

4 Practical work II: clog making

“Bad news goes about in clogs, good news in stockinged feet.”

Welsh proverb

4.1 Introduction



Figure 47: Traditional Welsh clogs made by Jeremy Atkinson.

In this chapter I describe the recordings I undertook with clog maker Jeremy Atkinson, during which I refined the knowledge elicitation techniques developed in my practical work with Robin Wood described in chapter 3. Working with Jeremy I developed a less challenging elicitation technique, starting with very general observation and open questions aimed at gaining contextual information, and then gradually increasing the focus of observation and questioning as my understanding grew.

The recordings took place at the Museum of Welsh Life and my official remit was to film archive footage of Jeremy for the museum so I did not have the opportunity to develop and test a learning resource. This led me to consider other ways of validating the knowledge I was eliciting and I describe a subsequent investigation I undertook into an area of knowledge about which I felt uncertain: the seasoning of timber and usage of different timber types. The result of this was to highlight the personal nature of craft knowledge and I describe the resultant implications for representation in learning resources.

Jeremy was teaching a novice whilst working at the museum so I had the additional benefit of being able to observe this process. Although in the circumstances I had to take care not to be seen to be interfering between the two, this led me to consider use of an 'expert learner' as part of the elicitation and validation process. It also led to an

investigation into the skills of the last craftsmen as the craft declined and development of a framework for understanding the learning of craft skills which is described in chapter 5.

Participants



Figure 48: Clog maker, Jeremy Atkinson.

For this second stage of the practical work I aimed to study a craft that I was less familiar with, and work with participants I was not closely acquainted with, as a means of testing the generalisability of the methods I was using. I knew Jeremy Atkinson a little before the project started as he had occasionally demonstrated at craft fairs with my husband Robin Wood but I considered that I had very little knowledge of his craft²⁶.

Jeremy makes traditional Welsh clogs with a wooden sole and leather upper and is the only craftsman in the UK to hand make the entire clog. There are other clog makers in the country, but they buy in machine-cut soles, machine-made uppers or both and modify them to suit the client. The most specialised part of his skill is cutting the soles from a block of wood using knives unique to the craft. The uppers are hand cut from leather and then nailed onto the soles. Jeremy had first learned to make clogs around 30 years ago, apprenticing himself to an experienced clog maker to learn the skill. Unimpressed by the quality of the clogs he was being taught to make, he proceeded to examine old clogs, extensively research the history of the craft, write a book (Atkinson 1984) and undertake much experimental making to improve the design. He taught a variety of different students over the years, but none has continued into professional practice.

Jeremy had requested that the recordings take place at the Museum of Welsh Life in Cardiff where he was spending approximately twenty days over a two-month period. He was there to train Geraint, one of the museum's staff who had independently learned the basics of the skill and wished to advance his technique so he could demonstrate to the public at the museum. The museum offered support for my recording the project in return for footage of Jeremy for their archive

²⁶ Although I subsequently revised this opinion, see section 4.3, p92.

and I had the additional benefit of being able to observe what were effectively a craft master and apprentice, with the learner being at a relatively advanced stage.

Workshop Procedure

In contrast to recording the bowl turners, the workshop at the Museum of Welsh Life was two hundred miles from home and I was working to a fixed time scale. As I had been warned I would have to carry my equipment some distance, on my first visit I took just the video camera, g-clamp tripod and external microphone. From my previous experience I was confident this would produce at least an acceptable recording quality.

As it was, the museum workshop had good natural light so additional lighting was not needed, and it was enclosed so an external microphone was not necessary. Unfortunately, it was too large to be covered from a fixed point, so during the first session I overcame this by hand-holding the video, although I found this constrained my movements and either I had to cope with a trailing power lead or keeping an eye on battery levels. Upon review, I also found the resultant constant slight motion of the camera made me feel slightly sea-sick after watching over three hours of film.

For following sessions the majority of the filming was undertaken using a high-quality tripod that remained very stable when extended to head height and could be panned smoothly when I needed to follow action around the room. In addition the tripod had a quick-release lever, so I could easily switch to hand-held mode should I need to change to a different angle. For hand held operation I used the camera's batteries, but I also had a power supply by the tripod that I could plug in at other times.



Figure 49: Filming the clog makers in the museum workshop.

This enabled the camera to be used with minimal attention from myself and, as I spent all day in the workshop both the practitioner and apprentice became familiar with my presence and appeared unconcerned by the recording process. They would regularly laughingly ask to have things removed from the tape when they swore, made a mistake or an indiscreet comment. If I asked for clarification on an issue Jeremy would also comfortably talk directly to camera or ask if I could see what I needed and offer to move.

4.2 Elicitation

4.2.1 Context

In this practical project I aimed to use a more subtle approach to elicitation to avoid the defensiveness and confrontation experienced previously. The bowl turning expert had been very sensitive to questioning of his knowledge during formal elicitation, often being dismissive or defensive. When I uncovered an area of tacit knowledge for which he had constructed theory that was not borne out in practice, he had been reluctant to reconsider his theory. In the circumstances, as he is my partner and aware of the subject of my research I was able to assert my observations and persuade him to re-evaluate his theory by watching video of himself. With most other people, I feel it would be harmful to relationships to be so directly contradictory and there is evidence the video might fail to make an impression. Edwards (2003) related that "it was not uncommon for a worker to deny vigorously that they ever carried out a task in a certain way, even after they had seen themselves doing it on the video!"

My planned strategy for elicitation was a hybrid of the focused observation, concurrent verbalisation and semi-structured interview techniques that had been used with the previous practitioner. Initially the focus was on general observation, with open questioning aimed at contextualising the observations, and then gradually both observation and interviews became more focussed as I gained understanding. To help with the contextualisation, the interviews were nearly all based in the workshop whilst the practitioner was undertaking his regular practice.

An important principle identified by Bell & Hardiman (1989) was that it must be a co-operative process. They had observed the protectiveness displayed by experts towards their knowledge when they learned that potential users of the system being designed had been interviewed first. Similarly, if users did not feel sufficiently involved in the process they would feel that the experts were imposing the system on them

and reject it. They described it as a major diplomatic role to keep all participants actively involved and advocated interviewing expert and user independently. Whilst I had both expert (the practitioner) and user (the novice) at my disposal, I had limited access to them individually and had to take care not to harm their relationship with each other although it became increasingly evident that the novice's perception of the expert's knowledge could be very informative. I felt that in this particular part of the research I could not make use of the novice in this way, but conclude by proposing that greater use might be made of an 'expert learner'.

4.2.2 Practical work

Before starting the recordings I asked Jeremy for background reading and he recommended his own book (Atkinson 1984) plus chapters from five other books: Edlin 1949, Fitzrandolph & Hay 1926, Hartley 1939, Jenkins 1965, Jones 1927 which provided a historical perspective.

During each recording session, I would watch the clog makers, take notes, and talk to them both whilst also continuously filming proceedings. Afterwards, I would watch the video, compare with my notes and decide upon areas requiring further clarification to be used as the basis for discussion during the next session. So, each session built upon the proceeding one with any gaps filled in by the semi-structured interviewing. Only the final session was more formal in nature, where I asked direct questions to fill in specific areas of uncertainty. By that stage the practitioner was completely at ease with the recording equipment and myself and readily talked directly to the camera in answer to the questions.

Whilst I was able to undertake some quite deep questioning without triggering defensiveness in the practitioner, there still remained some issues where the practitioner's stated theory was at variance with my understanding and this is discussed further in section 4.3.

4.2.2.1 First visit: observation and rapport-building

During this first visit to the museum the focus of the observation was on regular practice as I had not previously seen clog making knives being used. Jeremy was keen to explain what he was doing and had started making a pair of soles from the very beginning, sawing a piece off a log, so I could see the process all the way through.

In particular I was interested in understanding the main tools used to shape the soles: specialised stock knives with a hook at one end to fit in a ring on the workbench and a long handle to act as a lever. These come with three different blades for different parts of the process; see Figure 50 and Figure 51.



Figure 50: Using a stock knife.



Figure 51: Stock knives for clog making.

Geraint was completing the first pair of clogs he had made under Jeremy's supervision, providing the opportunity to observe interaction between the two. Geraint appeared very dependent on Jeremy, frequently asking him for help. Similarly Jeremy would frequently break from his own work to see what Geraint was doing and would issue instructions in an assertive manner. He could also be observed telling Geraint what to do, but then actually doing it himself.

My questioning was mostly very general, such as asking about themselves and how they became interested in the craft, with the aim of getting to know Jeremy and Geraint and building a rapport. When I asked Jeremy occasional, directly craft-related questions about what he was doing or thinking, I found him to be open and keen to explain his work to me.

4.2.2.2 Second visit: materials and tools.

During the second visit to the museum I gained a greater insight into Jeremy's understanding of his materials and tools. He and Geraint had just returned from working with the museum's blacksmith to correct Geraint's knives and they jointly gave a detailed description of hardening and bevel angles. Jeremy was of the opinion Geraint was so proficient with his tools now because he had learned with blunt tools, so found them relatively easy to handle now they were correctly tempered and sharpened.

In addition Jeremy explained use of the last, which is the foot-shaped piece of wood used to form the shape of the leather when it is nailed onto the sole. He had a variety of different lasts and explained their advantages and disadvantages, how they differed from shoe making lasts and general differences between shoe making and clog making.



Figure 52: A selection of clog lasts.



Figure 53: Geraint and his first clogs made with Jeremy.

Jeremy also described the use of timber for clog making, both from his own experience and from his understanding of the historical perspective. Geraint brought out a photo album he had assembled of old clog makers and I used this to stimulate further discussion about the history of the craft. Again, Jeremy appeared open to direct questions and would bring work over to talk about what he was doing directly in front of the video camera [JA2.2 t0.32/0.40].

Geraint was completing his second pair of clogs, providing an opportunity to see how the uppers were made. He was clearly proud of the progress he had made under Jeremy's tutorage and showed the clogs he had previously made on his own for comparison with those he had recently completed. He was still frequently asking for advice from

Jeremy who remained assertive in his responses, but was also full of praise for the progress Geraint had made. [JA2.1 t0.54/1.04]

4.2.2.3 Third visit: form and function

By the third visit to the museum I had gained a good understanding of the process and how the tools were used to cut the soles. I had established a good rapport with Jeremy and Geraint and was in the position of actually asking them not to chat as they worked so I could take clean footage for the museum's archive. My focus was now on understanding the form of the sole and how the pattern that was produced by drawing around the foot was made into a pattern for a sole and subsequently used to shape the clog. I also commissioned Jeremy to make a pair of clogs for me and recorded him adapting my foot drawing into a clog pattern.



Figure 54: Soles cut as patterns to guide the learner.

Jeremy spent much of his time making soles in different sizes for Geraint to use as patterns when working on his own. Geraint appeared to have gained hugely in confidence and was now working with much less assistance. Jeremy would leave him far more to his own devices, for example looking over at Geraint and asking if he needed help rather than going straight over and giving advice.

4.2.2.4 Fourth visit: craft context

As my understanding of Jeremy's knowledge of timber had been pieced together from diverse conversations during the previous three visits, I had arranged to meet Jeremy where he normally cut his wood near his own workshop so he could give a more detailed explanation in the context of where the work was undertaken. This enabled me to adopt a more direct style of questioning and Jeremy to talk more fluently without distractions of his own work or interventions from Geraint.

We visited two different locations that Jeremy used as sources of timber and he explained how he selected trees for clog making and how their working properties were affected by the way in which the trees had grown. He also talked extensively about use of different timbers both from a historical perspective and from discussions with

foreign clog makers.

This visit also provided useful contextual information, offering the opportunity to see Jeremy in his own workshop, an old shop just off the main high street in the small market town of Kington. In the past it had been open to the public, but at the time of my visit it was virtually empty. As well as having moved many of his tools to Geraint's workshop in the museum for the summer, he was undertaking most of his work whilst demonstrating his craft to the public at craft fairs where he also took most of his orders.



Figure 55: Jeremy's workshop window.

4.2.2.5 Fifth visit: historical context

As part of this visit to the museum I had arranged to view some film from the museum's archives of Thomas James who Jeremy considered to be the last really good Welsh clog maker. Jeremy and Geraint came to watch the film as well although both had seen it before, but not recently. At the time the film was shot (1963) James would have been around 70 years old and Jeremy was of the opinion that by this stage he was not regularly making clogs and had especially made this pair for the film crew.



Figure 56: Thomas James.

The film was very short, about 5 minutes, and we watched it through twice to glean what we could from it. Jeremy and Geraint had particularly wanted to see use of the hollowing knife because, after James' death, Jeremy had bought one from his son but had not been able to get it to work satisfactorily. In the film he was not seen using one at all, the only hollowing seen was done with a *twca cam*, a curved spoon carving knife (Figure 57):



Figure 57: Twca cam: spoon carving knife.

Jeremy and Geraint decided this was because the wood being used was alder that cuts more easily than the sycamore they use, which in its own right presented a conundrum because Jeremy was convinced James used sycamore too. My feeling, based on my own spoon carving experience, was that whatever timber he was using he had a very sharp tool and was able to use it with great efficiency. However, by subsequently reviewing the film and looking closely at the log as he started, I was convinced that the wood was actually alder by the texture of the bark.

Jeremy was also surprised to see James cutting the basic shape of the sole with an axe rather than a stock knife and apparently cutting the rebate around the edge of the sole before hollowing the surface. In addition he remarked upon seeing James nailing the upper to the last because Jeremy had noticed the lasts in James' workshop did not have nail holes although, when using waxed kip leather and solid lasts, it was usual to nail to the last²⁷. Jeremy had previously concluded that James drew the leather in with a thread to shape it so he did not damage the last.

For the crafts practitioners, the film had raised more questions than it answered. They were left uncertain about what James had done to perform for the camera rather than being his usual practice, what had been lost during the editing process, and what had been misrepresented by tasks being edited into a different order from that actually performed. From my point of view it was useful to observe

²⁷ The upper was traditionally nailed to the last then the wax-impregnated leather was heated to mould it to shape. Once cool, the last could be removed and the upper nailed to the sole. Jeremy uses a more modern, high quality 'veg tanned' leather that is thick and supple. The upper is nailed directly onto the sole over a last that is made from two jointed pieces so is sufficiently flexible to be removed once the clog is complete.

their reaction to evidence which potentially contradicted their espoused theory and this is discussed in Chapter 5.

In the workshop Jeremy and Geraint had established much closer communication and, whilst their understanding was not always perfect, they needed few words to communicate often leaving me with a limited understanding of the issue under discussion:

GP: *Right what did I need to do with these now?*

JA: *You've got one thick on one side which is the same foot you did with ... um ...*

GP: *Oh, with the ...*

JA: *Yes.*

GP compares the soles.

JA: *You seen it? It's on the inside. No, no, bring it here.*

GP brings them over to JA, saying: *That one's ... that one looks actually ... there ... it looks thicker*, pointing to where he thinks the problem is.

JA: *I'm not so worried about that, but it is thicker there ... but I'm more worried about that.* He draws on the sole and holds the pair out for GP to compare. *You've got a curve on that.*

GP: *Oh, and I haven't on that, I can see what you mean now... I was looking at that side.*

Jeremy Atkinson interview 17.8.05 [event log JA5.2 t0.07]

On the whole Jeremy now left Geraint to work on his own. Geraint was using the sole patterns as his main guidance (Figure 54) and only consulting Jeremy when he was aware of a problem.

To explore the use of timber in clog making further, I had recruited bowl turner Robin Wood as a related expert to talk about timber with Jeremy. Whilst Robin asked different and slightly more challenging questions than I had previously, Jeremy remained forthright in his answers, maintaining that use of unseasoned sycamore was unique to the South of Wales, and I remained unable to reconcile this to my own understanding²⁸.

²⁸ For a full discussion, see section 4.3

learner gave insight into the learning process that in this case was accelerated because Geraint had existing experience and Jeremy was teaching him a more refined way of working. Jeremy started by frequently intervening and often undertaking tasks for Geraint, he then increasingly just asked Geraint if he needed assistance, and finally progressed to waiting for Geraint to ask for help. Finally, Jeremy made a set of soles to serve as patterns for Geraint when he was working on his own and offered email backup to give support on an ongoing basis.

By taking time to get to know Jeremy and his craft I was able to ask increasingly probing questions without triggering defensiveness, but still did not find a way of dealing with the problem when his stated theory was at variance to my own understanding. This led to consideration of what 'the truth' was in this context. If I doubted one element of what I was being told, should I not doubt it all? Whilst I could 'test' a certain amount of knowledge with learners, the appeal of the multimedia resource was the quantity of rich, contextual material it could contain and I would not be in a position to verify it all.

4.2.3 Validation of elicited knowledge

During the first three visits to the Museum of Welsh Life, during the unstructured, open interviews Jeremy had related his experiences of using different timbers for clog making and his interpretation of their working properties. This description did not seem to match my own understanding and I was aware that, had I been assembling it into a learning resource it would have presented a dilemma. It was of too great an importance to completely omit, but I was not confident enough about its accuracy to include it. I also did not feel I could directly challenge it in the way I had been able to on the previous project with my partner Robin Wood and the tool handgrip (see p63). Firstly the knowledge was more subjective, and secondly I did not wish to damage the rapport we had built up.

I was aware that my understanding of Jeremy's knowledge had been pieced together from disparate comments made whilst he was undertaking other work. So, during subsequent elicitation I took the opportunity to explore this knowledge more deeply, firstly by

conducting a focussed interview situated in the context of the problem area. I interviewed him specifically about timber use in the woods near his workshop where he obtained his timber. I used more direct questioning than in previous interviews and Jeremy talked directly to me rather than chatting as he worked in the museum workshop. However, the outcome of this interview was simply to verify the knowledge I had previously pieced together, but it did not bring it any closer to my own understanding.

My next line of enquiry was whether Jeremy was being outspoken in his views when talking to me because in his eyes I was a relative novice. To test this theory I recruited an expert in a related area to undertake similar questioning: my partner, craftsman Robin Wood whose knowledge of timber was developed both from working as a woodsman for the National Trust and from his own craft skill.

Jeremy and Robin knew each other as craft practitioners and usually demonstrated considerable respect for each other's craft skills. Out of deference to Robin's knowledge of timber, I anticipated Jeremy would be less forthright and would demonstrate some differentiation between knowledge of which he was assured and that which he considered speculative. I had also hoped to see some display of tacit understanding during the discussion in a similar manner to Robin and Martel (see section 5.4.4, p126).

However, during this interview I observed no sign of respect for each other's different beliefs or any tacit communication. Jeremy remained outspoken in his explanations and Robin was relatively quiet in a style I took to mean he did not believe Jeremy but wished to avoid conflict. Afterwards Robin confirmed that this was so. I was now no further forwards in understanding our differences, so proceeded by looking more deeply at a specific problem area, the roots of my understanding of it and the broader literature on clog making.

4.3 Boundaries of knowledge

In this section I present an investigation of the differences that emerged from the practical work between my understanding and that of the practitioner based on re-evaluation of the event logs, reappraisal of the video and wider contextual research. I uncover the basis of my unease with the practitioner's understanding of the historical usage of timber described in the previous section in two more discreet issues: the use of unseasoned timber and the choice of timber species, and speculate on the reasons for Jeremy's interpretation.

I conclude by examining the role my own specialised knowledge played in making sense of the situation and propose working methods for designers working outside their own area of knowledge by making use of expert learners. I also reflect on the importance of choice of media in representing and interpreting elicited knowledge.

4.3.1 The problem area

Originally Jeremy was taught how to make clogs using seasoned alder which had become the most common method when industrialisation caused high demand (Fitzrandolph & Hay 1926, p64). He was told, by an old traditional clog maker whose craftsmanship he respected, that unseasoned sycamore was traditionally used for clog making in that area of SW Wales and, through experimentation, Jeremy taught himself how to use it.

Jeremy asserted these clog makers had learned to use unseasoned sycamore from the local bowl turners who made dairy bowls:

"I think that because they used sycamore for quite a lot of things ... they knew how to work it. They used it for bowls mainly, I'm sure they were working green. You see all the other woods that you use for clog making you work dry. You don't work them the same way as sycamore at all ... I think they cut green sycamore for that [bowls] and as craftsmen always talked to each other and always have I think that's how they [clog makers] came to use sycamore."

Jeremy Atkinson interview 23.7.05 [event log JA2.1 t0.22]

Whilst the crossover of skills was feasible, what I found most difficult

was his understanding of the way in which the bowl turners used the wood. Jeremy implied that it was usual to work dry timber and that working unseasoned sycamore was unique to this area because the bowls were used in the dairy trade and never dried:

"All the nests of bowls I think were down in West Wales and I think a lot of them were with dairy equipment. ... My theory is that they cut the stuff green, they went off to market, they went back into a dairy again, they got washed down twice a day, the water content is probably the same as they were green. So, what's the point of doing it dry? I mean if you're doing it dry and it gets full of milk and cream and then it gets washed out and its in a cool scullery then probably its water content is very much the same as it was as a tree."

Jeremy Atkinson interview 23.7.05 [event log JA2.1 t0.18]

This provided two issues to seek a deeper understanding of: the use of seasoned and unseasoned wood, and the choice of timber species.

4.3.1.1 Seasoning timber



Figure 59: Clog blocker with rough-cut soles 1910.

Firstly, considering the use of unseasoned wood in bowl turning, Robin Wood's research showed this was the way nearly all old bowls were made, confirmed by their characteristic oval shape caused by uneven shrinkage during the subsequent drying process (see below). In his experience unseasoned wood was used because it cut much more easily with hand tools before it was fully seasoned.

In the documented history of clog making, alder and birch were the most commonly used clog timbers. Itinerant labourers would fell the trees and rough-cut them into clog-blocks which would be sold to clog makers who would refine the shape and nail on the uppers. Jones (1927, p46) states, "the blocks must be left to dry for some months before they can be shaped into soles."

Jeremy was of the opinion this was because otherwise it would split. His experience of working alder dated to the 1970s when he was originally taught the craft:

"... what we used to do was we'd go out, we'd cut a tree down, we'd come back, we'd rough cut it and ... we'd leave it on the north side of a stream, under cover against a wall. I mean you couldn't get a damper place. It would be left there in the air to circulate on a rack for six weeks, maybe, at least five. If you didn't do that it would crack on you."

Jeremy Atkinson interview 23.7.05 [event log JA2.1 t0.28]

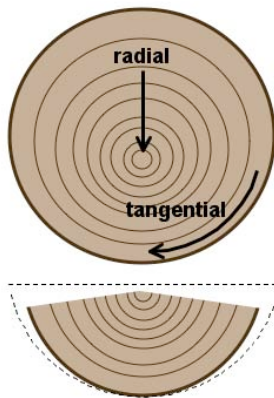


Figure 60: Timber shrinkage.

Robin's experience of working green alder was that it suffered from a large amount of shrinkage as it dried. As this shrinkage was not even; tangential shrinkage can be as much as twice radial shrinkage (Figure 60) the wood will definitely warp and could split. To stop the splitting, his method of working any green wood, but particularly alder with its high rate of shrinkage, was to remove the pith and central few growth rings where the tension was at its greatest.

Jeremy's experience of the problems of cracking might have been caused by his teacher's inexperience, as at that time he too was quite new to the craft. Thirty years later when teaching Geraint, this teacher appeared to have overcome the problem in the same way as Robin describes:

JA, splitting the remaining log in two: *"When you cut alder you are supposed to get rid of the centre anyway."*

NW & GP: *"Mmm."*

JA: *"So Rob [Robin Wood] told me"*

GP: *"Trevor [the teacher] told me that as well."*

JA (sounding surprised): *"Did he? ... Must be true then, must be."*

Jeremy Atkinson interview 1.8.05 [event log JA3.4 t0.19]

As the itinerant block-cutters were able to cut and dry whole blocks presumably without many of them splitting, this must have been common knowledge at the time and it should have been equally feasible to cut and dry complete soles without them splitting. I feel a more likely reason for this not being done was because the sole would shrink and warp as it was drying making it uncomfortable and uneven to walk in.

4.3.1.2 Timber type

With regard to the unique suitability of sycamore, archaeological remains demonstrate that a large range of different timbers were regularly used to make bowls and Robin successfully turns using many British hardwoods (Wood 2005 p35). Traditional bowl turners however demonstrated local preferences. In 1936 traditional Irish turner, Joseph Hughes claimed the only woods suitable for turning bowls were sycamore or horse chestnut, "other trees, such as ash, beech etc. would not make dishes satisfactorily because after a short time they would crack" (ibid p165). Similarly, George Lailey (1869-1958) who

lived near Reading used only elm (ibid p153).

In a review of the literature on historical clog making I found evidence for a wide range of timbers being used for the soles, but that there were clear regional preferences. During an extensive survey of rural crafts when there were still a good number of practitioners, Jones (1927) observed that most clog makers used only one type of timber and "are convinced that no other kind is suitable".

4.3.2 Understanding the knowledge

It could be deduced that the traditional craft practitioners described above had adapted their techniques to using timber that was accessible in their locality and suitable for their purpose. As they were not familiar with the working properties of other timbers they asserted that this was the only way to work and as people did not travel far there was little reason to question this knowledge.

Jeremy, having had a bad experience with alder, put his energy into learning to use sycamore. Having solved his problem through switching tracks he was disinclined to re-examine why he had struggled with alder, preferring to believe it was the fault of the wood. In his case, I feel it was not the limitations of travel but lack of other craft masters that left these assumptions unchallenged.

Accepting such local knowledge as universal does not appear to have harmed any of their practices, although it would be interesting to consider what might have happened had the virulent form of Dutch elm disease that struck England in the mid-1960s arrived earlier. Lailey would have been forced to either re-asses his understanding and discover another timber he could make bowls from, or find a new profession.

The outcome of this for the learning resource design is to highlight the importance of the mode of representation used and the learners' response to it. Material presented in the 'guidance' section extracted from its context is liable to be interpreted by novices as fact, so it needs to be verifiable. In reality the facts are not necessarily *the* way of undertaking the task, but *a* way that is recommended as a starting point. The remainder of the material must be maintained in its original

context so, as the novices develop their skills they can form their own opinions and make their own judgements. The original video therefore needs to be retained as shot and in its entirety.

This is discussed further in the Craft Knowledge chapter (p99) when I consider the role of reflection in craft learning and what leads practitioners to expand their skills or become entrenched in their existing knowledge.

4.4 Conclusion

The underlying elicitation method of conducting increasingly focused observations and interviews in the workshop produced valuable material without triggering the defensiveness encountered during formal elicitation sessions in the previous practical work. In the context of this research the amount of time I spent recording the clog makers was useful, but in terms of elicitation for the learning resource it did produce unwieldy quantities of material that taxed even my usually efficient event logging process. In future work I would plan a more streamlined series of recordings allowing myself greater time in between each to process and reflect on them.

I felt the presence of the learner in the workshop was extremely beneficial in providing the expert with the context in which the material would be presented. The expert was already interpreting his practice for a novice and this offered the opportunity for him to rehearse his interpretation of his skills with meaningful feedback from a person who was attempting to apply it. Whilst it was not possible during this project, I felt it would have been beneficial to have made greater use of the learner in a similar manner to the learners recruited during the bowl turning project. In future research I plan to work with an 'expert learner' who can provide feedback on their learning, act as an active elicitor and assist with interpretation for a learning resource.

Unpicking the possible origins of the clog maker's beliefs alongside my own and the bowl turner's provided insight into the context-specific nature of such knowledge. The concepts of 'true' and 'false' do not apply in this context and that 'helpful' and 'unhelpful' are more applicable although this may depend on the individual receiving the knowledge. The interpretation at the 'guidance' phase of learning is therefore not 'the way to do it' but 'the recommended way of starting'. This highlights the importance of also retaining the original video so the learners can see the context in which the material was elicited and draw their own evaluation when they are able.

This is considered in more detail in the next chapter in which I consider

the nature of craft knowledge and speculate on the process of craft learning.