CHAPTER FIVE

OTHER TELEPHONIC TECHNOLOGIES

5:1: Preamble

While the telephone is the paramount telecommunications technology used in rural and remote Australia, a range of other technologies are also used. UHF radio, despite being a very public medium, is used extensively and this is especially so in Remote areas. Facsimile machines appear to have become increasingly popular amongst both Rural and Remote people for the functional transmission of information. In this study, relatively few subjects used this technology and other technologies, such as answering-machines, computer modems and mobile telephones, were encountered even more infrequently. With the exception of computer modems, none of these technologies enable private communications and accordingly, it would appear that users adopt circumspect strategies when they use these technologies so that some vestiges of confidentiality may be preserved.

The matter of privacy is, therefore, an important theme within this chapter just as it was for rural and remote people in the days when *bakelite phones* (with crank handles), *party lines* and *manual exchanges* were commonplace.

Initially in this chapter, UHF radio, the telecommunications technology most frequently used after the telephone, is discussed. Descriptive statistics detailing who uses UHF radio are furnished and commentary, based on qualitative findings, is presented in order to highlight the importance of UHF to rural and remote subjects. In addition, the ways in which UHF is used are outlined and *private* versus *public* conversations are described as is the sometimes intrusive nature of UHF.

Thereafter, uses of the minor technologies encountered during this study are briefly canvassed. Quantitative data about the use of facsimile machines are presented as are comments about answer phones, computer modems and mobile telephones. Finally, the ways in which distance educations teachers and *home supervisors* use telecommunications for liaising about the delivery of distance education programs for children is discussed and technologies considered here include HF and VHF radio as well as the cassette tape recorder.

It should be noted at the outset of this chapter that the questionnaire did not ask respondents to differentiate between UHF and CB radio. However, it was apparent from the interview data that UHF radio is the preferred interactive radio technology for the clear majority of Rural and Remote users. In fact, CB radio technology is used mainly by truck drivers and for those few people who live in very hilly surroundings. Indeed, with the exception of truck drivers, no CB radio users were encountered during this study. Hence, the term UHF is used throughout this chapter when presenting results.

5:2: UHF Radio

5:2:1: UHF Usage and Ownership

More than one third (n=52; 38.5%) of the sample used UHF radio. As can be seen from Table 5:1 below, UHF is owned and operated by males and females within Rural and Remote locations. It is also operated by Natives and Newcomers although not by female Rural Newcomers.

TABLE 5:1: Frequency distribution of UHF users split by location, residency & gender

	Total
Total Count	**51**
Remote, Native female Count	8
Remote, Native male Count	10
Remote, Newcomer female Count	5
Remote, Newcomer male Count	2
Rural, Native female Count	6
Rural, Native, male Count	11
Rural, Newcomer male Count	3
Rural, Newcomer female Count	0

Of those who provided details about how long they had used UHF (n=45), more than 80% (n=37; 82.2%) had operated this technology for more than five years (see Table 5:2 below). However, almost 50% of the UHF users in the sample (n=21; 46.6%) had used UHF for six years or less and less than 10% (n=4; 8.9%) had operated this technology for 15 years or longer. Thus, it would appear that while this technology is fairly widespread, its proliferation has been comparatively recent.

TABLE 5:2: Frequency distribution of length of UHF ownership

Years (≥)	To (<)	Count	Percent
0.0	5.0	**8**	17.8
5.0	10.0	**21**	46.7
10.0	15.0	**12**	26.7
15.0	20.0	**3**	6.7
20.0	25.0	**1**	2.2
	Total	**45**	100.0

TABLE 5:3: Mean length of ownership for Rural & Remote UHF Users

	Mean	Std. Dev.	Count	Minimum	Maximum
DurUHF, Total	7.4	4.1	45	2.0	20.0
DurUHF, Remote	8.8	3.9	21	5.0	20.0
DurUHF, Rural	6.6	4.4	19	2.0	15.0

From Table 5:3, it appears at first glance as if the distribution of ownership did not vary greatly between Rural and Remote subjects although Remote subjects ($\bar{x}$=8.8 years; SD =3.9 years) appeared to have availed themselves of the technology for a little longer than Rural subjects ($\bar{x}$=6.6 years; SD=4.4 years). However, proportionately more Remote subjects owned UHF (i.e. 21 out of 50 Remote subjects, or 42%) than did Rural subjects (i.e. 19 out of 71 Rural subjects, or 26.8%). Thus it would appear that within this study, proportionately more Remote subjects have availed themselves of UHF radio and have done so for a longer period of time than their Rural counterparts. It can be surmised therefore, that Remote people in particular attach a great deal of importance to this item of technology and this appears to be confirmed when the qualitative data were inspected.

5:2:2: The Importance of UHF

Although the number of UHF interactions noted during the two recording days was very low (n=82 or only 7.3% of all telecommunications interactions logged) there can be little doubt that UHF radio, after the telephone, is the most important telecommunications technology used 'on the land'. UHF radio is used by Remote land workers for a variety of purposes but a paramount reason is simply that it is an economical mechanism for maintaining contact with family members. Allan has been asked what UHF radio is used for and his comment typifies kinds of reasons given for its use:

> *Allan: Oh, all sorts of blasted things I suppose. It wouldn't be personal things. You know, it's not very personal sort of stuff. But the daughter and the son-in-law, they've got two-way as well as the phone ... and uhm ... well, she can call up his relations in the local town and that type of stuff around the place. She can call them up without the cost of a phone call. And call and ask them to get so and so or do so and so, or just have a yarn to them and there's no charge for the telephone.*

However, it would appear that UHF usage is predominantly confined to the home property and it is not atypical for a family to operate more than the minimum of two sets. Betty identifies how much of their UHF usage is intra property usage and counts how many sets are used on her property:

> *Betty: Well mostly I'd say about 90% of it around the station ourselves. We've got a base set here at the homestead. And a base set in our four wheel drive vehicle. And two hand held sets which they take on the bikes with them. Or, if I'm in the car; if I happen to be in the car, I take a hand-held with me. And if I don't turn up on time I can call back to Craig. He always takes a hand-held with him on a motor-bike so that he can call back to me if I'm in a vehicle or at the house. That works very well.*
> *We've also got an aircraft here. Our eldest son flies. And he has a UHF in the plane as well. Actually I forgot that.*
> *Did you ask me how many sets we have?*
>
> *Jens: No I didn't but tell me anyway. Do a count of them.*
>
> *Betty: So we've got three base sets; we've got one in the aircraft; one in the four wheel drive; and one at the homestead. And we've got two hand-helds.*

Tanya also identifies how many sets are used on her family farm. Both Tanya and Betty exemplify the fact that many farms have multiple sets of UHF – with one UHF set inevitably located at the house and the remainder distributed through motor vehicles of one sort or another:

> *Jens: OK. So if you're using the UHF, how many have you got on your property Tanya?*
>
> *Tanya: Uhm. What UHF's or people?*
>
> *Jens: No, UHF's.*
>
> *Tanya: Uhm. One at the house and ... three in the vehicles.*
>
> *Jens: So you've got four altogether?*
>
> *Tanya: Yeah.*

UHF, therefore, is used to link mobile workers in the Rural and Remote workplace (viz. – workers out in the paddocks) with family members who may be either mobile or stationary (viz. – the family in the car who are returning from shopping are mobile whereas the parent supervising SOTA lessons, is, for the time being, stationary in the homestead). It would seem however, that while UHF telecommunications technology is predominantly used for functional intra-property communication and management, inter-property information exchange also occurs – especially between adjoining farms:

> *Betty: Yes but that would be mostly to do with the running of the place as a management thing. But then we also talk to the neighbours. Quite a lot. Which would be maybe -- sometimes it's only information backwards and forwards. Sometimes it might be 'we've got some of your sheep here in our yard, can you pick them up?' Sometimes it might be 'has the mailman left your place yet?' because I know that I've got to go six miles to meet him and if the neighbours can tell me he's left their place I know how much time to give m'self. That kind of thing. Its usually local information. That's what I'd call it.*

As well as providing for the exchange of information, the functionality of UHF spans time management and alerting others to potential hazards. Roger's comment shows that UHF also operates usefully whilst Rural and Remote dwellers are in transit:

> *Roger: Yes well, I have a UHF in the car which I use mainly when I'm travelling out to my son in law's place – to my daughter's place. They're on a farm further west from here, you see. And I also use it when we're travelling along the highway. I turn it onto the highway channel 13 to tune into the trucks and just hear what's going around me, sort of thing.*
>
> *Jens: Right ... and you understand the whole language of UHF do you?*
>
> *Roger: Aw I don't know that I understand language with it – but you get a bit of a go, sort of thing.*
>
> *Jens: You start to pick it up don't you? So do you talk to anyone with it?*
>
> *Roger: Well I have from time to time. Just on the highway sort of, or that sort of thing. I've heard someone say 'there's water on the road here' or*

something like that and I'll only come back to them and ask 'whereabouts are you? Whereabouts is the water on the road?' You know, that type of thing. And like I say, I talk to me son-in-law... when we're approaching ... coming to the farm out there.

Jens: To let them know you're coming.

Roger: And then when I'm on the farm of course, that's part of the operation. If I'm down in the paddock or something like that they call us home for dinner or something like that, you know.

Alice, in a separate interview, echoes Roger's remarks and, like Roger, quips that UHF is often used to herald meals. She also notes that on the home property, there is a duality of call initiation between the home base and the worker out in the field although, according to Alice, more calls stem from the home base than from around the farm:

Jens: And you make something like about 20 odd calls over the UHF/CB each week.?

Alice: Yes well that's mainly just asking them where they are and tell them to come home for lunch a lot. (Laughter)

Jens: OK. Well ... do you find that they ... well ... do you make more calls going out rather than going in?

Alice: Oh Yes. Yes.

Jens: So the calls are the sort of, you know, 'dinner will be ready in 20 minutes, or so?' Or what'

Alice: That's right. Uhmn. Yes or go and check on a particular cow ... or have a look at something, you know, sort of thing.

Jens: Yeah. What are the calls that 'come in' about? What are they about when they contact you?

Alice: Ooh maybe, mainly, asking something about a cow if, how can I put it? I'm just trying to think of an example. Uhm. Ooh, well. Perhaps what paddock she should be in, or what bull she's been with, or that type of thing.

Jens: OK and so it's an information exchange?

Alice: Yes. Only information. We don't just get on it and talk for the sake of it. It's not private.

5:2:3: UHF Radio – the 'Tell Everyone Phone'

The last point of Alice's commentary introduces the fact that UHF radio is not private and, therefore, for the most part, UHF messages are restricted to matters which can be thought of as innocuous. Typically therefore, UHF users, "go to channel", by switching to a prearranged channel which they hope will be devoid of other users and, therefore, moderately private. One UHF user (Kate) used the expression, "minimal information, maximum meaning" and indicated that a shared *code* of understanding about what is not said between communicators can also help to telegraph a message whilst enhancing privacy:

Kate: I would probably try the phone first, and if they don't answer ... maybe they're out in the paddock and have got the transceiver turned on and you try that. But that's a more guarded conversation.

Jens: Go on, what do you mean?

Kate: Because every Tom, Dick and Harry can hear you.

Jens: Don't you go to channel?

Kate: Yes. We do. But your channel is still available to others.

Jens: But don't you have strategies so you can use?

Kate: You talk in code.

Jens: Yes, what happens? Give me an example?

Kate: Well the code would be ... say it was my husband, and you would use minimal information – maximum meaning, make sure you don't use a surname or something like this. I can't recall one off hand now but people would come ... I called him on the transceiver yesterday to say 'Dudley's come.' And that was it – full stop. Dudley is a friend that we're also looking to buy a tractor from. The whole district would know exactly who Dudley is and Tony just said he'd be home in five minutes and that was it.

Jens: And it's almost prearranged?

Kate: Yes, you'll be on the same wavelength or it would be pre-empted by what's anticipated will happen.

Jens: It's almost like an advanced organiser isn't it?

Kate: Oh yes, it's like children learning to speak and they'll use telegraph language. We found with our number one son, that we didn't know if we were imitating his pattern or he was imitating ours. I can't for the life of me think of the word he used ... or the phrase ... but it had high meaning and high impact and children will just pick out the two words and really the rest is irrelevant. But those two words carry meaning and they'll talk ... so you tend to use that sort of technique.

However, when the occasion arises where something private does need to go to air, UHF users, because they are acutely aware of the publicly broadcasted nature of their conversations, may devise quite intentional strategies to try to ensure at least a modicum of privacy. They alert their targeted listener to "go to channel" through introducing into the conversation, a pre-arranged signal which is known only to the sender and receiver:

Alice: And we're very guarded in what we say and if we want to really say something – we'll change the channel (laughter) because it's on a trans, what do you call it? Trans?

Jens: It's on transceiver or broadcast.

Alice: Yes. The whole shire can get it.

Jens: So tell me about that. You say you're very guarded and if there's something else you want to say you usually change channels.

Alice: Yes. We usually code it too ... to what channel we're gonna change to. For a code I use a birthday -- somebody's birthday you see, and then they know.

Jens: Right. So assume that that's going to happen now. With me. You've given me the birthday and we've changed channels. What are the sorts of calls that go on then?

Alice: Oh. If I was to get some personal information about somebody or something that I didn't want the whole country to know. Or I'd heard something about somebody and I really wanted to tell them, you know.

Jens: And that's likely to happen from the house to the paddock?

Alice: Yes. But it's not very often. Probably three times since we've had the radio. And I don't mean just the newer one. That's the old one and that's been here five or six years.

Jens: So it'd be a rarity?

Alice: Oh it's a very rare thing, yes.

Jens: And it would have to be something pretty important?

Alice: Very important! To do that. Yes.

Jens: Can you give me an example of the sort of thing that is that important? I'm not prying in terms of details but I'm just trying to explore this.

Alice: Oh I realise that. No not off hand I can't because it's so long since it happened. I just can't think of anything... Well ... We each have an aged – my husband and myself each have an aged mother in the local hospital as a nursing home patient and if there was something wrong with them and I didn't want the whole countryside to know, I would do it in a circumstance like that.

Because UHF is not private, the discussion of private matters over publicly accessible airwaves is one way in which UHF can sometimes be seen as intrusive. Hence, when UHF users are exposed to unwanted discourse, they intentionally switch to another channel, or turn the volume down until the unwanted descant has concluded, or, switch their radio right *off*. Kate's comment typifies what happens:

Kate: I know we've turned off the channel because one family wasn't the least bit guarded and they'd be having a donnybrook on the air and we just got so embarrassed coz we knew the people so we just changed channels.

Jens: So is lack of privacy a drawback to UHF?

Kate: Uhm. Yes.

But deliberately listening in to matters 'risque' can also become something of a popular diversion as these comments from Tricia highlight:

Jens: But UHF, someone's told me, is almost a substitute for what used to be party line?

Tricia: Yes.

Jens: What's your view on that?

Tricia: Well my husband always tells me it's a, 'tell everyone phone'. If you're on a UHF you've got to be careful what you say because everybody will know your business.

Jens: Right.

Tricia: So even just going, like a lot of people say 'are you there?' And they say, 'yes go to channel.' But if you're well known, they know your channel, they know the channel that you flick to and so, I mean ...

Jens: Tell me about this. Tell me what happens. Let's go through the conversation as it happens.

Tricia: Right well my husband will ring up in his car and we've got a base at our home and he'll say 'six', that's his call number or call point, and he'll say 'mobile (that's in the car) to base', (That's us) 'Are you there Trish?' And I will say, 'yes, I'm here.' And he'll say, 'go to channel', So I go to six – that's our channel, and he'll talk like, 'I'll be home in five minutes'. I say, 'fine, I'll put the kettle on.' If it was something important, you don't talk about it, you know, something private, personal or whatever, you shouldn't talk about it on the UHF, because there's a guy whose wife always rings up and yells, 'when are you coming home blah blah blah' and she'll say, 'go to channel', and my kids run up to find out if they're having a fight. And they know what channel that this person uses and they'll flick to it and they listen in. And they'll say, 'oh they're having a fight again' or whatever; or, 'she's got the cranks with him because he hasn't come home blah blah blah'. So people know what channel you switch to and if they're really nosy, they'll follow you and they'll listen in. Now you don't know that they're listening in, so that's why you've got to be careful about UHF.

The need for privacy was in fact one reason for Remote telephone users welcoming the advent of automatic exchanges even though this meant the demise of the party line and the ushering in of an increased phone bill. Betty explains this and also makes a comment about the privacy issue while acknowledging that for some functions, UHF is an inexpensive substitute for the telephone:

Betty: Yes it is. But the reason that we were dying to go automatic was because we could have private conversations.

Jens: So the fact that it's not private is ...

Betty: Very much so. Look I'll just tell you a quick story. I was talking to a girl – well she's semi related – and both our husbands are deaf. And we were talking on the two-way. This was early in the piece when the two-ways were new and they were a novelty. And she was telling me 'Oh and Willie is so deaf'' and I said, 'look I know how you feel. I know Craig's the same and, you know, they turn off and this kind of thing.' Craig was out in the paddock and could hear around the place. And she's at home on her two-way and I'm here on my two-way and we were having this conversation and suddenly Craig ... There was a girl further south than that who'd also come into the conversation ... who was down towards Lowe's ... and she had heard this too. (Sometimes after rain, we get really clear reception.) And she's talking about her husband too ... the three of us talking about our deaf husbands ... and my husband's out in the paddock ... he's on Channel Twenty of course ... and he picked this conversation up. And after the other girls got off he came back and he said, 'you went to be very careful what you say on those UHF's because other people can hear you.' (Laughter) So that taught me a lesson. So sure. We often do talk to each other. Especially kids that are on school of the air over the back of us who are school of the air Broken Hill who are used to chat sessions on their two-ways. They'll often get on and talk to

each other on their own channel. So they actually use it as chat sessions and also its a lot cheaper. And the parent's will let them do that rather than talk to each other on the phone.

Jens: Right. Yeah. So it's actually a substitute to the telephone but not for anything that's private?

5:2:4: UHF for Safety and Security

But clearly, while UHF is non private, it is also an economical telecommunications system which enables land workers to "hear around the place", as Betty described it. So what functions does UHF fulfil for those who use it? Thus far, evidence has been presented to demonstrate that UHF enables easy intra-property and inter-property information exchange. And equally, it is apparent that UHF can be used for pro-actively alerting others about hazards which may be encountered whilst in transit on the road. But UHF can also be used retrospectively to notify others when a problem has arisen anywhere on the isolated homestead. One of the subjects who participated in the informal interviews conducted during the pilot study at AgQuip told how a freak wind storm had crushed her husband's vehicle while he was working in a paddock some considerable distance away from the homestead. After the tree had struck his vehicle, he was able to summons immediate help because the UHF was still operative even though his vehicle was not. The subject had also noted that if the UHF radio had been damaged and her husband had been unable to call, then the absence of UHF contact to the home based UHF operator would be interpreted as an alert to the possibility that something had gone wrong. Thus, even though members of a communications dyad have not actually communicated directly through the use of a particular item of communications technology, informal learning has been triggered by the very absence of a telecommunications episode simply because the learner has interpreted the absence of a message as a cause for concern. Hence, while receiving a message by UHF, may provide a sense of security for the receiver, the very absence of a message can also trigger alarm as Betty's comments illustrate:

Betty: Yes. Yeah. You know always when Craig goes out on his own with a chainsaw or a bull dozer or something, if he wasn't home by a certain time, I'd be calling him up saying 'where are you?'

Jens: So there's a sense of security associated with this?

Betty: Very much so because you know, there's been various accidents on the place here especially over the years and flood time and of course, now, we don't have any staff. You know, you haven't got anyone checking on anyone. I'd say it's mostly ... yeah ... a safety thing and an information thing. And a security thing.

But not all problems encountered in Remote settings constitute emergencies and neither are all minor mishaps confined to the homestead. They also occur away from the home and it is then that the UHF can become linked to the home telephone and from the

home based telephone to the outside world. The home based person then serves as an intermediary, or as a 'go between' with the telephone and UHF becoming linked so that a problem may be solved at a distance. These snippets of dialogue, the first taken from the interview with Alice and the subsequent two from separate teleconferences with Remote women, illustrate elements of how the process occurs:

> *Jens: Yeah and so what's a sort of an example of the kind of UHF call that might go out from the house.*
>
> *Alice: Oh well, just wanting to know where they are – what time they'll be home or if somebody wants them on the phone or uhm ...*
>
> *Jens: Yeah. I'll come back to that thing about if someone wants them on the phone because that's an interesting one but I'll tell you what I want to discuss with regard to that – in fact we may as well discuss it now – if someone wants them on the phone – can you think of an example where that's happened?*
>
> *Alice: Ah well; Council ring up for a bush fire – something about a bush – fire truck that's here – well they want to come out and do an inspection on that truck or something - just to make sure that they're around when they come – or something like that.*
>
> *Jens: Yeah. Do you find that, as an example, that you become the conveyor between two?*
>
> *Alice: Oh yes. Very much so.*
>
> *Jens: What happens?*
>
> *Alice: Well if it's the council rings I just, you know, convey the message. Sometimes I'll pass it back to the council or somebody else that might ring, the fire captain or what ever.*
>
> *Jens: So if I phoned up now, and you wanted to talk to someone whose out in the paddock, you'd relay the message from me to them – get the response over the U.H.F and them relay it back to me.*
>
> *Alice: That's right. Yes. Hmmmn.*
>
> *Jens: Does that happen terribly often?*
>
> *Alice: Oh no. Not such a lot. Perhaps – well it just depends. If there happens to be fires or anything around that could be quite a lot. This year it won't be at all – or haraly, as far as fires are concerned because it's very green here.*

Tanya and Susan have just explained how UHF technology is mainly used for coordinating movements between people on the farm. Now, the matter of women serving as telecommunications intermediaries surfaces:

> *Jens: So what are the sorts of things you might use the UHF for?*
>
> *Tanya: Relaying messages.*
>
> *Jens: Can you think of an example?*
>
> *Tanya: Oh when they're mustering ... those that are on ... their hand-helds can't pick up one another so you relay from the house – relay from one to the*

other. Also, with our horses, if Pete calls up that's usually a message to ring town and organise things there. So you're, sort of, forever, running back and forth.
Jens: Yes. Uh huh. Now does that sort of thing occur for you too Susan?

Susan: I was going to say, we can use our telephone because it's hands free, or whatever you want to call it, a loud speaking telephone. Frank has ... he had an engine that broke down last year that he couldn't work out what was wrong so I was able to ring Adelaide, and then you actually hold the speaker of the UHF radio onto this telephone ... and they can actually speak direct through the phones and through the radio.

Jens: Right. So he was out and broken down? Well, tell me about the situation with the UHF. Was he out in a paddock or what?

Susan: He was out in a paddock on a UHF and I was on the telephone. And the person on the telephone (because it's a loud speaker) can actually speak direct from the phone through the UHF to Frank.

Jens: Right. OK. So in effect, one of the things that you were able to do was to learn from a resource person who was somewhere else and Frank was able to solve a problem.

Susan: No we just ... ah .. yes! Yes. That's right. (You could sense the penny drop as Susan realised that the scenario had been summarised).

The interview notes which follow the above exchange succinctly make two relevant points:

Two points about the above. First, these women are obviously the equivalent of the telephone switch board operator on the farm. They, like the operators of the old fashioned manual exchanges, serve as the communication intermediaries (or go betweens) in that they relay the message sent from Outrider One through the home base to the required Outrider Two. The second point is that the adventurous configurating of a two-way with a telephone has cropped up before with Alice.

The strategy of linking the telephone and UHF for problem solving surfaced yet again during the teleconference with Gwen, Irene and Heather:

Jens: Right. Now if the phone... I mean, we've talked about the phone for receiving and giving information, because you receive information, for instance, from the doctor, but you also give information so that he or she can make a diagnosis – have you been able to use it for instance for problem solving? For instance if a vehicle breaks down, can you get on the telephone, and phone a mechanic and then hold the speaker or the microphone to a UHF ... close to the phone so that someone can relay how to fix up the land rover?

Gwen: Yeah, normally we just transfer messages. You know, like we'll take it and give it either to the husband or to whoever over the radio. Or Rick will come in and actually ring the mechanic himself. Yeah. So yeah, we've done that. We've used the phone and the radio together.

Jens: OK. Now what about for you, Irene?

Irene: Yes. We've done that in the same way.

Jens: Right. And Heather?

Heather: Yes. We've done it too.

But as Irene points out later in the conversation, it is not always possible to maintain contact via UHF, especially if the land worker is some distance from the vehicle which contains the UHF radio:

> *Irene: Well there was a bush fire on one of the properties and they had to ring the people in the area to get them all to go to that bush fire to fight it.*
>
> *Jens: Right. So if you weren't there, would they have been able to contact you via any alternative method?*
>
> *Irene: Only on the UHF if they could have reached us but that depends where you are too.*
>
> *Jens: What do you mean?*
>
> *Irene: Well it was a fair way away, so if we were out in the paddock and the UHF was in the vehicle, they can't always contact us.*

Susan, like Irene above, also notes that when a potentially life threatening situation does emerge, the telephone is used initially to alert people about the situation. However, subsequent communications are via UHF because mobile telephones are neither affordable to everyone and nor are they able to be used in all remote regions. In short, not only are UHF indispensable during crises, but also, they enable the transmission of instructions:

> *Susan: If you rang someone, and said, 'there's a bushfire', they would no longer be near a phone. It needs UHF after you've first contacted them, to tell them exactly where it was, and where to go, and where the next man was needed – where another water truck was needed or whatever. To move people around, you really need UHF.*

The importance of UHF is demonstrated by the lengths to which isolated workers need to go to in the event of their radio not working:

> *Allan: Uhm. We used to. . like the whole family. We used to... we'd go all around White Cliffs and all around the blasted place, you know, go away, take a fortnight off or something like that ... and go away. You get way out in those places and ... uhm ... if you break down or something like that, and you've got no communications ... you might ... some of those places out there, you drive all day long and you wouldn't pass one vehicle.*
>
> *Jens: Right.*
>
> *Allan: I always used to have a trailer and a motor-bike on the trailer and on the pull of the trailer I had the mountings for a motor-bike ... a little motor-bike. There was only once I ever had to use it for an emergency and the radio didn't work. That was 30 mile out of Menindee and I done the crankshaft in the car.*
>
> *Jens: Right. So you literally, just hopped on the spare.*
> *Allan: Right. Pulled the motor-bike off the trailer and went back into Menindee and got a bloke to come out and tow us in. I didn't have the two-way working at that time.*
>
> *Jens: Right. But the two-way would save you that ...*
>
> *Allan: Oh yeah, yeah. And information about roads and things like that. Like out back – it's a terrific thing.*

In summary, there can be little doubt that UHF is an important communications technology for Remote people in particular. They engage in UHF conversations knowing that they are not private; they participate from a variety of locations with the homestead usually serving as their communications hub; they use UHF, either independently or in tandem with the telephone, to fulfil a range of functions including information exchange, problem solving, giving and receiving instructions and for preserving safety and maintaining a sense of security. They mainly utilise the technology for intra-property functional communication with other family members but they also use UHF to participate in inter-property communications which tend also to be, predominantly functional. Thus, although UHF is sometimes used as an alternative to the telephone because it is cheaper, the telephone remains the preferred telecommunication technology for private and sensitive matters.

Previous discussion in this chapter has illustrated that UHF is used for a diverse range of communication functions, each of which fall within the domain of informal learning activities. These include exchanging information, solving problems, giving and receiving instructions and even listening in on risque information. However, even though UHF is, above all, recognised as a device which facilitates information exchange, it appears that Rural and Remote users do not perceive UHF as an instrument for informal learning. This is somewhat ironical considering the evidence which suggests that Rural and Remote subjects believe that the telephone fulfils a learning function. The interview snippet below with prime informant Betty is germane. In particular, Betty stresses that UHF is tantamount to a mechanism which enables the user to gather information which can augment existing data. In effect, Betty argues that there is nothing new – rather, there is information which can be added to the cache of that which is already known:

> *Jens: But do you actually ever learn anything over the UHF do you think?*
>
> *Betty: I don't think I actually learn – as in new – you mean learning something new? That I didn't know before?*
>
> *Jens: Yeah.*
>
> *Betty: I doubt it. I doubt it because mostly it's talking to the neighbours about things to do around the properties or something similar – you know. We haven't had bush fires for years but they do use the UHF a hell of a lot in bush fire season. And I'll tell you ... in flood season. That was another time. We've probably used it more here with neighbours in a flood than we ever did at any other time.*
>
> *Jens: Right. Can you tell me about that?*
>
> *Betty: That's mainly to do with aircraft because in a flood you're mostly flying. Or boating. And that's mostly too for information from one to the other. Sometimes if we get a big enough flood we've an SES who flies a helicopter out from town and we might be sending information from one place to the other. Yeah I think it is mostly information. It'd only be heights of rivers and, you know ,which roads are cut off and that sort of thing. It wouldn't be anything new that we hadn't come across before.*

5:2:5: UHF Information Intrusion

It was discovered during this study that UHF and CB radio as used by truck drivers are sometimes a source of information intrusion which causes intense annoyance to unwitting rural and remote listeners. On the surface, this appears to be unlikely because transport operators have a choice of 51 channels and when they wish to speak to each other briefly and at a distance, they routinely use their 'working channels' (i.e. channel 40 for UHF and channel 8 for CB). Moreover, protocol decrees that users keep their interactions functional and brief. Therefore, drivers who wish to participate in extended conversation generally switch to a mutually selected channel. Failure to do so generally brings an abrupt reminder from one or more of the other users in the vicinity, that the operating channel is not open for *chit chat.* Hence most drivers observe UHF protocol and go to another channel for extended interactions.

But as they travel through the countryside, their chosen channel, from time to time, coincides with the UHF channel selected by one or more of the homesteads, or clusters of homesteads, they are passing. Hence, because almost all UHF sets are usually left switched on or are 'open,' the truck drivers' interactions become broadcast and are able to be heard within the area by anyone who is within earshot of an 'open' UHF radio set. Thus the interactions which occur between truck drivers intrude into the homestead. Women, not wishing to be exposed to these interactions, therefore complain.

It would appear that the cause of their annoyance is three-fold. Firstly, they complain about the manner of the intrusive messages because the language which truck drivers use is normatively replete with extreme expletives. Secondly, they complain about the matter of the discourse which they hear because frequently it is, to the unwitting rural or remote listener, apparently bereft of functionality. The truck drivers literally commandeer *the* homestead channel (or whatever channel they happen to be using) and chatter inanely over the airwaves. Thirdly, Rural and Remote people apparently complain about the length of the intrusive inter-truck discourse. That is, they complain that the conversations seem to drag on interminably.

Roger, the first of the truck drivers with whom I travelled, described this as "talking bullshit". He explained that mobile phones are often used for this too:

> *Roger: Oh yeah, I ring home all the time. Check on me kids and see what's going on. I ring up – talk to the mate – talk bullshit on it.*
>
> *Jens: Tell me about that. You say you talk to your mate and you talk bullshit.*
>
> *Roger: (chuckles) Oh yeah. Of course you do.*
>
> *Jens: In what way?*
>
> *Roger: Oh ... you talk ... chitter chatter – utter crap – chitter chatter.*

Jens: Right. Can't you do that on the UHF?

Roger: UHF doesn't reach from Melbourne to Cairns does it?

Truck drivers use UHF radio to help them to stay awake. When driver fatigue begins to set in, whether by day or by night, it is not unusual for the tiring driver to deliberately initiate contact with another driver (i.e anyone within radio range) in order to begin a conversation which 'wiles away the miles' and keeps the tired driver awake. All of the drivers I spoke to refer to this as "talking bullshit", and this lengthy form of highly functional but meandering interaction, may involve several drivers talking more or less continuously with each other across many hundreds of kilometres. Once more, the protocol of switching channels is followed so that the main operating channel, Channel 40, remains clear. Again therefore, these kinds of conversation intrude onto other UHF sets as trucks traverse rural highways and remote roads. Hence rural and remote people become unwitting 'hearers' of extended periods of truck driver "bullshit" and they dislike both the matter they hear and the length of time that these conversations take.

From time to time, however, truck drivers have passengers on board. For example, Robert is sometimes accompanied by his wife; Frank sometimes takes his grandchildren with him and Trevor, another driver I spoke to, is normally accompanied by his wife whenever he travels to the Northern Territory. It appears that under these circumstances the UHF radio is switched off so that the ears and the sensitivities of the driver's passengers are not subjected to the run of the mill language which fills the airwaves. The UHF radio is especially switched off, I was told, when other drivers find out that a female passenger is on board a truck because then, almost inevitably, the language used by some truck drivers becomes very sexually explicit. The explanation was offered on more than one occasion that some drivers try to impress females by intentionally 'talking dirty'.

In short, there was a considerable degree of first hand evidence that Rural and Remote dwellers are intermittently subjected to telecommunications interactions which they find unacceptable. The regularity with which this happens was not established in this study but clearly, factors such as whether or not an individual lives within UHF range of a main road and even the volume of trucks passing by are variables to consider. Further, because Remote people usually need to keep their UHF radio channel open for intra-farm communication with members of their family, the unwelcomed exposure to coarse language is not always turned off – rather – the volume is turned down. In fact, it was discovered that if drivers using UHF radio have their units programmed to 'relay' mode, they can receive and transmit (or skip) between many line of sight transmission towers. Signals received over homestead UHF radios may therefore emanate from anywhere within a series of extremely large intersecting UHF reception/transmission areas (i.e. with radii of up to 200 kilometres). Hence, it is virtually impossible to police this form of intrusive UHF information.

5:2:6: Frequency of UHF interactions

Details about UHF interactions recorded in the Telecommunications diaries were often incomplete and accordingly, while a total of 82 UHF interactions were logged, only 51 of these provided sufficient details for full analysis. As shown in Table 5:4 below, it was apparent that 34% of those calls (n=28) stemmed from a Work setting (of which 64%; n=18 were incoming and 36%; n=10 were outgoing). However, the majority of UHF calls (n=47; 57%) were Home based (of which 45%; n=21 were incoming and 55%; n=26 were outgoing) The remainder (n=7; 8%) were made while the subject was mobile (of which 6 were outwards and only 1 was incoming).

TABLE 5:4: Count of where subjects made & received UHF calls

	UHF
Work, In Count	18
Work, Out Count	10
Home, In Count	21
Home, Out Count	26
Mobile, In Count	1
Mobile, Out Count	6
Total Count	82

The recorded frequency of UHF interaction was low with 60% of subjects logging only two calls or less. (See Table 5:5 below.) The highest number of interactions logged was eight UHF calls with only one subject engaging in that level of UHF interactivity. .

TABLE 5:5: Frequency Distribution of UHF calls

Calls (≥)	To (<)	Count	Percent
0.0	1.0	29	56.9
1.0	2.0	2	3.9
2.0	3.0	6	11.8
3.0	4.0	6	11.8
4.0	5.0	2	3.9
5.0	6.0	4	7.8
6.0	7.0	0	0.0
7.0	8.0	2	3.9
	Total	51	100.0

TABLE 5:6: Mean number of UHF calls and UHF reliance split by location

	Mean	Std. Dev.	Count	Minimum	Maximum
n.UHF, Total	1.5	2.1	51	0.0	8.0
n.UHF, Remote	2.3	2.4	24	0.0	8.0
n.UHF, Rural	.8	1.4	21	0.0	5.0
UHFrel, Total	3.7	2.3	51	1.0	7.0
UHFrel, Remote	2.9	1.7	24	1.0	7.0
UHFrel, Rural	4.7	2.7	21	1.0	7.0

TABLE 5:7: Mean number of UHF calls and UHF reliance split by residency

	Mean	Std. Dev.	Count	Minimum	Maximum
n.UHF, Total	1.5	2.1	51	0.0	8.0
n.UHF, Native	1.3	2.0	40	0.0	8.0
n.UHF, Newcomer	2.4	2.5	10	0.0	7.0
UHFreliance upon, Total	3.7	2.3	51	1.0	7.0
UHFreliance upon, Native	3.8	2.2	40	1.0	7.0
UHFreliance upon, Newcomer	3.2	2.7	10	1.0	7.0

TABLE 5:8: Mean number of UHF calls and UHF reliance split by gender

	Mean	Std. Dev.	Count	Minimum	Maximum
n.UHF, Total	1.5	2.1	51	0.0	8.0
n.UHF, Female	1.3	2.3	24	0.0	8.0
n.UHF, Male	1.7	1.9	27	0.0	5.0
UHFreliance upon, Total	3.7	2.3	51	1.0	7.0
UHFreliance upon, Female	4.1	2.3	24	1.0	7.0
UHFreliance upon, Male	3.3	2.3	27	1.0	7.0

Tables 5:6, 5:7 and 5:8 above present data about the frequency of calls made when the data were sorted by location, residency and gender. Data are also presented in these tables which illustrate reliance upon UHF technology after respondents had been asked to provide information on a seven point Likert scale about how reliant they felt they were upon various items of telecommunications technology.[1] When the data presented in these tables are reported as trends, it would appear that Remote subjects ($\bar{x}$=2.9, SD=2.3) felt that they were more reliant upon UHF than Rural subjects ($\bar{x}$=4.7; SD=2.7). Equally, it was apparent that Remote subjects engaged in more UHF calls ($\bar{x}$=2.3; SD=2.4) than Rural subjects. It was found that the average number of UHF calls logged by females and males was similar for the two day diary period (female $\bar{x}$=1.3; SD=2.3 cf. male $\bar{x}$=1.7; SD=1.9) although it also seems that females perceived themselves to be less reliant upon UHF technology, on average, than males (female $\bar{x}$=4.1; SD=2.3 cf. male $\bar{x}$=3.3; SD=2.3). However. it appears that there was little difference between Newcomers ($\bar{x}$=3.2; SD=2.7) and Natives ($\bar{x}$=3.8; SD=2.2) with respect to their reliance upon this technology, although Newcomers ($\bar{x}$=2.4; SD=2.5) reported a higher average number of UHF calling episodes than Natives ($\bar{x}$=1.3; SD=2.0).

Thus the data suggest that while the recorded calling frequency for the sample was relatively low for the data collection days chosen by subjects, Remote subjects made more calls than Rural subjects and were more reliant upon UHF than Rural subjects. Furthermore,

[1] It is recognised that using ordinal data in this manner generates a measure of 'reliance' which lacks the detail of plotting frequencies for each level of response. However, given the small number of respondents involved, it has been decided that presenting the mean and standard deviation is justified. In this case, therefore, it can be inferred that the lower the score, the greater the degree of reliance upon the technology in question.

while Newcomers reported a moderately greater mean number of UHF interactions than Natives, and females reported a moderately lower mean number of UHF calls than males, the number of calls made by each group was very small and therefore it is difficult to draw any firm conclusions from this data.

Further splitting of the data reduced the number of UHF incidents available for analysis but a number of points are noteworthy. First, it was clear from this small sample that Rural females seldom, if ever, used UHF and were not at all reliant upon this form of technology for their telecommunications. Further, there were some indications that UHF may be more frequently used by Remote Newcomers rather than Remote Natives. Finally, Remote male Newcomers reported the greatest reliance upon UHF and recorded the most UHF interactions out of all subjects. Remote female Newcomers reported the most reliance of all females and also reported the highest mean number of UHF interactions.

5:2:7: UHF Calling Locations, Motivations and Targets

As with any telecommunications interaction, completed UHF calls comprise the elements of having been initiated and subsequently received. Almost inevitably, such UHF transmissions are short in duration and it can reasonably be surmised that their brevity is primarily occasioned by the absence of privacy. The average length of time spent per UHF call in this study was slightly more than two minutes ($\bar{x}$=2.2 minutes; SD=2.1 minutes) and only the answer phone generated shorter episodes of telecommunications interaction. Consistent with this was the fact that both Rural and Remote subjects thought that their UHF calls were predominantly *functional* in nature.

TABLE 5:9: Means for estimated number of UHF calls and UHF call motives split by location

	Mean	Std. Dev.	Count	Minimum	Maximum
UHFout, Total	15.4	16.3	51	0.0	70.0
UHFout, Remote	20.2	18.7	25	0.0	70.0
UHFout, Rural	9.2	12.3	21	0.0	40.0
UHFin, Total	16.0	16.9	49	0.0	70.0
UHFin, Remote	20.6	18.4	25	0.0	70.0
UHFin, Rural	9.7	14.1	20	0.0	50.0
UHF % Relational, Total	23.5	34.6	50	0.0	100.0
UHF % Relational, Remote	18.7	28.8	24	0.0	90.0
UHF % Relational, Rural	31.7	41.3	21	0.0	100.0
UHF % Functional, Total	53.8	43.0	50	0.0	100.0
UHF % Functional, Remote	54.7	41.5	24	0.0	100.0
UHF % Functional, Rural	57.6	45.6	21	0.0	100.0
UHF % Mixed, Total	23.9	39.3	48	0.0	100.0
UHF % Mixed, Remote	28.3	41.6	23	0.0	100.0
UHF % Mixed, Rural	11.2	30.6	20	0.0	100.0

Subjects were asked to indicate how many UHF transmissions they thought that they made and received in a typical week. They were also asked to estimate what percentage of their UHF calls were *functional*, *relational* and *mixed*. Table 5:9 shows the results to these questions.

There was a remarkable equivalence between the means for the estimated number of inwards and outwards calls. Remote subjects estimated that in a typical week they made 20 UHF transmissions and that they received an equal number (viz. $\bar{x}$=20.2 outwards UHF transmissions; SD=18.7 and 20.6 inwards UHF transmissions; SD=18.4). Rural estimates of inwards and outwards UHF traffic were also consistent although the mean estimates of calls made and received for a typical week were much lower (viz. – $\bar{x}$=9.2 outwards UHF transmissions; SD=12.3 and 9.7 inwards UHF transmissions; SD=14.1). Remote subjects thought that about one fifth of their UHF communication involved Relational matters ($\bar{x}$=18.7%) whereas Rural respondents felt that nearly one third of their transmissions involved Relational matters ($\bar{x}$=31.7%). However, Remote subjects thought that nearly 30% of their UHF interactions involved a blend of both Relational and Functional matters ($\bar{x}$=28.7% Mixed UHF calls) while Rural subjects thought that only a little over 10% of their UHF connections were Mixed ($\bar{x}$=11.2%). Results indicated little variation in the estimates for Functional content (viz. – Remotes $\bar{x}$=54.7% cf. Rurals $\bar{x}$=57.6%). In sum, therefore, it appears that Remote subjects estimated that they made and received virtually twice as many UHF calls as Rural subjects; that both Rural and Remote subjects reckoned that slightly more than half of all transmissions were Functional in nature and that the balance of their UHF interactions were either completely Relational in nature or at least comprised some Relational elements.

However, it became clear from an examination of the diary data that subjects were unable to accurately estimate the proportion of relational and functional UHF calls they completed. In short, their estimates, as had been the case with the telephone, did not align with the diary data which they logged (see Chapter Four, pp.111-112). Actual calls made by UHF radio were therefore analysed according to call motive. A one way ANOVA approach was employed where the groups were defined according to the purpose of call and this yielded four groups:

- (i) Relational incoming calls;
- (ii) Relational outgoing calls;
- (iii) Functional incoming calls, and;
- (iv) Functional outgoing calls.

Table 5:10 below shows the means and standard deviations for these groups of motives for UHF communication episodes.

TABLE 5:10: Mean number of UHF Interactions by motive

Residency			
Location	**Count**	**Mean**	**SD**
Relational Inwards	35	3.837	7.055
Functional Inwards	35	9.331	9.972
Relational Outwards	35	3.837	7.055
Functional Outwards	35	9.554	9.635

The ANOVA for UHF Interactions by Motive yielded an F ratio of 5.029 (p=0.0025). Inspection of the group means and standard deviations in Table 5:10 reveal that there are significant (α=0.05) differences in the mean number of Relational Inwards and Functional Inwards calls (Fisher PLSD[1]=4.033, mean difference between groups=5.404); between the Relational Inwards and Functional Outwards calls (Fisher PLSD=4.038, mean difference between groups=5.717); and between Functional Inwards and Relational Outwards calls (Fisher PLSD=4.038, mean difference between groups=5.404).

It is apparent from these results that UHF is seldom used for conveying personal messages or for conducting *relational* communications interactions. Rather, UHF is clearly an utilitarian apparatus which is predominantly used for relaying *functional* messages. These results should be considered in conjunction with the findings derived from the PCA analysis reported in the previous chapter (see p.135). It will be recalled that Factor Two in the PCA analysis was concerned with UHF and accounted for 10% of the unique and joint variance of the solution. The four variables which were concerned with UHF included reliance upon UHF, the number of outwards UHF transmissions, the number of inwards UHF transmissions and, the duration of UHF ownership. The interpretation given was that the factor analysis confirmed the importance of this technology to both Rural and Remote dwellers and certainly, the qualitative data presented in this chapter have confirmed that finding. Again, the point is made that UHF affords a symbolic proximity between Rural and Remote workers and their work-base, which is often the home. For this reason alone, it is not surprising that there appears to be a significant reliance upon this technology even though it is also clear that users of UHF are guarded in their messages and have devised strategies for trying to generate privacy.

5:3: Other Telecommunications Technologies

5:3:1: Scope of Data

The remainder of this chapter presents data about the use of other telecommunications technologies. As can be seen from Table 5:11 below, the amount of telecommunications

[1] PLSD = Protected Least Significant Difference.

traffic generated by the sample in this study for mobile phones, answer phones, modems and fax was not high. Mobile phone interactions accounted for less than half of one percent of all telecommunications interactions and only two respondents (1.5% of the sample) could be identified as users of this technology. Equally, answer phone episodes comprised only 1.2% (n=14) of all logged telecommunications interactions with only 22 subjects, or 16.3% of the sample indicating that they use an answering machine. Modem usage (n=9 episodes) constituted less than one percent (0 8%) of all telecommunications interactions recorded and only 8 respondents, or 5.9% of the sample indicated that they use computer driven electronic communication. Finally, the use of facsimile machines in this study involved only 4.8% of all telecommunications interactions (n=47 episodes) and altogether, only 24 people or 17.8% of the sample provided evidence of having used this technology.

TABLE 5:11: Summary Table of telecommunication interactions split by calling location & direction

	Phone	Mobile Phone	Answer Phone	Modem	FAX	UHF	Total
Total Count	**967**	**5**	**14**	**9**	**47**	**82**	**1124**
Total Percent	86.0	.4	1.2	.8	4.2	7.3	100.0
Work, In Count	**76**	**1**	**4**	**0**	**8**	**17**	**106**
Work, In Percent	71.7	.9	3.8	0.0	7.5	16.0	100.0
Work, Out Count	**103**	**1**	**0**	**0**	**14**	**10**	**128**
Work, Out Percent	80.5	.8	0.0	0.0	10.9	7.8	100.0
Home, In Count	**359**	**1**	**7**	**0**	**7**	**21**	**395**
Home, In Percent	90.9	.3	1.8	0.0	1.8	5.3	100.0
Home, Out Count	**394**	**0**	**0**	**9**	**18**	**24**	**445**
Home, Out Percent	88.5	0.0	0.0	2.0	4.0	5.4	100.0
Mobile, In Count	**0**	**1**	**1**	**0**	**0**	**1**	**3**
Mobile, In Percent	0.0	33.3	33.3	0.0	0.0	33.3	100.0
Mobile, Out Count	**0**	**1**	**0**	**0**	**0**	**6**	**7**
Mobile, Out Percent	0.0	14.3	0.0	0.0	0.0	85.7	100.0
Unspecified, In	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Unspecified, In %	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Unspecified, Out	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Unspecified, Out %	100.0	0.0	0.0	0.0	0.0	0.0	100.0

One way of putting the above into perspective is to note that while the entire sample in this study used the telephone during their two days of recording inwards and outwards telecommunications interactions, 98.5% did not use mobile telephones, 83.7% did not use answering machines, 94.1% did not use modems, and, 82.2% did not use facsimile machines. It seems clear therefore, that these telecommunications technologies have not yet penetrated Rural and Remote Australia.

Hence, extensive quantitative analysis of these less frequently used telephonic auxiliaries was not undertaken – rather, the emphasis here is on the presentation of a commentary generated from the qualitative data. This commentary illustrates how subjects

perceived and used each of these telecommunications technologies. Thereafter, the manner in which auxiliary telecommunications technologies impact upon the informal learning activities of Rural and Remote people is considered.

5:3:2: Facsimile Machines

Despite the low penetration rate of facsimile machines, there appears to be a growing appreciation of its value amongst Rural and Remote people. Its capacity to transmit virtually instant information (eg. about commodity prices or the weather forecast) to Rural and Remote locations is clearly appreciated. Moreover, facsimile machines are appreciated because instructions and/or plans and/or diagrams can be transmitted to isolated farmers thereby facilitating the more speedy repair of failed machinery.

TABLE 5:12: Users and non users of facsimile split by location

	yes	no	Total
Total Count	24	111	135
Remote Count	10	40	50
Rural Count	14	57	71

From Table 5:12 above, it would appear that Rural and Remote sample members were more or less equivalently represented insofar as usage of facsimile was concerned, i.e. around 25% of Rural and Remote sample members use fax. Nevertheless, it remains somewhat surprising that Remote subjects who extolled the virtues of fax during interviews, did not demonstrate a greater frequency of ownership. There appear to be a number of reasons for this.

First and foremost, it appears that some Remote dwellers have found that the quality of telecommunications delivery available to them does not always enable them to use ancillary telephonic equipment. Many people living in the more remote parts of Australia do not have regular electricity supplies and neither do they have traditional telephone cables and lines. Instead, alternative technologies are employed. Electricity may be generated after the installation of solar power panels or through diesel driven generators. Electronic communications in the outback rely upon terrestrial microwave technology which delivers telecommunications either via Analogue Radio Concentrator Systems (ARCS) or via Digital Radio Concentrator Systems (DRCS).[1] While each of these systems enable people living in the outback to have access to a telephone, the strength of communication is variable and 'dropping out', and/or 'fading' are problems encountered so frequently that the normative expectation amongst users is for poor quality connections. Moreover, these forms of

[1] It is not intended within this thesis to venture into the realm of sophisticated technological explanations of telecommunications delivery systems. Such explanations fall outside of the scope of this study. For an elementary explanation of such matter see for instance the AUSTEL report (1992) into Rural and Remote Telecommunications.

telephone technology are electricity reliant and in particular, DRCS is a system which is solar powered. It is, therefore, a system which currently does not enable users to engage supplementary telecommunications technologies such as facsimiles and/or modems.

Below is an excerpt from the teleconference with Irene, Gwen and Heather which demonstrates how the researcher remained unaware during the interview of the technological limitations which confronted the interviewees' usage of solar powered telecommunications. Irene has just been asked to detail which telecommunications technologies she uses:

Irene: Well, we've only got the solar powered power.

Jens: So you've got a telephone? Do you have a Fax?

Irene: No.

Jens: UHF?
Irene: Yes.

Jens: VHF?

Irene: No.

Jens: What about HF?

Irene: No.

Jens: Right. So those two. Have you got an answer-phone?

Irene: No. No.

Jens: OK. Gwen, is your shopping list any different?

Gwen: No we've just got the phone and the UHF.

Jens: Right. No facsimile machine or anything like that ... or a modem?

Gwen: No, nothing like that. We can't – we're on solar power too.

Jens: OK. Heather, is yours the same?

Heather: Yes, We're also on solar power but we've got an answering machine and we've also got VHF which we don't often use but it's there if we need it.

Jens: The VHF is supplied by whom?

Heather: In this case it comes from the Flying Doctor Service.

Thus a very real reason for some Remote people not using Facsimiles and modems is that they are simply unable to access ancillary telephonics because of the limitations of their source telecommunications delivery system. But for those who can access additional telephonics, buying and using facsimile technology seems, occasionally, to have been triggered in the first place, because they do not wish to appear ignorant about fax. After being told about this during an informal conversation with Peter, a retailer of facsimile machines within a rural New South Wales township, the validity of Peter's claim was tested

during an interview with Murray, another retailer from a different, and more remote New South Wales town:

> *Jens: OK. Now someone put the proposition to me, and I'll run it by you and see what you think. I was recently told that of course, the reason why farmers buy fax (said this man) is because some one said, to the farmers 'give us your fax number and I'll fax you the information'. And in the end they get, in his words, 'pissed off', because they don't have a fax. And they don't really know what they are, so they go in and they think, 'well I'd better get one so that all this stuff can get faxed to me'. So in effect, it's a keeping up with the Joneses. Now having run that by you, what's your response?*
>
> *Murray: Yeah. Yeah ... Uhmm ... yes. On recollection of ... or recalling what people have said to me when they've come in, it's usually, 'I don't know a damn thing about it. Can you please explain what the uses are?' That has been a comment that I've heard a lot of times. I know before we even got our own fax, a lot of businesses that we were dealing with, said 'what's your fax number? We'll send the information to you.' We ended up putting one in because within a few seconds we can have the information we want instead of waiting five or seven days for the mail. A lot of those who buy them get them for that reason.*

Murray's final comment highlights two predominant reasons why people tend to speak in such glowing terms about facsimile machines – information exchange and rapidity of information transfer. This summary of comments made during an informal interview with yet another telecommunications retailer, a man named Steve, describes a *raison d' être* for farmers acquiring facsimile machines, and also emphasises that farmers mainly use facsimile for receiving (rather than giving) information. The summary also shows that farmers, just as they have with telephone calls, have developed and learnt strategies which minimise costs:

> *We also talked about facsimiles. According to Steve, it seems that farmers are increasingly buying facsimiles not so much to send information, but rather, to receive it. They are able to phone, for instance, the weather bureau and by, 'polling' they literally dial a number and receive a fax from the dialled information supplying agency. What happens, I was told, is that the dialling triggers the facsimile transmitter at the other end so that it sends a return fax. Through this technology, farmers are able to get up to date information about the weather, wool and beef prices and other commodities – but they obtain it during off peak hours by pre-programming their facsimiles to dial when the calling charges are at their lowest.*

Murray reinforces this observation about cost saving measures and introduced the term 'polling' into our conversation:

> *Murray: Yeah. No, with the fax ... a lot of people are using the polling situation for when the phone prices are cheaper – like for after hours.*
>
> *Jens: So tell me about that. What happens?*
>
> *Murray: Well they can load the number in that they want to call with their message up. And it's just like setting an alarm clock ... that it will call at say, 11 o'clock or midnight or 1 o'clock in the morning and go through.*
>
> *Jens: And what will happen then?*
>
> *Murray: Well, usually the next day, if there's a response, the business in say Melbourne or wherever they have faxed through to, will then return the*

information. A lot of businesses I know out of Melbourne, are using the polling facility on the fax machine.

Jens: What I'm asking I guess is if you can explain polling to me.

Murray: Oh polling is a system which enables you to send a fax during the off peak periods at the cheaper rates.

During the interview with Dennis, the DACOM criteria were used as a (checklist) mechanism for encouraging him to think about how useful various items of technology were for him within his work situation. Here, he is focusing on facsimile and assigning scores of usefulness based on a seven point Likert scale with one representing *Very useful* and seven representing *Hardly (useful) at all*. The function of giving and receiving information is initially under scrutiny and whereas the three retailers, Peter, Murray and Steve, had each reported that farmers use fax for receiving information, Dennis seems to be stressing the giving out of information:

Dennis: All right. The fax. The fax is certainly useful for giving information ... .send it down ... receiving information back – very high. One. One. Problem solving – seven. You know. It's one way communication the fax ... in some ways.

Jens: If the information is a trigger to you being able to solve a problem, i.e. the information is a pre-requisite to problem solving, isn't that problem solving?

Dennis: That's receiving information. Yeah ... yeah, I suppose it is.

Jens: I'm just challenging because I'm taking nothing at face value. That's the stance that I start off with.

Dennis: Yeah. Yeah. If we get a fax ... if we've got something going wrong. The computers gone down. I want to solve a problem. It could be very useful. Yeah I've got these codes to key in. Do this, step one, step two, step three. I suppose looking at that – it's very good.

Jens: So is it a seven?

Dennis: No it's not a seven. I know I'm sort of moving around here ... but as you tease it out ... But it could be very good. It could be a two.

Although Dennis's generally positive assessment of facsimile was quite typical, Tim voiced a note of caution in his appraisal of the usefulness (or otherwise) of facsimile. While concurring with the opinion that facsimile do enable speedy data transfer whilst bestowing improved opportunities for expressing opinions or views about matters of concern, Tim, a school principal, also felt that facsimile heightened pressure on administrators because immediate replies were often demanded:

Jens: What's your attitude towards fax?

Tim: Very good, but they speed it up or put expectations on replies, that within the school system, make it almost unrealistic. We had a fax from the President of the State Principal's Council on Tuesday. The reply had to be back by Thursday before she met with the Deputy Director General, and we

had to survey other Principal's in our region. OK, so it creates an unrealistic response time that we all work by.

Jens: Successfully?

Tim: Yes, and the reason we do it is because we want to have a say in what's going on. If we don't work to those time limits, then we can't complain about not having a say. I think it's unrealistic, but it happens and because we do it, we're expected to do it, as one builds onto another.

Another cautious criticism of facsimile also emerged. Betty felt that there had been a decrease in the amount of interpersonal telephone conversation between people as facsimile transactions increased:

Betty: And of course we use our faxes a lot too so you tend to talk less if you use a fax. I'm finding I'm using the fax more than I used to as well. And I think more and more people are getting fax machines now and its a time saver but it's less social contact.

Nevertheless, Betty, who was identified within this study as both an opinion leader and as a diligent networker who actively diffuses information, is well aware that having facsimile at her disposal increases her telecommunications options. In the following conversation, she ventures that specific telecommunications technologies are used for disseminating specific forms of information. Moreover, the specificity and/or complexity of information to be sent seemingly determines the sender's choice of transmission technology. After explaining details about a substance known as "Baa Baa Branding ink" Betty notes that this is an example of the kind of practical information which will be disseminated between members of her remote community

Betty: That's the sort of thing and we'll talk to each other about that and somebody will pass the information onto somebody else.

Jens: Whether it's done by telephone or fax or UHF?

Betty: Yes. Well that would be more likely to be done on UHF or phone. Because you're more likely to talk to each other for the detailed explanation I think. If it was just the ingredients or the breaking down of it – you'd fax that. If it's more detail, I think you'd probably ring up.

Thus it would seem, facsimile is more likely to be used when the information to be transferred is quite specific. Indeed, when facsimile is used for problem solving, or for transmitting instructions, the data are also usually quite specific as Murray indicates:

Murray: Ohh ... it's used for giving information – receiving information ... uhm ... and problem solving. I know of one guy who's got one. He faxed through ... or he had faxed through to him, a displayed diagram of where sprockets go on his header because he couldn't interpret the book. So that was very useful for him.

When specific data such as the above are requested, it is not uncommon for females to once more serve as the comptroller of the communications centre on the farm:

> *Ruth: Yes. Well the telephone would be my most used. I mean I don't ... use the radio very little ... other than for information giving or taking. That's the UHF ... (Pause & sigh) Don't use the fax unless it's ... you know ... for business things.*
>
> *Jens: Do you use it for your husband? i.e. do you send faxes on his behalf.*
>
> *Ruth: Oooh. Sometimes I send something. Yes. Sometimes. Yes. Yes.*

Murray, having commented that it is usually the male who completes any purchasing of telecommunications equipment, confirms that in his experience, females frequently dispatch facsimile messages on behalf of their spouse:

> *Jens: Now what about the wives? Do they use the fax at all?*
>
> *Murray: I'd say ... I'd say the wives would often use the fax on instructions from their husbands – yes.*

But Remote females, who are usually the home supervisor of their children's distance education, also use facsimile for receiving and transmitting distance education teaching materials and/or distance education management materials. While more often than not, home supervisors are still mainly unable to send or receive facsimile materials because of the relatively thin penetration rates of facsimile technology in the outback, the capacity to be able to do so, even if only available to some of the less isolated homesteads which are not reliant upon solar powered electricity, is clearly appreciated by distance education teachers. Tricia, a distance education teacher, demonstrates this. She has been asked what she does if she needs to dispatch resource material to a home supervisor:

> *Tricia: I use the fax. And sending out things, I've got ... uhmm ... there's some families that have fax machines, so I fax things to them, if they've forgotten something and they need it straightaway, or if it hasn't been packed. I fax things to members of the management committee; there are three members of the management committee that all have faxes. And when we have meetings I fax the agenda and anything else that needs to be faxed, so they can have a look at it beforehand.*

Distance eduction materials are, of course, only one form of information which is transmitted to and from facsimile users. Those who have facsimile can be sent vast volumes of material from other facsimile parties – i.e. they receive requested information as well as unsolicited material which is commonly called *junk fax* from public and private sources. In turn, they may diffuse this information further:

> *Betty: Yes. Yeah. And I'm asking for that information too. A lot of the time when I'm faxing out for it but I'm not always asking for it. I could be faxing – you know, a letter that I've received from someone or some information to*

someone else who's rung me for the information. I'll say, 'look, if you've got a fax machine, I'll fax it to you'. That sort of thing.

Jens: Hmmnn. Hmmnn. So the information that you get, is it private or public?

Betty: Well mostly it's public. Not always. Mostly it would be. Mostly it would be set stuff that's available to people but we don't know it's available. Also, some of that is to do with a land care group. I'm chairman of our land care group. So information that's coming in – and it's the flavour of the month as you probably realise – since we formed our land care group which was towards the end of last year, that's probably made the volume of fax stuff coming in larger too because there's just heaps of it.

Jens: Yep. Yeah. Information?

Betty: Heaps of information, yeah. About land care – and things that are happening and last month was land care month and it's just vast volumes of stuff now and even what I see in the print media and on TV, and they seem to ... as soon as you register as a land care group, you get newsletters and stuff from everywhere. And stuff on fax re field days and all that sort of thing.

Jens: Yeah. Yes. So they're really trying to keep you informed?

Betty: Yeah. Which is great. And you know, that's the best ... I would say that the landcare movement is the best disseminator of information of anything I've ever belonged to. You know, which I think is good, because we're probably a bit behind with land care and we've got a lot to catch up.

Jens: I was going to say, is that important to you then, the fax as a means of learning information.

Betty: Yep. It definitely is because I'd say that five years ago, out here, land care was not an issue. At all. But it certainly is now ... since ... especially since the big drought that we've had.

Diane reinforces the view that facsimile can be used very successfully by the individual user for rapid information diffusion:

Diane: Well. With one issue there could be anything from say 10 to a 100. Now for example, transport is a big issue around here because of the coal trucks and trains and this and that – and if a transport issue comes up – then I sort of circulate to politicians, councillors and organisations and people that I know are interested in transport issues. And there might be say 12 or 20.

She also notes that while the facsimile, in her view, can be used to facilitate the acquisition of information, it does have a drawback insofar as the storage of information received is concerned:

Diane: Oh I get information usually and I get it much quicker than I would otherwise. And I distribute a tremendous lot of information through my fax.

Jens: Right. So can you envisage the facsimile machine as a tool for learning?

Diane: Yes but they'll have to, sort of make it a lot more accessible and I think they've got to go into plain paper.

Jens: What do you mean by that?

Diane: You know – not these terrible rolls of stuff.

Jens: Ooh. Right. The shiny stuff.

Diane: Yeah – the shiny stuff. It's horrible to handle, it's expensive ... and it's surprising how quickly it fades.

Jens: Yes. It does, doesn't it?

Diane: I was really surprised. I tend to use the roll, the back of the paper, for scribbling, and I have a clip board with this stuff on it and looking at some stuff that's six and 12 months old, it's nearly invisible.

Thus the qualitative data reported above have clearly illustrated that this technology facilitates the dispensing and receiving of visual data which can, in turn, be further disseminated as required. It was apparent that facsimile information sent and/or received does not always remain inert. Rather, transceived information often has a triggering effect – they are active packages of information which serve as a platform for initiating a variety of learning (social) processes – some of which are consistent to the DACOM categories employed in the questionnaire. These include *persuading* recipients (and/or others) to adopt new or alternative behaviours (as in land care practices and as in distance education) as well as enabling senders to try to *persuade* others about matters which they consider important (as in transportation or other similar matters of political moment); helping receivers with respect to *decision making* (as in informing farmers about when is the best time to buy or sell commodities); providing *instructions* for workers to follow (as in how to re-configure a computer program); promoting the *exchange of opinions* (as in canvassing the views of school principals on school matters) and finally, aiding *problem solving* (as in providing detailed plans of header sprockets).

Interview evidence was not found which demonstrated that facsimile was used for the affective domain of *getting to know someone* and neither did evidence emerge to suggest that facsimile is used, other than incidentally, for *maintaining friendly relations.* Equally, no firm evidence surfaced from interviews which could demonstrate that facsimile technology can be used for *bargaining or negotiating,* or for *resolving disagreements.* However, the narratives of a number of people spoken to during the research suggest that some facsimile users deliberately transmit messages which contain personalised messages (or cartoons). Further, personal communications with rural and remote teachers provided informal anecdotal evidence which suggests that facsimile technology is used by the teacher's union within New South Wales for *bargaining and negotiating*, and for providing information which may promote the gathering of data in support of *conflict resolution.*

Although relatively few subjects indicated that they were facsimile users (n=24), some trends were discernible from the quantitative data. The data indicated that in this study, more males (n=14) than females (n=10) reported using this technology. Given that

there were more female subjects within this study than males, this means that the proportion of males using facsimile was marginally greater than females. Furthermore, males reported that they thought that in a typical week they received a greater mean number of facsimiles ($\bar{x}$=7.6; SD=12.8) and sent a greater mean number of facsimiles ($\bar{x}$=9.1, SD=10.5) than females thought that they did (viz. $\bar{x}$=1.9, SD=1.9 received and $\bar{x}$=2.8, SD=3.3 sent). However, the telecommunications diary data showed that females and males actually sent or received virtually equivalent numbers of transmissions during the data collection days (viz. females $\bar{x}$ =1.9 transmissions; SD=3.7 cf. males $\bar{x}$ =1.8 transmissions; SD=2.1).[1]

There appeared to be little gender variation with respect to subjects' views on what percentage of their facsimile transmissions they thought involved local, STD or ISTD calls although males reported that they thought that they made and received more STD and ISTD facsimile transmissions than females. Males also reported that they thought that they sent and a greater percentage of Functional facsimiles than females (viz. – males $\bar{x}$=72.4% Functional; cf. females $\bar{x}$=56.6% Functional).

When the data were analysed with respect to location, it was found that while more Rural subjects reported using facsimile (n=14) than did Remote subjects (n=10) the proportion of subjects from each grouping was equivalent (i.e. 20% of Remote and 20% of Rural subjects reported using facsimile). Rural subjects reported that they thought that in a typical week they received a greater mean number of facsimiles ($\bar{x}$=5.2; SD=10.1) and sent a greater mean number of facsimiles ($\bar{x}$=7.5; SD=11.1) than Remote respondents thought that they did (viz. $\bar{x}$=3.6; SD=3.0 received and $\bar{x}$=5.1; SD=3.8 sent). Rural and Remote subjects respectively reported making or receiving a mean of 2.3, (SD=3.4) and 1.2, (SD=1.6) transmissions during their recording periods. On a seven point Likert scale Remote subjects ($\bar{x}$=3.0; SD=1.8) reported a lower mean for reliance upon facsimile than the mean reliance reported by Rural subjects ($\bar{x}$=3.7; SD=2.3) but it must be noted that these data summarise ordinal data. There appeared to be little variation between Rural and Remote subjects with respect to the estimated percentage of local, STD or ISTD facsimile transmissions although Rural respondents reported that they thought that they made and received more STD and ISTD facsimile transmissions than Remote subjects thought that they did. Both Rural and Remote subjects estimated engaging in more Functional facsimile transmissions than Relational and Mixed transmissions (viz. – $\bar{x}$=66.2% Functional; cf. $\bar{x}$=23.6% Relational; cf. $\bar{x}$=10.2% Mixed).

Given the consistency with which subjects had inaccurately reported their calling motives for both the telephone and the UHF, calls made by facsimile were analysed according to call motive in the same manner as UHF calls were analysed (see p.157 of this

[1] It must of course be noted that the telecommunications diary addressed a two day time period whilst the questionnaire sought estimates involving a week.

chapter), i.e. a one way ANOVA approach was employed where the groups were defined according to the purpose of call. Hence four groups were employed and these included:

- (i) Relational incoming calls;
- (ii) Relational outgoing calls;
- (iii) Functional incoming calls, and;
- (iv) Functional outgoing calls.

Table 5:13: below shows the means and standard deviations for these groups of motives for Facsimile machine transmissions.

TABLE 5:13: Mean number of Facsimile Interactions by motive

	Residency		
Location	**Count**	**Mean**	**SD**
Relational Inwards	23	0.537	0.531
Functional Inwards	23	4.57	10.507
Relational Outwards	23	0.633	0.621
Functional Outwards	23	5.747	9.087

The ANOVA for facsimile transmission motives gave rise to an F ratio of 3.423 ($p=0.0207$) and from the means and standard deviations reported in Table 5:13 it is apparent that there is a significant ($\alpha=0.05$) difference between Relational Inwards and Functional Outwards calls (Fisher PLSD=4.073, mean difference between groups=5.21).

It is clear from these results that facsimile machines in this study were seldom used for conveying personal messages or for transmitting *relational* material. Rather, the facsimile machine was, like UHF radio, a predominantly utilitarian apparatus which was used for relaying *functional* messages.

In summary, while there are no difficulties in using facsimile technology within Rural locations, the ability to engage in facsimile transmissions within Remote locations is contingent upon having a satisfactory telecommunications signal. Accordingly, not all Remote subjects in this study were able to use fax. But those who could use the technology spoke positively about it and clearly, facsimile transmissions provide mainly functional information which enables adult participation in a number of informal learning dimensions. These include the provision of information merely for the sake of informing the receiver (and possibly for prompting further information exchange and diffusion), the provision of information which can assist the receiver in problem solving, and finally, the provision of information which may assist the receiver in making a decision. Moreover, it was evident that facsimile users had learnt to devise and use strategies which could save them money.

There were also a number of cautious criticisms of this technology including the observation that even though facsimile transmissions facilitate the process of enabling more

people to express their opinions, they tend to concertina the time-frame for responding. Moreover, it was suggested that as the volume of facsimile transmissions increase, the amount of telephone talking may well decrease. Further, while there appeared to be no major differences between males and females and between Rural and Remote subjects with respect to transmission frequency there was a widespread tendency to overestimate the number of faxes sent and/or received.

Finally, it was established that facsimile machines in this study were primarily used for transmitting functional messages – viz. – there was a significant difference between the number of *functional* versus *relational* transmissions completed by subjects.

5:3:3: Telephone answering machines

Very few respondents surveyed either by questionnaire (n=22, 16.3%) and/or by interview (n=3, 7.7%) had an answering machine and therefore, the results described below should be viewed cautiously. Thirteen respondents also offered commentary about the technology, but only three of these subjects were users. Accordingly little qualitative data was available about the use (and non-use) of the answering machine. Of the three interview respondents who did use this apparatus, two subjects were female and they used their machines as an extension of their domestic telephone. The third subject was a male who used his answering machine at work.

From the quantitative data concerning telephone answering machines, it was apparent that almost 60% of responding users were males (n=13, 59%) and that the proportion of male subjects (21%) using this apparatus was, therefore, higher than the proportion of females answering machine users (12.5%). When the quantitative data on answering machine users were sorted by location, it was discovered that 10 users were from Remote locations and the remaining 12 were from Rural settings. Proportionately, therefore, usage rates were similar with 20% of Remote subjects within the study reporting that they operated an answering machine as opposed to 16.9% of Rural respondents.

Telecommunications diary data concerning the direction of answering machine use were also examined (i.e. whether subjects encountered an ansaphone or whether they received calls on their own machine). However, because only 14 interactions were noted and all were incoming (i.e. receiving messages rather than leaving messages), it was decided that further analysis of these data could not be usefully pursued.

A total of 33 text units (from the transcriptions of 12 respondents) concerned answering machines. However, nine of those subjects were informing the interviewer that either, they dislike this form of telecommunications technology or, that they did not use it.

Hence, while comments on the telephone answering machine accounted for 0.20% of all text units, in reality, the amount of useful information was less than 0.10%.

But the data which were useful demonstrated a polarity of views. On the one hand the telephone answering machine was disliked – and intensely so. On the other hand, telephone answering machines were appreciated and valued. Tim, the school principal describes his dislike of this technology:

> *Jens: Let's move on to the answer phone, have you got an answer phone at school?*
>
> *Tim: No.*
>
> *Jens: What about at home?*
>
> *Tim: No.*
>
> *Jens: Why not? I mean you're a busy person.*
>
> *Tim: No, I'm accessible enough.*
>
> *Jens: OK, do you like them?*
>
> *Tim: I've never used one. No I hate talking into them, I'll tend to hang up.*

The thrust of Tim's commentary seemed to typify the feelings of many non-answering machine owners. Their dislike of answering machines often appeared to be engendered by the impersonal nature of the machines and when discussing this technology, people often reported that they dislike talking to a machine. By contrast, telephone answering machine owners claim that people who hang up and refrain from leaving a message, are irksome. This became apparent within this study when Betty was asked why she left relatively few messages on other answering machines (even though she received many messages on hers):

> *Jens: Hmmnn. Now let me move on to the next thing. You only leave maybe four to five messages in a week on someone else's answer machine?*
> *Betty: Yeah, because most of the people I ring don't seem to have an answering machine. Or you ring in business hours you mostly get them. I leave a message every time I ring where there's a machine if I haven't got the person because I know how frustrating it is (having one myself) when you just get the brurrp brurrp brurrp.*

But Betty also noted that incidence of people not leaving messages appeared to be diminishing as callers were becoming accustomed to encountering an answering machine:

> *Betty: I find this one's getting better or getting more [messages]. I'm getting more responses than I did earlier. I think people are getting more used to talking to a machine. I'm sure that's what it is because even my own mother, who's 82 and lives in Sydney, when I first got it, she didn't know how to handle it so she'd just hang up. And then the grand-children in Sydney have*

told her ... grandma ... this is how to use the answering machine. So she uses it now.

Indeed, as Sharon illustrates, not everyone is fazed by the process of encountering an answering machine. Sharon had been extolling the virtues of facsimile when she was asked how she felt about answering machines:

Sharon: Yes, I don't have one – never had one. But it doesn't worry me when I ... I'd rather speak to an answering service than have to keep trying to get the person. I know some friends say, 'oh, I don't like it. The beeps going'. I just wait for the beeps, say who I am and leave the message. And then I think, well I've got through rather than have to keep thinking, I'll have to call again to get the message through.

Jens: Does that mean you're getting used to answer phones, or what?

Sharon: No I've had a lot of dealings with them before. I worked in Reserve Bank. So ... they've just never worried me ... talking to them. But some of my friends ... they just feel they're impersonal ... but I think that they're good.

When Tim was asked to nominate a "technology shopping list" for establishing an *ideal* distance education service within his school, the matter of the usefulness (or otherwise) of the telephone answering surfaced again. But just as Tim once more showed his disdain of answering machines, it should be noted that he, like Sharon, was quite positive about facsimile machines and his confidence in that form of technology was also fairly typical within this study:

Jens: So what about fax and answer phones and modems and UHF and so on?

Tim: Answer phones with me would be right at the bottom, but that's a personal view. The fax is something that I think will become more useful as more people get them. But for the small amount of materials, it's not really cost effective unless we were sending a great heap of them out.

The following excerpt from the interview with Murray highlights that where answering machines are used, the decision to purchase them has sometimes been decreed by absentee, city based management. Moreover, according to Murray, solo operators are unlikely to use answering machines:

Jens: What about answer phones? You were starting to tell me about answer phones before.

Murray: Yeah. Answering services ... we have sold uhm ... a real lot of them here.

Jens: To farmers?

Murray: Yeah I'd say a smaller percentage to farmers. Mainly to business people.

Jens: Let's leave them out of it and concentrate on the farmers.

Murray: Well when I say farmers, I don't mean your run of the mill cow cocky or, you know, sheep farmer. They have within their farming enterprise ... a business and they don't often have answer phones. Now the ones we've sold it to have been the multi peoples like your Mongadals, your Ravensworth. They're owned by say AMP, insurance, or wool companies or FS. Falconer's which is Rupert Murdoch ... Those big multi-national type businesses are the ones that I can recall that I've mainly sold answering services to.

Jens: So they've got a manager who comes in and the company that employs the manager buys the telecommunications. But the owner operator type of farmer doesn't buy answering machines. Have I got it right?

Murray: That's right. Yeah.

However, as Betty explains, she ended up owning, operating and appreciating this technology because of the generosity of her children who were prompted to buy a machine for her. They did this in order that their parents might complete meals without interruption, and also, in order to try to diminish their parents' compulsion to respond to the ring of the telephone during meal times. But as Betty reveals, those who have become quite used to the telephone answering machine are want to heap lavish praise upon it although they also recognise its potential for failure:

Betty: You know the reason we got an answering machine here? It was our kids that made us get it, because we didn't really understand answering machines, and the phone wouldn't stop ringing during meal times. Our eldest son said (he was flatting with some girls in Dubbo who had one); he said, 'look, what you need is an answering machine'. He said because at least we'd be able to sit down as a family together and have dinner together and let the machine answer the calls. If it's really urgent you can still hop up and answer when the people are giving the message, but you can ring them back afterwards. You can ring 'em back in an hours time.

And that was really good advice. So the kids gave us this answering machine at Christmas time last year. And they even had to set it up for us, of course, because it was too technical for us to even set up. But it's been terrific I think, you know, and probably from other peoples' point of view, but certainly from ours. Because it's terribly frustrating when you ring for hours and hours and you know, it's just dialling out and you're not getting anybody.

I get a lot of phone calls in and a lot of times they're people I don't really know – I know of them and I know sort of vaguely where they live but someone else has sort of told them to ring me. And they'll leave a message on the machine – and I get so many messages because I'm away so much from the house. Because there's only Craig and I here 90% of the time. Kate's here at the moment – our daughter who was working with Compass airlines. She's just come back to help us with shearing ... and she would have been the one answered the phone proper.

But 95% of the time Craig and I are only here ourselves and so I'm outside a lot and so therefore I find the answering machine fabulous. When it's working properly – and I agree with you – it's got gremlins – because I don't always get every message.

5:3:4: Modems

A number of factors forestall the use of modems within rural and remote communities. These barriers include the limitations of data delivery technology, operating difficulties and, finally, operating expenses.

The modem is another ancillary telecommunications technology which operates only when the strength and quality of the telecommunication signal is good enough and in this case, the signal must strong enough and consistent enough to enable data transference. Thus, in many remote settings where either ARCS or DRCS systems deliver and receive telecommunications, data transferred by modem is often unreliable and, therefore, is seen as problematic to users. The AUSTEL report into Rural and Remote telecommunications (Davey, 1992, p.40) recognises this:

> *Call drop-out appears to be of particular concern to rural and remote DCRS customers, making facsimile transmission and data transfer less reliable and more frustrating.*

It is perhaps not surprising, therefore, that little data surfaced during this study on the use of computer modems as a form of telecommunications. Indeed, only eight people (i.e. 5.9% of all subjects) indicated that they use modem technology and only nine modem episodes were diaried (i.e. 0.8% of all recorded telecommunications interactions). Moreover, all of these episodes were completed by one subject. Furthermore, less than 1% of the qualitative data yielded useable commentary on the use of modems (viz. 99 text units or 0.59% of all text units concerned modems).

While equal numbers of females and males (n=4 of each gender) reported themselves as modem users, there were a greater number of Rural users (n=6) than Remote users (n=2). The two Remote users were males and Rural females (n=4) were therefore more represented than Rural males (n=2). The nine modem interactions recorded were all diaried as outwards; all were logged as Functional episodes and all but one involved STD calling rates. The other modem call was to a local connection. All in all, therefore, little can be discerned about Rural and Remote uses of modems from the quantitative data except perhaps, for the observation that modems are not a widely used telephonic accessary in Rural and Remote settings.

However, the commentary which surfaced during interviews was more revealing and illustrated that modem users encounter operating difficulties and are likely to baulk at operating costs. The interview excerpts below demonstrate that subjects reported that they found modems to be not only difficult to use, but also expensive to purchase (because they require a host computer system) and expensive to operate.[1] Diane, for instance, explained

[1] Modem operators first incur costs when buying their hardware and associated software. They also have to pay for lodging the requisite telephone call which connects their computer modem can to an electronic network.

that even though she, together with a number of other members of the Older Women's' Network, had formed a computer group, members of that computer group did not use modems for communication:

> *Diane: Now there's a Pegasus Computer Network – which I dropped out of – then there's the older Women's Network.*
>
> *Jens: That's the one!*
>
> *Diane: Right. Well we don't sort of communicate by modem – we ring each other up. I'm probably the only one that's got a modem and they're so hard to use.*

Indeed, as Diane explains, she even encountered difficulties in just becoming connected to a news group to which she had paid to become a subscriber:

> *Jens: All right. I've got a question down here, 'what prompted you to get a modem?'*
>
> *Diane: Oh well, I joined the Pegasus Computer Network and I had to have one for that.*
>
> *Jens: Tell me about the Pegasus Computer Network and why you joined them?*
>
> *Diane: Well. It's an environmental network – well it was basically an environmental group and I read about it in the Herald. But it was quite a while before I got a computer and then I sort of approached them. Well I think I approached them before I got a computer. And then I joined up after I got a computer but there was no local help and I wasn't logged on for about 12 months. So when I finally got somebody to put in the software I had, and got them to help me to get started, I used it for about six months and it was really very interesting. And there was – information comes from all over the world.*

But even though Diane marvelled at having the facility of being able to use her modem for accessing information, she also noted that the expense involved in continuing to source material through this technology ultimately proved overwhelming for her. She also described her difficulties in down-loading material from bulletin boards into her computer:

> *Jens: You say you get information from all over the place. And then, you said, they suddenly put their prices up very substantially.*
>
> *Diane: Oh yes, it was tremendous. The only reason I dropped out was – it was expensive.*
>
> *Jens: Who put the prices up? Telecom ?*
>
> *Diane: No! The network! Well I just had to drop out. I couldn't afford it.*
>
> *Jens: Right. Right. It depends too, doesn't it, upon the sort of modem that you've got and the speed of the modem?*

Finally, they (almost inevitably) have to pay for the time during which they are connected to a host electronic mail system. Furthermore, while the actual hardware, i.e. the modem itself, may be easily connected to a computer port, the associated software can prove problematic for some users so that they spend longer intervals trying to operate their modem than do efficient users. Such inefficiency can be costly.

Diane: Yes – and also your own computer operating capability. It took me a long time to learn to down load. And by that time, I'd got into the habit of reading the screen – which is very very bad.

Jens: Yes – and that cos 's you. While you're interconnected. So it costs you as a service. Does it cost you much in terms of Telecom?

Diane: Yes. You pay for your call.

Jens: So you're paying twice?

Diane: (long silence) Yeah. I think you're paying twice. You're paying at the Australian rate for the calls. So whatever a call to Byron Bay cost – you know, that's what I was paying Telecom. But then you're paying so much a minute while you're on the network – and there were two rates – there was a day-time rate and then there was the ... after...
Jens: ... the after hours rate...?

Diane: ... eight o'clock I think it was. When phone calls get cheaper, that's when it got cheaper as well.

Again, later in the interview, Diane noted that she had difficulties in mastering the modem associated software, this time in relation to the transmission of facsimiles via her modem:

Diane: Right. Now the modem I haven't used since I dropped out of the Pegasus Network at the end of March. Now I could use it except that I'm – ooh – I could sort of use it to send faxes direct from my computer through the modem. But I haven't mastered the software.

Phil, a self confessed computer 'buff' did not report encountering software difficulties in operating his modem but he did acknowledge that costs could be a limiting factor:

Jens: Do you find that you use the bulletin board for receiving information or for giving?

Phil: Ah ... mainly receiving. Yeah. I'm into receiving information. I've got CD ROM's and what not too so you get a lot of information on them. But I find that because we're so far from Sydney where I suppose the main source of information is, that even for the ... like for five minutes or what ever it is, uhm, you can soon rack up $300:00 over three months or something.

Tim, the principal of a school that provides primary education via both face-to-face and distance modes, suggested that economic circumstances mitigated against farmers purchasing computers and modems for their children's education even though he wanted to encourage them to do so. In short, the present diminution of Rural and Remote incomes was seen as an important consideration for not encouraging the purchase of computers and modems even though electronic mail would enable the school to distribute teaching materials speedily and economically:

Jens: OK, but E-mail would be cheaper than postage wouldn't it?

Tim: Should be.

Jens: So would you encourage that in terms of forward thinking.

Tim: Yes, I normally encourage people to get computers, but for a lot of them on the properties at the moment, the financial situation wouldn't allow it – so I'm not. And the school can't afford to buy one to let them have. That's sort of unrealistic at this stage.

Retailers of telecommunications technologies reinforced Tim's viewpoint. Murray, for instance, had this to say when asked about modems when he was asked whether or not farmers bought them:

Murray: No. Not modems. We've had no request for them. Anyway, farmers can't afford them.

Jens: OK. So you really sell the complete range with the exception of modems. Uhm, I'll come back to that but tell me first who your buying populations are? For this area? I mean what's it comprise?

Murray: Uhm ... about 125 kilometre radius.

Jens: OK. And the majority of that population therefore would be farmers.

Murray: Yes.

In summary, it is clear that modems are not widely used within Rural and Remote communities. Further, while those few who do use modems undoubtedly perceive them to be useful for accessing information, it must also be noted that such users literally function within a landscape where their modem will only operate when a satisfactory telephone signal is available and frequently, such quality signals are not available. Moreover, when they are available, it is not uncommon for the beginning computer and/or modem operator to be confronted with a range of operating difficulties. Finally, modems are perceived as an expensive because of the double cost of having to pay for the telephone call and the linkage to the host electronic mail system.

5:3:5: Mobile Telephones

The mobile phone was the technology least encountered during this study. Only two subjects (both males) reported having a mobile telephone and accordingly, quantitative data collected on mobile telephones were minimal. However, because mobile telephones were occasionally discussed during interviews, some qualitative data were gathered. Often though, the qualitative data about mobile telephones were merely about whether or not the interviewee owned or used this technology. When it was discovered that they did not, the interview usually shifted to another matter. Bearing this in mind, it should be noted that even though the qualitative data on mobile telephones comprised less than 3% of the total qualitative data body (viz. 2.8% of text units addressed the term *mobile*) probably less than one third of that material was useful.

The use of the term *mobile* was not necessarily confined to the mobile telephone. Rural and Remote subjects are likely to view UHF radio as their *mobile* especially when they

are travelling in a vehicle (see comments by Roger on pp.140-141 of this chapter). Furthermore, as was highlighted during the discussion about intrusive information, truck drivers traversing country roads use both CB and UHF radio whilst in transit and their radio chatter is often heard by country residents when the channel being used by the drivers coincides with the home base channel of farms which the drivers are passing. UHF sets can also be 'hand-held' and a 'hand-held' can either be carried with the individual or can be attached to the farm bike. Thus, UHF communications can be mobile although the transmission and receiving range may be limited. In this study, details about 'hand-held' radio sets were not gathered and therefore the extent to which such technology is used within Rural and Remote communities in lieu of mobile telephones was not gauged.

The interview transcripts point to a sense of ambivalence towards mobile phones. "I really do think these mobile phones are overdone" was one comment which aptly summed up the views of many. Some respondents noted that they found mobile phone users very annoying – especially if they used their mobiles during, for instance, a public sporting spectacle. Others, usually females, pointed out that they thought that men pacing up and down whilst talking on their mobile phones, "look ridiculous". A number of people were critical of mobile phones because they lack privacy. Mobile phones are able to be heard over scanners and the comment by Roger typified what some people thought about this:

> *Roger: Neither's the mobile phone private. That's right. I can tell you a story about that. No. Mobile phones, they're worse than CB or UHF. They're picked up on scanners. You can hear people talkin'. We know of some affairs these sheilas were havin' up in Brisbane. We heard them talkin' about it – what they were doin', where they were goin', how they doin' it... Shocked me! I don't say nothin' private on the telephone no more ... Yeah, shockin'...*

Nevertheless, mobiles were also appreciated because they enable family members to keep in touch with each other in the event of trouble. One family, for instance, provided their daughter with a mobile phone whenever she was likely to be out late or if she was going to be out overnight. The rationale was that this female high school student would be able to summon help "any time, any where".

People from the transport industry uniformly appeared to appreciate the mobile telephone because it enables them to make prior contact with primary producers or with warehouses. As more than one truck driving respondent noted, its not easy to find parking for a semi-trailer in a busy town or city while a quick call is lodged over a public telephone. Primary producers also appear to endorse the procedure of truck drivers announcing their arrival to the homestead over their mobile telephone because they find that they do not have to wait for a truck to arrive; rather, they can go about their normal routine and respond at the appropriate time – i.e. when the removal transport is at hand.

Even though no farmers were interviewed who had purchased a mobile telephone, a series of retailers believed that an increasing numbers of farmers are purchasing this form of telecommunications technology now, or would be soon.[1] One retailer had analysed his sales records in preparation for our interview. He informed me that over an eight month period, 85% of his sales of mobile telephones had been to farmers. The remainder of his sales had been to trades people. Other retailers routinely estimated that around 70% of their sales were to farmers.

Two explanations were offered about the preponderance of sales to farmers. Interviewees said on more than one occasion that farmers now drive vehicles, tractors and other farm machinery which are air conditioned and relatively sound proof and therefore driving stints can be extended in a manner that was not previously possible. This means that the farmer, as he or she drives, is able to listen to either AM or FM broadcast radio, is able to talk to a neighbour over the UHF, or, is even able to make telephone calls relating to business over the mobile telephone.

The second explanation (also heard repeatedly) suggests that because of the rural recession, Remote women are having to try to gain employment away from the farm. This means that they are no longer in attendance at the homestead and are therefore unable to receive incoming calls. Hence, farmers purchase mobile phones in order to ensure that incoming messages are received. Murray's commentary summarises this matter:

> *Murray: The last customer that I sold a mobile to ... I thought I was a bit cheeky asking him, but I came out and said, 'what's going to be your main use?' Because typically over the years it's always been, if you're out in your header (as the example you gave before) and you wanted something, you called home. Because of the economy nowadays, a lot of the wives are out working. So there's probably no-one at home to receive your message. And he said, 'that's the reason why I want a mobile.' His wife travels 40 odd k's into town everyday to work.*
>
> *Jens: That's quite fascinating. Now is true what I'm told that headers and various pieces of equipment are more or less sound proof like a car; they're comfortable, they're air conditioned and therefore you can, if you're going backwards and forwards, do all of your phone business.*
>
> *Murray: Yes, yes. They are very comfortable now. That's why they can work all day and all through the night type of thing – 14, 16 hour shifts.*
>
> *Jens: And do farmers actually do that or are they just buying these things because they're a new fangled toy.*
>
> *Murray: No they do actually do that. Yeah.*

[1] Initially, I visited four retailers in a large rural town and two retailers in a small remote town. Later, some months after field work had been completed, I spoke to two retailers in Armidale (some 900-1000 kilometres distant from the location of the other retailers) and was told more or less the same thing - "Yes, most of our sales of mobile telephones are to farmers."

At no stage during this research was there any evidence of females using mobile telephones. On the contrary, Rural and Remote females appeared to be mildly cynical about the use of mobiles. Indeed, when, after some exposure to this cynicism, I suggested to an all women's' gathering (i.e. at a participative conference with reference group of distance education mothers who are otherwise known as Home Supervisors), that the mobile phone was a 'boy toy' there was loud agreement with the quip. Subsequently, throughout the fieldwork, any informal reference made to the mobile telephone as a 'boy toy' almost inevitably generated vociferous agreement. However, as indicated earlier, data gathered about mobile telephones during interviews were minimal.

Finally, it became apparent that in many of the areas sampled in this study, mobile phones were unable to be used because transmission towers had not yet been installed. The excerpt below was taken from a teleconference in which the other participants confirmed Irene's claim:

> *Jens: OK. You can't use a mobile telephone?*
>
> *Irene: No. We can't.*
>
> *Jens: So all this stuff about, 'you've got to remember it's us Chucky, anywhere in Australia', is that a load of nonsense, or is it because you haven't got the technology yet?*
>
> *Irene: We haven't got the technology yet.*
>
> *Jens: Right. Could you use mobiles out your way?*
>
> *Irene: Oh I suppose we could if we get a ... what are they? ... towers I suppose they're called ... out in this area. But as yet we haven't got one.*

In summary, it appears that the mobile telephone has not yet penetrated Rural and Remote communities although there were signs that it is beginning to do so – especially where mobile telephone communications towers have been installed. Ambivalence surrounds the mobile telephone and there are some indications that the instrument is often stereotyped as a 'boy toy.' But irrespective of negative connotations which may be attached to mobile telephones, their benefits appear to be appreciated – even, in many instances, by those who do not yet own one.

5:3:6: Telecommunications and the Home Supervisor

There remains one final dimension to report in this traversal of how forms of telecommunications technology other than the telephone are used within a rural and a remote context. That matter is concerned with reporting upon those technologies which are used by distance education schools when they liaise with Remote parents who serve as the *home supervisor* of their children's distance education. The data presented here were gathered during the course of the two site studies and are confined to qualitative material. A number

of teachers were interviewed and in addition, data were gathered through teleconferences. Details of the data gathering approaches employed during the site studies are given in Chapter Two (see especially pp.63-66).

A child in New South Wales is able to become a participant in a distance education program when they are deemed, according to propinquity criteria regulations determined by the NSW Department of School Education, to live too far away from their nearest school bus route to be reasonably able to participate as a student at their nearest school. Under such circumstances, parents of the distance education students are encouraged to become home based supervisors of learning (although very occasionally, a governess is employed by a family to be the home supervisor). Accordingly, the quality of the liaison which occurs between home supervisors and distance education teachers is considered very important because distance education teachers rely upon home supervisors to oversee learning activities.

Moreover, distance education providers use a range of technologies with which to not only liaise with home supervisors, but also to introduce interactive learning activities to the dispersed children they teach. Typically, home supervisors are *co-learners* who are adjacent to their children during these interactive sessions and are they are encouraged to use the children's interactive learning sessions as a platform for discussion when they subsequently work with their children.

Technologies encountered during this study which enabled the interactive delivery of distance education lessons and which were used for facilitating liaison between home supervisors and teachers, included multiple point telephone link-ups, and the use of both HF (High Frequency) and VHF (Very High Frequency) radio.[1] Each of these technologies enabled multiple point interactive communication and therefore *teleconference* is the generic term used in this study for such communication. The data which follow were derived from interviews and from either participating in teleconferences or from listening to the teleconferences of others. These data have been included because virtually all of the Remote female subjects encountered in this study were involved as home supervisors and were therefore telecommunications reliant when fulfilling their home supervision roles.

An important point warrants inclusion at this juncture. Evaluating the effectiveness of work performed by distance education teachers is properly beyond the scope of this study. But reporting respondents' perception about the effectiveness of telecommunications technologies is not beyond the scope of this investigation because Remote home supervisors

[1] It was also discovered that the telephone remained the principal technology used when teachers liaised with home supervisors with both privacy and immediacy being it's most recognised and appreciated attributes. Moreover, the policy of teachers phoning home supervisors back to save Remote callers the cost of a call was clearly appreciated by Remote subjects.

are, after all, telecommunications reliant for the execution of at least some of their home supervision roles. Moreover, as home supervisors, they are engaged in *co-learning* activities themselves (Knowles, 1986). They are learning about the learning activities of their children – albeit – often in parallel to the differing sets of learning activities in which their children participate. They also learn informally and incidentally during their exchanges with the teachers and with other parents. Hence, telecommunications are an important medium for the informal learning of Remote home supervisors and accordingly perceptions about their utility and their usefulness are appropriately reported here.

It became apparent that *chit chat* usually predicated telecommunications between teachers and home supervisors:

> *Jens: What are the other things that work with adults when you're teleconferencing?*
>
> *Kate: Uhm. I'll ask them specific questions like, 'have you got your work?' and just check that the mail run's OK.*
>
> *Jens: So therefore you go through a functional set of quite specific things that are business related. But have you' also gone through some chit chat beforehand?*
>
> *Kate: Oh yes, 'how are you?'*
>
> *Jens: OK. And is that always a predicate? Or do you move into the business end of things first and then the chit chat later?*
>
> *Kate: Oh no. Probably ... the chit chat probably happens when ... usually the parent will answer the phone initially. And, 'G'day. How y' going?' and 'dudle-dudle-dudle-dudle-dudle-dudle-duh' and then you've got to say, 'look, I'll just go and find the rest of the children dah de de dah'...*

Chit chat was also perceived by some as a method of *humanising* the ensuing discourse whilst personalising otherwise impersonal media:

> *Helen: OK. So you talk to them, well particularly around here, you've always got to ask about the weather because that affects them. The weather is the basis, whether it rains or not, or how hot it is, effects their livelihood because most of them are farmers. The ones on the coast, it they're not farmers, they have a little market garden or a self supporting garden that most of them have for self sufficiency ... so it's still important to them. And of course with the sheep and the crops out West, if you don't get rain, your livelihood is virtually shot. Because that creates all the family problems and the pressures that add up ... you know ... you get all this ... mum is trying to help dad on the land because they can't afford to pay help, plus she's trying to teach the children, plus she's trying to run the home. Mum can become quite an emotional and mental wreck.*
>
> *Jens: So am I getting this right? This chit chat is a humanising mechanism and its also cathartic?*
>
> *Helen: Yes. And from there, once you've got rid of the baggage so to speak, you can get on with your teaching.*
>
> *Jens: So you deliberately pick up this strategy of discussing the weather and ...*

Helen: Yes. Well what's happening in the family. It does effect them. Yes. And, you know, if you can find out whether or not they've been sick, uhm, what the weather's like, what's happening in the family situation, then it gives you an appreciation of how much (or little) time mum has firstly, to cope with the education, and how relaxed she is in doing it ... how do I put it? ... how much of herself she can actually give to teaching the children. I can't find the right words .. but if mum's worried about everything else, then she only does a superficial job. You know, 'the stuffs here, OK we'll do it,' at that level, without really thinking about what am I doing and why am I doing it and putting herself into that ... the actual teaching ... and getting the most out of it for both herself and the child. So if I can show I'm genuine and concerned ... it helps ...

It is clear, therefore, that distance education teachers recognised that liaising with home supervisors is an important part of their job because through such liaison, they can help parents (or occasionally the governess) to augment the school's distance education efforts. But teachers did not strongly perceive that their interactions with home supervisors manifestly facilitate informal and incidental learning. (Instead, teachers believed that they were concerned with the children's learning.) However, most teachers were able to describe specific instances where parents had learnt informally from each other during one or more teleconferences. These comments were made by Sue illustrate this point:

Sue: Just last year, I had a parent down on the South Coast, a parent on the North Coast and one of my Western parents linked on a teleconference. It just happened that I had three odd bods. They didn't fit into any other little group. I had those three linked and that created a very interesting little group.

Jens: Why was it interesting?

Sue: The different locations, the different lifestyles and the different climatic variations.

Jens: So were they interested in finding out about each other?

Sue: (Pause.) To a certain extent, it broadened their horizons, their line of thinking. But it wasn't just their immediate little environment that they were then focussing on but, Oh yes, what is happening out west? What is happening right up north? What is happening right down south?' And the comparisons and the similarities of the group were very interesting. I found I learnt a lot too. Like you'd find sometimes with the western one it'd be very hot and no rain and very dry and mum's fed up to the teeth because there's no water in the tanks and they feel really frustrated. And down on the south coast I've got mum who's saying, 'well we've just had so much rain, I'm sick of rain. I wish to heavens, you know, we could have some sunshine'. And you know, she's like this. And the one on the north coast is thinking, 'well we've got beautiful weather. OK, we've had a shower'. And you can tell ... the emotional reactions and the questions that the three of them would generate were really interesting ... what they would bring out. And then after a while, they'd, on that little network, they'd start to bring out questions and they would initiate the intrinsic questions like, well, 'How are you? Have you had any rain?' And we'd all think, 'well lets hope she says yes because she needs it.' Or, 'Oooh. Has it fined up yet on the south coast?' 'No, it's still raining.' And we'd all go, 'Aww.' It would be very interesting in a few years time if any of the families ever move around to see whether or not there's still any contact between any of the families like that. It'd be really interesting. Because, you know, it is a totally different lifestyle in the different locations.

A consistent trend to emerge was that users experienced high levels of frustration when telecommunications technologies were functioning poorly. The three comments below illustrate three different sources of frustration – multi-point link-ups, human error, and poor atmospherics. The first comment is made by Helen and describes her experiences with multi-point telephone link-ups:

> *Helen: Oohh! (big sigh) The technology. If you have a bad telephone link-up or bad radio link-up, it's extremely frustrating for child, parent and teacher.*
>
> *Jens: OK. What happens?*
> *Helen: OK. With radio for example, you'll be half way through a lesson and it will drop out. Or it will be very staticky and you can't hear. And you're trying to anticipate a child's response and all you get is static. And it's very frustrating and you can say, 'well I hope you were saying this,' but the child is saying, 'But I'm not saying that, I'm saying this', and you can't hear what the child's saying. So the child's getting upset because they're not being understood; I'm getting upset because I'm not understanding the child and I'm not getting my information through to the child or to the parent ... whoever. Same with the telephone line. With the teleconference system that we have, because of the padding we have around the lines ...*
>
> *Jens: Now let's clarify this. This is telephone conferencing rather than teleconferencing with push to talk microphones. It's not audio-conferencing in the strict sense. It's literally a telephone conference.*
>
> *Helen: Yes a telephone ... telephone conferencing. So with that, with the padding around the telephone lines, on the individual lines, that then breaks down the strength of the signal getting through. And therefore, when you link up more than one telephone to the system, so they're sharing the system, the strength is reduced accordingly, and therefore what you'll find is that they'll say something and then drop out for two or three words and then you'll get the next word and then they'll drop out again. So you're getting this very disjointed conversation.*
>
> *Jens: You're trying to create a Gestalt out of bits. Is that what you mean?*
>
> *Helen: Exactly. And it's virtually impossible. Or you can hear one person and one little person might be talking about something and telling great news and you'll be saying, 'Oh that's wonderful'. And all the others will be sitting there thinking, well I don't know what's wonderful, I can't hear'.*

The next comment by Eloise demonstrates that human error with technology can become a source of frustration. Eloise also comments that irrespective of human error, the quality of acoustics can be very poor:

> *Jens: So you say you find the HF system problematic.*
>
> *Eloise: Annoying. Hmmm Most ... definitely.*
>
> *Jens: Why?*
>
> *Eloise: Well for instance, we tried to reach Broken Hill and for a number of days last week – this is just one instance – Broken Hill had their mute switch on, so ...*
>
> *Jens: What's that mean?*
>
> *Eloise: Well, we've got two mute switches, and if they've got theirs on, then, then uhm, if they've got theirs on at the base, in Broken Hill, then our*

reception is severely limited. And it was just cutting in and out ... just total cut out. Not even any static! There was nothing. You know? And even when there is sound ... Look, I've been out to properties and I've heard what the air lessons are like at the other end and they're just an abomination!! That's what they are – an abomination.!!

Jayne, another distance education teacher indicated that atmospheric conditions were an important variable and that if these were not right, acoustic quality suffered:

Jayne: Oohh. Well yeah . . sometimes when the atmospheric conditions are wrong, it just drops out completely ... and sometimes there's a really enormous amount of static so you can't hear anything. So ... I mean that wasn't too today bad because you could hear people ... sometimes.

In short, it was found that there was a great deal of dissatisfaction with multi-point telephone conferencing and even more dissatisfaction with HF radio. VHF radio, while not denigrated to the same extent, was also perceived as occasionally problematic with atmospheric conditions affecting acoustic quality. Here, Tim explains that other problems can also surface:

Tim: The radio signal from Balranald tower was interfering with the television programs within Balranald itself. The signal was. I think one session we had ... a Science lesson ... and they were doing bird calls and so on and they were coming out over the 'Days of Our Lives' series with these bird calls which created a few problems.

Jens: Kookaburra calls?

Tim: Yes, which I thought was rather funny but the sort of people that love their soapies didn't think it was quite as good.

It was also discovered that informal learning was facilitated by tapping into networks. For example, as Helen explained, she was able to solve a problem which had surfaced by using the reservoir of experiences of another person in her teleconference group:

Helen: Like last Tuesday. With one of my teleconferences, I have an experienced parent and one who is just on this year. And the new one was asking about enrolling the next few for kindergarten and, you know, I said, 'contact your centre'. And she said, 'what do they do?' And the other parent ... I said ... you know, 'Well you talk about it because you've been there and you go through the system'. And she came in and said, 'Well they have an orientation day, and that's really good if you can get to it. And this what they do ... and this is what I've found really helpful and I've found this too ... and first I thought – no I'm not going to cope – but now I'm finding ... at first I thought it was like this, but then I found it was like this'. And I'm thinking, good, because it means so much more to the new parent for another parent to say it.

Finally, the importance of other basic communications technologies must not be forgotten. The cassette recorder, for instance, was perceived as a very useful communications device – especially if a message given on tape was a follow up to a matter previously discussed over the telephone:

Alana: I don't think it is. I don't use the telephone in that way. I don't have a huge amount of contact with my parents over telephones. I tend to use tapes. Mainly because time wise, I don't have the time to sit here all day talking on the telephone. It's not cost effective from our point of view and it's not cost effective from the parent's point of view. I mean while some days here you might get three or four phone calls, I could go three or four days and not hear from any of my parents as well.

Jens: So the tape is the preferred option if you want to, in effect, keep in touch?

Alana: Uhmm. And plus I find tapes much more personal. And there's a lot more you can say on a tape rather than ... it's a lot easier to give people food for thought on a tape than it is on a telephone. Because of that immediate thing on the telephone ... whereas with a tape, you can say it, and they can stop it and think about it and have a think about what you said. Whereas with a telephone conversation, you know, you've usually got someone dangling off your leg screaming or you know, sort of Don and Fred have disappeared out the door as soon as the phone rings so you're worried about how you're going to get them back in and sit them back down to work. So I tend to think if I make any suggestions or ... I might make them on the phone in a general sort of conversational way, but I tend to follow it up using the tape. So anything basically I say, I usually say on tape as a follow up.

Jens: Who sets the agenda?

Alana: (Pause.) It depends on the family. Some family's you'll find, will set their own agendas according to their child's need. And then, by the same token, I've quite often set it because I have a fairly distinct pattern (vision) of where I think that child should be going ... particularly if I've met the child. I usually have a fairly clear sense of where I want that child to be at and what I want that child to do and where I feel that child has needs. Uhm so that's sort of pre-determined by just, I guess, meeting them. That face to face really does make that big difference, doesn't it? That first meeting. There are lots of things you can take in and find out. I find it much easier to come back after being on a workshop ... say last week, I was on a workshop. Well I've got a box from one of the kids. I know exactly what I'm going send that child because I know exactly where I want that child to be at by the end of next term.

Jens: But does that also mean you know exactly what you want the parents to learn?.

Alana: Uhmm. Which is what I mean by what I want the child to do because it's not what I want the child to do – it's what I'm training the parent to do.

But equally, tape recorders were also appreciated as a mechanism for giving a message to home supervisors in advance of intended telephone discussions. In fact, as Eloise demonstrates, tape recorders generate more than one accompanying telephone call:

Eloise: I phone to let them know that it's coming. I give them a very brief outline of what is on the tape and then I say, 'I'd like you to listen to the tape and then we can keep in contact'.

Jens: So does that mean there's a supplementary phone call after that?

Eloise: Yes. There is ... The tape in fact generates two calls? Yes. And it gives them a lasting record. You see that tape remains with them ... Whether or not they scrub it is another thing, but it is for them to hold. They can go over it and be very clear about what's being said on the tape before we talk on the phone about it.

Thus it is clear that home supervisors in this study participated in forms of telecommunications which would be generally be considered atypical within an urban context. The data illustrated that home supervisors in this study were exclusively females from remote locations. They participated in teleconferences which employed multi-point telephone linkages and in HF and VHF radio teleconferences. Frequent incidents were discovered which demonstrated that informal and incidental learning routinely occurred through these media but there was also strong evidence of regular technological failures and/or shortcomings occurring. These typically led to high levels of frustration.

It was discovered that groups, formed for the purpose of delivering distance education to children, were cathartic as well as supportive and the remote women who were home supervisors learnt from these networks during interactive sessions which were tacked onto the programs which were delivered for the children. During these and other liaison activities, the importance of humanising, of *networking* and of using supplementary technologies such as the tape recorder were also noted.

5:4: Concluding Comments

This, the last of the descriptive chapters, has demonstrated that rural and remote people use a variety of telecommunications technologies other than the telephone. By far the most important of these technologies is UHF radio which was operated by more than one third of the sample. There were extensive accounts of how important UHF is for intra-farm and inter-farm management. It is extensively used between mobile workers and family members although the data in this study clearly demonstrated that the rural and remote subjects in this research used UHF almost exclusively for functional purposes.

This is not surprising given that UHF is a very public medium. Indeed, it appears that it is the very lack of privacy of UHF that has encouraged users to devise and learn strategies for trying to maintain vestiges of privacy when they employ this apparatus. While the functionality of UHF makes it a useful tool for exchanging information, for receiving and giving instructions and for keeping in touch with others in a relatively inexpensive manner, UHF can also be intrusive. It was discovered in this research that UHF is used extensively by mobile truck drivers for 'wiling away the miles' and the language used by many truck drivers is often overheard by Remote people as trucks pass through the immediate vicinity. Hence, intrusive informal learning occurs when normal UHF protocol is not observed.

The use of other technologies such as facsimile machines, answering machines, computer modems and mobile telephones was also considered in this chapter. The most prominent feature to emerge from an examination of the data gathered on these technologies was their relative absence from both Rural and Remote landscapes. Facsimiles were not extensively used by respondents although when this facility was used it appeared to be

valued. However, some people were also cautiously critical of the technology and noted that this technology has not only increased demand for performance, but has also tended to diminish the frequency of direct interaction between people. Like the UHF, it was found that facsimile usage was demonstrably functional and it was also found that users had devised and learnt strategies for using their facsimiles more economically.

The data concerning both modems and mobile phones were almost solely derived from qualitative materials. The principal findings to emerge about modems were that they are often unable to be used because of inadequate phone signals; they are generally seen to be expensive to purchase and expensive to operate. Modems were also perceived as difficult to use and in general it can be concluded that Rural and Remote subjects were largely unable to access the 'information super-highway' and they were therefore largely unaware of its intricacies and associated foibles.

A degree of scorn emerged with respect to mobile telephones. Only two sample members used this technology which was seen by women especially as tantamount to what might suitably be labelled as a 'boy toy'. In this study UHF remains the prevalent strategy for conducting mobile communications. However, there were some indications that this telephonic device was beginning to penetrate the rural and remote market.

Finally in this chapter, teleconferences involving multiple telephone linkages and HF and VHF radio were described. It was found that *home supervisors* frequently engage in teleconferences which use these technologies and all of the teachers who were interviewed were able to cite a number of instances which demonstrated that *home supervisors* learnt informally as a result of their participation in these forms of teleconference. Moreover, the importance of *chit chat* as a humanising factor was demonstrated and it also appeared that telecommunications were able to generate networks from which home supervisors could garner information and/or understandings.