in many cases. The skills mentioned included self-confidence and decision making, teamwork, observational and numerical skills, and interpreting notes and other written material:

‘Increase self-confidence when it comes to making decisions.’

‘I hope to develop decision making skills and improve my self-confidence, as well as communication and teamwork skills.’

‘Team working skills.’

‘…..increased teamwork skills and being able to make decisions.’

‘I would like to build my self-confidence so that I can make better decisions. I also aim, not only to enjoy working with others, but to become a good active member of the digging team.’

‘…..become more confident on site.’

‘Organisation, making decisions, following written instructions.’

‘Working as a team to achieve a common goal and sharing results.’

‘Improve numerical skills and interpreting what I see in notes.’

> ‘Skills I hope to develop whilst on site are working as part of a team; acquire greater organisational skills and greater self-confidence.’
>
> ‘I am also going to keep my notebook up to date as this will help with organisational skills and writing my report.’

One student, who had experience in commercial archaeology, also referred to the Health and Safety aspects of archaeological fieldwork, and another to its ‘physical’ nature:

> ‘It will also be interesting to work in an environment where Health and Safety are taken seriously (surprisingly none on commercial sites).’
>
> ‘It may not be a skill, but I would like to use the excavation to improve my physical fitness.’

SUMMARY

The skills that the students hoped to develop included:

- General archaeological fieldwork skills
- Specific fieldwork skill, especially those in which they had no previous experience
- An understanding of the process and organisation of an excavation and archaeology in general
- A deeper understanding of on-campus teaching, especially theory
- Report writing as an aid to writing essays for on-campus teaching
- Transferable skills, especially self-confidence and decision making, team working and observational skills, as well as an understanding of Health and Safety and developing physical fitness.

B. After the Field School:
Which aspects of field survey and excavation would you like to develop further? How are you going to set about achieving these targets?

This question was answered by 28 respondents, a return rate of 57%. The students, after having a taste of them, expressed a desire to gain more experience in the core skills that they had been taught:

> ‘I would like to develop further the GPS surveying.’

‘I hope to develop a greater ability in the field of geophysics.’

‘I would like to develop my ability at hand excavation and of survey techniques.’

‘Although most of my experiences on site involved manual excavation and geophysics, I would now like the opportunity to experience the excavation of features, for example post holes and trial ditch excavation.’

‘…..doing environmental sampling and more geophysical survey.’

‘I would like to develop the methods of survey further.’

‘There a few aspects of the excavation experience that I would like to develop. These include finds processing and environmental work through wet (flotation tank) and dry sieving.’

‘I would like to develop my hands-on excavation with the trowel and mattock.’

‘I would like to develop my use of the Total Station and GPS and the finds processing.’

‘I would like to develop a lot further in all excavated techniques such as trowelling. I am also interested in learning more about planning a site. I want to develop better skills in finds identification.’

‘I would like to develop my excavation technique further as this was what I enjoyed most.’

‘I would like to further develop my observational drawing and recording abilities.’

‘Work with geophysics as well as planning both appeal to me.’

‘I would like to develop my general field excavation skills as I really enjoyed just getting in there and getting on with it.’

The students also identified the tasks where they did not manage to participate in during this particular season of the Field School, especially geophysics and some of the surveying techniques, and expressed a desire to gain experience in these:

‘As I did not experience field surveying on this dig, that is one aspect I would like to develop (GPS/Total Station).’

‘I would like to develop my geophysics skills further, as I did not get a chance to participate in this activity.’

‘As I did not get to do any finds processing, I would like to do this.’

‘I did almost no paperwork whilst on site (context forms, plan and section drawing etc.), so would like to get some experience with these at some point.’

‘I would like to develop my geophysics experience further as I have not had the chance to partake in it yet.’

‘I would like to have excavated a pot or a skeleton, but I only got to dig geological ditch fills.’

The students suggested a variety of ways in which they could develop their own particular interests and activities they had not been able to participate in. This included interaction with other students, finding a particular placement, participating in further training excavations, using the University’s facilities, concentrating on particular elements as part of the degree course and personal research:

‘I could achieve this (GPS surveying) by helping other students with their personal projects to gain experience.’

‘I can look at copies of them (site recording) and talk with people who spent time doing them, but it will likely be my next dig before I get another chance to do one.’

I hope to find a placement in the summer working as a Finds Officer.’

‘I have applied for a placement as an Assistant Supervisor (Geophysics) at [another dig]. I anticipate having to do some preparatory work prior to such a placement and intend to speak to [the relevant people] about this.’

‘I did not do environmental or GPS, so I shall attempt to do these either myself or find a placement during my 2nd Year to expand these.’

‘I would like to further my knowledge of geophysical surveying by researching into placements which include this.’

‘Finds – look for a placement next year that is finds related.’

‘To go further, I could go on other training digs.’

‘I would like to expand on my experiences this year by participating in more excavations in the future.’

‘I would like to develop the methods of survey further by taking more of an interest in any following excavations I can get work experience from.’

‘I will make use of the University’s equipment to gain more proficiency in survey techniques; while I will use the holiday periods to seek archaeological work, paid or voluntary.’

‘I would like to pursue geophysics, and may borrow equipment in the future to get some more practice.’

‘I also found the GPS interesting and would like to learn how to use the programs. I will do this by renting out the equipment and learning.’

‘To achieve these targets I will become more involved in the archaeological society and lab areas.’

‘I will offer to help with this (finds processing) at the University.’

‘I will hopefully be including these elements (surveying methods and finds) in my dissertation and will therefore be able to develop my skills in these areas over the next two years.’

‘I would like to further develop my observational drawing and recording abilities and am considering the illustration option for the next year of my course.’

‘I would like to further develop my observational drawing and recording abilities and am considering the illustration option for the next year of my course.’

‘I would really like to develop post-excavation analysis skills further, maybe with either a focus on human bones or ceramics, one of which I hope to develop in that module in Year Two.’

‘Work with geophysics as well as planning both appeal to me. I plan to carry on with this by doing geophysics as part of my dissertation project and also as part of my placement.’

> ‘I have volunteered numerous times (to do geophysics) and will do so until I achieve it, if not I shall have to glean my information from lectures and such.’
>
> ‘I want to develop better skills in finds identification and intend to do so by reading a book I bought recently on finds identification. I am also friendly with the Finds and Records Office at my local archaeology base and intend to visit them as a volunteer over Christmas.’
>
> ‘I need to read up on how these all work (geophysics) so I understand them all better, and look out for opportunities to use them all in the next two years.’

One student had the ambition to expand their experience from a prehistoric dig by participating in excavating sites of other archaeological periods:

> ‘I feel that I have an indescribably better knowledge of what I am looking for on a Bronze Age site now. So, I now want to get onto other sites of a different period to build up my knowledge of archaeology on a wider scale. I have already applied for a place next summer to work on a monastery site in Slovenia.’

Other students felt they had discovered the specialism they would like to develop:

> ‘I think in the future I would love to become an on-site finds specialist, as cleaning the finds is rewarding and recording the finds is an interesting job.’
>
> ‘I would like to be able to supervise others. I am set to do this with the next excavation I do.’

SUMMARY

Having participated in archaeological fieldwork training, the students were able to identify the areas that they felt needed developing.

- Core archaeological field techniques: either a desire to develop particular techniques further, or because there were some in which they had not had the chance to experience
- The students cited a variety of ways in which they could develop their skills, both internally and externally of their institution
- A few students felt that they had already identified a chosen career path.

THE STUDENT VIEW OF ARCHAEOLOGICAL FIELDWORK

These questionnaires and self-assessment surveys relate to only two archaeological excavations run by subject providers. In this, they can only represent a limited sample of the students' views and experiences of fieldwork. The feedback from the students attending the Field Schools was overwhelmingly positive about both the work and the whole experience. Indeed, there were no overtly negative comments. This may indicate that students who felt that they had neither enjoyed nor benefited from participating in archaeological fieldwork had not returned questionnaires. If this is the case, then they are a minority given the return rates of 57% to 74% for most of the questionnaires and 39% to 45% for the voluntary survey at Silchester. The positive feedback was mentioned to the lecturer who marked the site notebooks returned by all the students on the Knowlton Field School. In connection with this he made the following comments: 'It is possible to monitor the growth of quite a number of students as they worked their way through the project experience. A few came out as being rather 'flat' but there was virtually no instance of a negative, so basically the notebooks substantially reflect the results of the self-evaluations' (Iain Hewitt, pers comm).

These surveys are limited in their scope and the questions were general, not specifically designed to elicit negative comments. In the light of these positive results, another method would probably have to be used to identify the aspects that students found negative or disappointing. However, on the basis of this evidence it is certain that, at a general level, many of the students found participation in archaeological fieldwork an enjoyable, beneficial and rewarding experience. This conclusion comes from the results of two very different surveys in which the questions were targeted at discovering different aspects of feedback from the students.

Silchester:

- The students being asked to provide examples of the archaeological and transferable skills that they had acquired and/or developed
- The students were asked directly about their personal experience of fieldwork.

Knowlton:

- The students were presented with a pre-selected list of skills
- Open questions were directed at the students' expectations of the skills they thought they would acquire and would like to develop.

Despite the differences between the two surveys, some common themes were revealed by the students' responses:

- The students expected to, and did learn, the core skills that the subject providers teach
- There was a positive realisation that fieldwork was very different from their preconceptions
- The students were aware that they were also acquiring transferable skills
- Many students gained an overall understanding of the organisation and process of an excavation in particular, and archaeology in general
- There was a 'good' atmosphere on the Field Schools
- Many found fieldwork to be a personally rewarding experience displaying a sense of excitement, especially at finding things, and of achievement and satisfaction in being involved in something worthwhile
- Most students were left with a desire to do more fieldwork.

The Silchester survey asked specifically about transferable skills and the experience of fieldwork and revealed some aspects not emphasised in the responses to the Knowlton questionnaire. A wide range of transferable skills were mentioned. There were also many responses that concentrated on the social aspects of the Field School with answers relating to the friendliness, friendships made, the social activities and other shared experiences.

The Knowlton survey identified a number of skills (both archaeological and transferable) and also laid an emphasis on their development. There were more detailed responses relating to particular core skills, whilst transferable skills were mentioned to a lesser extent. Fieldwork was seen as an aid in identifying future development, and suggestions to the form that this might take were put forward.

In conclusion, the students felt that archaeological fieldwork training was an important part of their course and that they had benefited in a number of different ways:

- Gaining practical experience
- Gaining an understanding of the particular and general issues involved in fieldwork
- Developing transferable skills
- A positive and beneficial personal and social experience
- An aid to future development.

V DISCUSSION – PURPOSE AND USE OF THIS REPORT

This report will provide the basis for the methodology for Phase 3 of the project: real-world tests with disabled and non-disabled volunteers in controlled laboratory conditions. The purpose of these tests is to produce the pro-forma of the self-evaluation tool kit based on practical experimentation. The information in the report is divided into three main sections for each of the major archaeological field techniques: description, specific learning outcomes and characterisation. These are the three main factors that will inform the development of Phase 3.

DESCRIPTIONS

The descriptions of each of the archaeological field techniques explain what is involved in each of the activities and why each activity is carried out in archaeological fieldwork. These are major techniques that are taught and assessed by the subject providers in HEIs (Phillips & Gilchrist 2005), thus justifying their inclusion in this report. However, these descriptions also explain what is to be achieved by the excavator in carrying out these operations. This establishes their importance as individual practices for which inclusion can be sought.

LEARNING OUTCOMES

A list of the specific learning outcomes for each of the archaeological field techniques is provided. These are short syntheses of the information gathered from ten University Archaeology Departments. They represent what the subject providers consider students are learning by participating in archaeological fieldwork training. To these can be added the requirements identified by the National Occupational Standards (2002) and the NVQ standards (1994). The ‘Other Learning Outcomes’ also provide a list of ‘Transferable Skills’ that the subject providers see students gaining by doing fieldwork.

CHARACTERISATIONS

The characterisations provide a brief summary of the physical and psychological demands of the different archaeological field techniques. More detailed information can be found in Appendices I and II. These characterisations will inform the Phase 3 methodology in that they describe the attributes to be tested in the volunteers.

STUDENT FEEDBACK

Surveys from a sample of two archaeological Field Schools provide information on what the expectations of students are and what they feel they gain from archaeological fieldwork. This includes archaeological and transferable skills, as well as other factors such as the social aspect and a sense of achievement.

REFERENCES

Barker, P. 1993 (3rd Edition), *Techniques of Archaeological Excavation*. Batsford Press.

Carter, S. & Robertson, A. 2002, *National Occupational Standards for Archaeological Practice*. Institute of Field Archaeologists.

NVQ (National Vocational Qualifications) 1994, *National Vocational Qualifications in Environmental Conservation: Archaeology and Field Archaeology*. COSQUEC.

Phillips, T. & Gilchrist, R. 2005, *Disability and Archaeological Fieldwork: Inclusive, Accessible, Archaeology Phase 1 Report*. University of Reading, Archaeology Department. Available at: http://www.hca.heacademy/access-archaeology/inclusive_accessible