CHAPTER ONE

TELECOMMUNICATIONS FOR INFORMAL AND INCIDENTAL LEARNING

1:1: Telecommunications – a subset of Communications

The communications revolution is not in fact a revolution – rather it is an *evolution* and whereas the political revolution of old was an event that could be tagged (as for both France in 1789 and Russia in 1905 and 1917), the communications evolution is a global event. It is a global event even though specific points of ignition, such as the development of the printing press, the telephone, and the internet may be precisely discernible.

This chapter scans one element of a *subset* of that evolution – the subset concerned with the phenomenon of telecommunications. In doing so, the three major strands of telecommunications[1] literature which have emerged in an established fashion are perused, and a fourth, largely neglected strand, is considered in greater depth. The established strands of telecommunications literature respectively highlight the history of this phenomenon, illuminate political and economic dimensions of telecommunications, and speculate about its future. The neglected but equally important fourth strand of telecommunications epistemology, is concerned with social aspects of telecommunications. As will be demonstrated, even though there has been a noticeable absence of research into this latter domain, there is an even more pronounced absence of inquiry into how telecommunications are used for informal and incidental learning. Furthermore, there has been virtually no research into rural and remote uses of telecommunications and, accordingly, this study focuses on the intersecting matters of rural and remote uses of telecommunications, and the uses of telecommunications for informal and incidental learning.

Communication is *the* most basic of social processes and is the ether which pervades individual and group interactions. It is, therefore, inextricably linked not only to information, but also to the study of human behaviour. Yet as this century draws to a close and a new millennium stands in waiting, the *global* telecommunications infrastructure is a relatively recent but nevertheless largely taken for granted phenomenon. It is surprising, therefore, that relatively few books and studies, are devoted, either solely, or in part, to telecommunications processes, structures and services. Such literature are, to a certain extent, coterminous with the concerns, emphases and inquiry methods accorded by telecommunications investigators, writers and researchers. And as will be demonstrated in this chapter, while there has been a relative paucity of work into the social aspects of

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[1] Apostrophes have not been used in this thesis in conjunction with the word *telecommunications*. Telstra strategic and planning personnel indicated (pers. comm. 1995) that present convention is to omit the apostrophe.

telecommunications, there has bee n, to date, an almost total absence of social research into the uses of telecommunications by rural and remote dwellers.

To date, established writings on telecommunications comprise only a small portion of the communications literature and appear to follow three veins – historical, politico-economic, and finally, futuristic. The first vein, that of historical writings, includes authors such as Aronson (1973), Briggs (1977), Perry (1977) and Moyal (1984). They each chronicled the development of telecommunications services in their various countries and charted the exponential growth in the volume of telecommunication traffic. Aronson's original paper on *The Sociology of the Telephone* set out, in fact, to examine the history of telecommunications development in the USA. Briggs (1977, pp.40-65) described the early use of the telephone as a *broadcasting toy* – a not particularly utilitarian entertainment medium which could be used for broadcasting news and music to assembled people. Perry (1977, pp.69-92) detailed the British experience of the telephone and noted the slow development of telecommunications in the United Kingdom. This halting pace of adoption, he argued, was attributable, amongst other reasons, to the manner in which flat rate telephone charges were struck.

In Australia, Moyal has written prolifically on a wide range of matters concerning telecommunications. Her volume *Clear Across Australia* (Moyal, 1984) is a comprehensive account of the development of an Australian communications service – an information system which began with the delivery of mail by train, horseback and foot, and gradually, through time, evolved to include communications satellites.

In 1971, focusing on a matter which in many respects was, and still is, peripheral to telecommunications, Ashton wrote about the application of telecommunications to education (Ashton, 1971). Ashton, a freelance journalist, had become interested in the idea of Schools of the Air (SOTA) which had been developed by Adelaide Meithke in 1945. The first experimental broadcasts were from Alice Springs in 1945 and the first School of the Air (SOTA) was opened in 1951 at Alice Springs in collaboration with the Australian Royal Flying Doctor Service. By 1970, twelve schools operated and covered an area of one and a half million square miles (which is about one half of the area of Australia) but the total number of students numbered less than one thousand (N=952). However, the free to air chat sessions (or "Galah sessions" as they became called) became an integral part of the daily routine of SOTA and were early examples of a crude form of telecommunications being used for interactive informal and incidental learning.

The majority of writers concentrated on the second vein – that is – they were concerned with the politics and economics of the telecommunications system. Within Australia, in what was an often subjective expose of political machinations, Reinecke and

Schultz (1983), described in detail the furore that accompanied the (then) proposed restructuring and privatisation of Telecom in Australia. They argued that decisions leading to the eventual restructuring of Telecom in Australia were politically motivated, flew against notions of social equity, and were, therefore, against the public interest.

A plethora of reports addressing the economics of telecommunications and its role in development also emerged in Australia during the late 1970s and 1980s. Telecom's own report *Telecom 2000* (1976), was produced to advise the Australian Telecommunications Commission of how it, Telecom, saw the future of the industry. By 1985, the Organisation for Economic Co-operation and Development (OECD) had already described the penetration rates of telecommunications technology within member countries and had reported on the increasing number of people who were becoming involved in the information industry (see OECD Report to the Department of Communications, Ergas, 1986). Hudson, (1984) in a more venturous study, examined the relationship between telecommunications and rural development in third world countries in particular. Further, whilst acknowledging the importance of telecommunications to regional development, she also lamented the absence of both social research and theory.

In Australia, in 1986, the OECD was commissioned to prepare a report for the Department of Communications on the impact of telecommunications on the Australian economy. Amongst other things, it was established that "the telecommunications product mix broadly corresponds to the OECD average, although the share of trunk calls in total traffic is somewhat above that found in Canada and the United States," (Ergas, 1986, p.23). By 1990, communications services and infrastructures (including telecommunications, radio communications, broadcasting and postal services) accounted for 3% of Australia's Gross Domestic Product (GDP) and accounted for 6.3% of the country's gross fixed capital expenditure. Not surprisingly, the information industry was, therefore, the subject of a report by the Bureau of Transport and Communications Economics (Information Paper 34, 1990) and subsequently, in 1991, a Standing Committee of the House of Representatives tabled a report to Parliament about the need for Australia to become an *information* society (Jones, 1991).

The Standing Committee's brief was to examine the dimension of the information revolution, and in light of this, the desirability of adopting a national information policy. It was also required to consider the issue of equity and access to information, the matter of information as a commodity and as an employment generator, issues of privacy versus the national interest and libraries as an area of federal need. The Committee concluded that there is an inextricable link between computers and the information society and that information is central to the social and economic fabric of life. It also concluded that there

was a danger in Australia of widening the gap between the *information rich* and the *information poor* and that matters relating to information access, to information privacy and commercial protection were complex matters indeed. The Committee did not specifically consider the use of telecommunications for information transfer and neither did it consider access difficulties which rural and remote people might experience. However, the Committee did acknowledge that the continued success of farmers and of workers within many other sectors would become increasingly information reliant. The report, not surprisingly therefore, recommended that there be ongoing investigation into and debate about the many facets of the information phenomenon. The chairman of the Standing Committee was the Hon. Barry Jones who, coincidentally, had earlier contributed to the third strand of telecommunications literature, that is, to writings about the future.

Jones, the former Australian Federal Minister of Science and Technology penned his thoughts on the future impact of technology upon work (Jones, 1982) and like many writers who focus upon the future, he typically forecast that increasingly, the volume of telecommunications traffic would burgeon and assume paramount importance in our lives. International icons such as McLuhan (1964), Bell (1974) and Toffler (1980, 1984) were amongst early writers who had already speculated about these matters but as their writings, like Jones', were very wide ranging, they too paid only passing and incidental attention to telecommunications.

McLuhan's writings are akin to a series of reflective vignettes about the impact of a range of technologies and it is clear that he is a proponent of technological determinism. While McLuhan's work is still regarded as important within the broad field of communications, little of his work was concerned with telecommunications although he did illustrate one social impact of the telephone by quipping that the telephone had given rise to the *call girl* and was responsible for the demise of the *red-light district* (McLuhan, 1964, p.283). He also acknowledged the importance of networking through what he called the *seamless web*. Networks (and networking) are important concepts to this study, which for McLuhan, referred to informal social structures within organisations that are not only introduced, but are also maintained, through telecommunications.

Bell's thesis was that because of improved communications, humanity has largely moved beyond industrial society into a phase that he described as the *post industrial age*. Within that new age, Bell claimed, knowledge and technology are pivotal to change and although Bell claimed that people who lived during the last century probably were confronted by a greater magnitude of change than those living in the twentieth century, the pace of change accelerated in unabated fashion during the twentieth century (Bell, 1974, p.42). Bell asserted that one of the effects of the mergence of technology and information

was the reduction of distance (symbolically at least) for pockets of hitherto isolated people. They had, he argued, easier access than ever before to information and services. Bell argued that because the rate of technological diffusion has accelerated, the amount of knowledge an individual in the (late) twentieth century has to deal with has increased manifold. Indeed, he claimed, it had increased to such an extent that a *knowledge society* has now been created wherein information technology, and those who are associated with the management of information, have become a distinct social and occupational class. Bell's work offered a careful analysis of the consequences of the information revolution (as he called it). For example, he analysed the participation rates in tertiary education and extrapolated trends for increasing demands for higher education into the next millennium; he forecast growth rates for participation in research and development as well as in other dimensions of the knowledge industry. Bell's is a complex sociological treatise that grapples with the future and it is, above all, a *macrocosmic* account of society. It is mainly concerned with the interface between technology and knowledge and how these two phenomena are likely to influence the future. Bell is not, therefore, so much concerned with micro-communication processes and hence, telecommunications were not a really a concern for him. However, in this thesis, the interface between technology and knowledge will be explored specifically with respect to a *microcosmic* perspective of telecommunications. Much of Bell's work, unlike the work of Toffler, was grounded in statistical analysis.

Toffler's writings are, in many respects, couched in a rather sensational and dramatic style that is much like that used by Marshall McLuhan. In both of his books, (*Future Shock* 1980, and, *The Third Wave,* 1984) Toffler writes about the impact of technology on modern society and, like many others, he claims that there has been an information revolution. Indeed, he argues, the demand for information has led to *first* and *second wave* technologies (eg. ordinary mail services and the postal telegraph) becoming inadequate and unable to handle the volume of traffic sought. Accordingly, even though telephone traffic has grown exponentially, Toffler argues that other mass media have assumed a greater importance than ever before. Moreover, Toffler like both McLuhan and Bell before him, does not specifically address the uses of telecommunication for informal and incidental learning. In this study, however, the use of telecommunications in rural and remote settings remains the principal focus. Hence, while the role of other telecommunications technologies such as the facsimile machine and UHF radio are investigated, the role of mass media remains peripheral.

Toffler also speculated that the practice of *telecommuting* (i.e. working from home and linking to employment locations by means of telecommunications) would increase while improved facilities for *telecommunicating* would strengthen family bonds with people electing to stay at home rather than commute (Toffler, 1980, p.220). Given that many rural

and remote people already work from home, the impact of telecommunications upon family bonds is also of interest to this study. However, the focus of this research is more concerned with how telecommunications are used to interconnect members of distributed families and how telecommunications are used by rural and remote family members for learning about each other at a distance.

While McLuhan and Toffler wrote in a largely speculative and macrocosmic perspective, Johansen, from the Institute for the Future in the United States of America, wrote about the application of telecommunications for small group communications (Johansen et al., 1977). Although Johansen's initial work was also speculative, unlike McLuhan, Bell and Toffler, he focused on only one form of telecommunication – teleconferencing. Johansen's report, *The Camelia Report* emerged after more than one hundred mainly descriptive studies had been completed by teleconference advocates and researchers throughout Canada, Australia, Sweden and the United States. (These studies, in greater or lesser detail, catalogued approaches to teleconferencing.) *The Camelia Report*, however, briefly outlined possible teleconference methods and then established a hypothetical scenario in an imaginary country, Camelia, before describing how each teleconferencing approach might be used to address the Camelia scenario. The *Camelia Report* is mentioned here because the Institute for the Future exemplified the tendency which Western countries had in the late 1970s and early 1980s for creating institutes that could research possible future uses and likely politico-economic consequences of telecommunication technologies. However, the *Camilia Report* also emerged because of another trend that had crept into the literature – namely that numerous distance education workers were describing how their particular educational institution had harnessed technology as a distance education tool. The *Camelia Report* was not written in this genre but university libraries are often replete with such output by distance educators. [1] However, because such material is almost inevitably descriptive and advocative, it is generally irrelevant to this study, and accordingly it is not considered here.

But of considerable interest was a report on computer mediated communications which the Institute for the Future published in 1978. From an empirical study of computer mediated communication, Johansen and his associates (1978) proposed a taxonomy of telecommunication functions. Johansen had recruited some 250 American scientists, who while separated by distance were able to 'conference' with each other by computer, Johansen learnt that subjects reported overall satisfaction with this communications medium and specifically he found that they were able to use the technology for completing joint

[1] See for example the Bulletin of the International Council for Distance Education and the Journal of the Australian and South Pacific External Studies Association. See also the numerous conference reports generated by each of these organisations.

authorship of papers and reports, generating information exchange and negotiating time management. The identification of these activities stemmed from a set of analytical criteria which Johansen and his colleagues had derived from a study completed by Pye (1973) into the DACOM criteria – i.e. the *Description and Classification of Meetings*.

Importantly, these criteria, were described by Johansen (in Parker, 1975, pp.122-127) as being uniformly applicable across all forms of teleconference technology.[1] However, for this study, it has been suggested that the usefulness of the DACOM criteria extend beyond teleconferencing into the realm of telecommunications technologies such as the ubiquitous telephone. In other words, it is proposed that DACOM criteria can be applied for describing and classifying telephone functions which occur over the telephone in rural and remote situations and it was precisely for that reason that the DACOM criteria were adopted for this research.

1:2: Social Research and Telecommunications – a neglected field

Thus far it has been contended that communications are central to the human condition and that the study of telecommunications can be likened to a subset of the broader study of communications. Moreover, within this subset, three strands of investigation and reporting appear to have mushroomed. In effect, the epistemological mosaic stemming from telecommunications research to date, has comprised contributions derived from the history of telecommunications, the politico-economic dimensions of telecommunications, and, finally, speculations about the future of telecommunications. However, research into social uses and the social impact of telecommunications – a fourth and arguably, an equally important strand – appears to have been largely neglected – i.e. from the paucity of available literature it is apparent that scant attention has been paid to the social dimensions of telecommunications. In fact the tools of telecommunications – the ubiquitous telephone and its ancillary technologies in particular – have received virtually no attention from social science. This is somewhat ironical because telecommunications technologies are essentially about two way real time or asynchronous communication processes where the intention is for one or more senders to send one or more messages to one or more people.[2] Dordick, notes that:

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[1] Johansen used the following DACOM criteria: Giving or Receiving Information; Problem Solving; Bargaining or Negotiation; Decision Making; Generating Ideas; Persuasion; Resolving Disagreements; Getting to Know Someone; Giving or Receiving Orders; Maintaining friendly Relations and finally, Exchanging Opinions. (Source, Parker, p.125, 1975.) Parker's anthology does not provide a date of publication , but from the tables and events described in the book, it appears to have been published in 1975. The criterion of Generating Ideas was omitted from this study as this was felt to be an outcome of other criteria.

[2]Note that *real time* communication literally takes place during the present, i.e. during the 'here and now', whereas *asynchronous* communication involves messages being sent during real time but being dealt with at a later time.

> *While the mass media, print and broadcasting has been subjected to intense scrutiny for the past fifty and more years, the telephone has escaped the notice of social scientists, and more surprisingly, those concerned with communications* (1989, p.221).

Moyal, in a similar vein, comments that:

> *It has become a truism to remark how very little research has been conducted on the social impact of the telephone or on the part the telephone plays in the social interactions, communication, and life of the people* (1989b p.283).

But while Moyal observed that writers ritualistically lamented how neglected, in research, the telephone is, Noble, who had conducted more research into social functions of telecommunications than perhaps anyone in Australia, similarly bemoaned (during one of his final research assignments) that the lack of research into telephones was equally, if not more pronounced with respect to ancillary telephonic equipment (Noble, pers. comm., 1991).

Aronson's oft cited *The Sociology of the Telephone* similarly comments on this lack of research attention, "yet how rarely is the telephone so much as mentioned in contemporary discussions of social change or modernisation?" (Aronson, 1971, p.153). In fact Aronson's paper is not so much a sociology of the telephone as an account of the US history of the telephone, in which, he describes the impact of the telephone upon economic processes, mass communications and social relationships. The telephone, according to Aronson, affected business by eliminating the need for time consuming travel; it facilitated communications processes within complex organisations and the explosive growth in the volume of telephone traffic was seen as evidence of its pervasiveness. Aronson's paper also described the influence of the telephone on commerce and pointed out that the telephone quickly became a medium for the stock markets and for all manner of business transactions (lawful as well as illicit). Again, in an historical tone, Aronson described the importance of the telephone as a vehicle for the dissemination of news. From the outset, and presumably until the advent of automatic telephone switching, the telephone operator was seen as pivotal in the role of informal information distribution and thus it seems that Aronson demonstrated at least tacit recognition of the importance of the telephone as a medium for informal and incidental learning. In fact Aronson (1971, p.161) also points out that the telephone was initially viewed as a vehicle of entertainment noting that, "it was Alexander Graham Bell himself who first demonstrated the telephone's potential as a vehicle of entertainment."

Although Aronson's description of telephone functions in America was mainly historical, there is little doubt that his most important fillip to telecommunications scholarship stemmed from the sociological questions he posed. These questions arose from his discussion of the telephone, the community, and social relationships. Aronson

contended that the telephone influenced the patterns and quality of social relationships which pervaded urban areas. He argued that although both transport and the telephone had broadened the social horizons of people, it was the almost universal availability of the telephone in particular which facilitated the spreading of people's networks. It was Aronson who first coined the term *psychological neighbourhood* by which he meant a series of dispersed primary groups who interact as much over the telephone as they do through face-to-face contact (Aronson, 1971, p.162). It was Aronson who then posed that frequently cited question of, "who talks to whom, often for how long, for what reasons and with what results?" (Aronson, 1971, p.162). It was also Aronson who originally used Tönnies' concepts of *Gemeinschaft* and *Gesellschaft* as heuristics for heightening understandings of the importance of telephone calls within both an urban and a rural context. And it was Aronson who earnestly called for more research into the telephone in order to understand the impact of the telephone upon a range of communications behaviours such as face-to-face communications, letter writing and even tele-marketing. He also expressed an interest in the analysis of calling motivations, patterns and content. But although Aronson's interest in the telephone spanned a large number of areas and although he posed an extensive range of research questions, there is no evidence to show that he specifically reflected upon, and asked questions about, the use of the telephone as an instrument of informal and incidental learning.

Nevertheless, a number of those matters which Aronson had identified as worthy of investigation were subsequently addressed and presented in a compendium of papers edited by de Sola Pool (1977). This collection of 21 papers was prepared not only in conjunction with the celebration of the American bi-centenary, but also, to mark the first centennial celebrations of Alexander Graham Bell's invention. It is a wide ranging anthology that reflects upon the impact of the telephone through a time span of 100 years, contemplates the role of the telephone in everyday life, discusses the relevance of the telephone in the city, and focuses upon telephone processes and social uses of the phone. It even, finally, introduces the use of the telephone for distance education but it does not, at any stage, consider the telephone as an instrument for informal learning.

Keller's paper on the role of the telephone in new and old communities was an important contribution within this volume because it introduced not only a typology of telephone calling motivations, but also proposed the existence of a series of *telecommunities*. It was Keller who introduced the dichotomy of *intrinsic* and *instrumental* telephone calls (Keller, in de Sola Pool, 1977, pp.284-286). She described *instrumental* uses of the telephone as those calls that are made for business or administrative purposes, for reacting to emergencies, carrying out shopping, reporting illness, arranging or modifying or planning events, etc. In other words, an *instrumental* call occurs when the purpose of the

call is task orientated and is not for social reasons. By contrast, Keller referred to *intrinsic* calls as those calls that were made to family and friends to maintain social contact. In other words, an *intrinsic* call occurs when the purpose of the call is social and is not for business or task orientated purposes.

Keller also proposed a number of telephone created networks or *telecommunities.* She observed that a *spontaneous* telecommunity is generated when two or more people, who have hitherto been unknown to each other, become connected by telephone (eg. as in striking up a conversation with a telephone operator). She also argued that a *therapeutic* or *altruistic* telecommunity became formed to assist others during times of crisis or to manage crisis situations. Finally, she argued, telephones were the genesis of telecommunities of *sociability* which involved the diffusion of information, by telecommunications, through community grapevines. In Australia, the *bush telegraph* can be thought of as an equivalent concept but while the effectiveness of the bush telegraph appears widely acknowledged, it is doubtful that many participants reflect on the bush telegraph as a mechanism for facilitating learning.

While Keller's notions of telecommunities may have been largely ignored, her typology of telephone motives was subsequently adopted by a number of Australian researchers. Both Noble (1987) and Moyal (1992) used Keller's Instrumental and Intrinsic classifications. Moyal used these labels when she examined the telephone behaviours of a group of 200 women but like Keller, Noble used the classification for distinguishing between the telephone behaviours of the genders. Similarly, the French researchers, Claisse and Rowe (1987), devised an alternative nomenclature but equivalent categorical typology for describing telephone motives. They proposed a continuum of *Functional* through to *Relational* motivations with *Functional-Relational* and *Relational-Functional* serving as intermediate loci.[1]

In this study, the notion that communication episodes may have any one of a variety of motives, and certainly may have *mixed* motivations, has been accepted. In other words, for the purposes of this research, the premise has been adopted that all communications episodes can be classified according to the Claisse and Rowe continuum because it is the communication episode that is being classified and not the technology. Hence, it is argued, the Claisse and Rowe classification need not be confined solely to the telephone as has been

[1] Murray, in a recent paper (1994) which concerned itself with discussing proposed research towards the devising of an alternative classificatory approach to understanding forms of telephone communication, has chosen to adopt the categories of *functionary* and *non-functionary*. He proposed that functionary calls are essentially purposive and therefore can include either functional and/or relational calls. However, the *autonomous* phone call, according to Murray, is the manifestation of the cultural values of calling parties over the telephone. Murray's research is in its infancy at the time of writing these words and accordingly, his typology was unable to be considered in depth for this study.

the case in previous research. Indeed, it is worth noting that for later research, Noble adopted the French classificatory scale because he too accepted that many calls were made with a blend of motives (Noble, 1993).

In this study, therefore, the terms *Functional* and *Relational* are preferred to the parallel terms of Instrumental and Intrinsic. Moreover, these terms are used, as necessary, for *all* the technologies considered in this study. The main reason for this preference, incidentally, is that the French choice of terms, Functional and Relational, enable easier, quicker and more reliable computer codification than do the similar sounding and similar looking terms of Instrumental and Intrinsic

Despite the dearth of research into social aspects of telecommunications, Australia has "achieved a remarkable, if in absolute terms small, number of telephone research studies relative to both Europe and the U S.A." (Noble, Rajendra and Hansen, 1991, p.1). Noble completed a number of these studies and demonstrated that the telephone is important for maintaining contact with friends and family (1987). He also asserted that women were more intensive intrinsic users of the telephone than men (1987) and that while some telephone users "love" to talk on the telephone, other users (mainly men) are very apprehensive of, or even antagonistic towards the telephone and avoid using it (1989).

Two of Noble's students also contributed to the Australian telephone research literature. Skelton (1989) studied teenagers' telephone behaviours and found no gender differences in either the number or in the duration of calls they made. She also discovered that males tended to think that females, stereotypically, used the phone more frequently than males. Skelton also learnt that many teenagers played jokes over the telephone:

> *A typical joke is to ring a number at random and say you represent Kentucky Fried Chicken, and if the recipient can cluck like a chicken twenty times in the next minute, a prize will be won. Teenagers are usually surprised to find that most people will begin to cluck* (Noble 1989a, p.177 discussing Skelton, 1989).

Harbilas (1989) examined the telephone behaviours of migrants to Australia who were not proficient in English and discovered that such people tend to avoid answering the telephone. Instead, they assign an agent, often a child, to the task. Thus, telephone usage seems to be clearly related to language proficiency.

Noble, like Aronson, posited his findings conceptually by employing Tönnies' notions of Gemeinschaft and Gesellschaft. He argued that the intrinsic use of the telephone for the preservation of friendship and for the maintenance of kinship connections nurtured Gemeinschaft (or a sense of natural community) whereas the instrumental use of the phone for business transactions fostered Gesellschaft (or a sense of rational interaction). But

whereas Tönnies did not originally accord gender values to each of these concepts, Noble clearly did. Gemeinschaft, according to Noble was a feminine trait whereas Gesellschaft was a masculine trait (Noble, Rajendra and Hansen, 1991, p.13).[1] The telephone, argued Noble, was therefore used more extensively by women for the preservation of Gemeinschaft values – that is – it was used more often by women for maintaining community or Gemeinschaft within a Gesellschaft environment wherein family and friends were dispersed.

Noble later broadened his research endeavours by examining ancillary telephonic equipment (Noble, Rajendra and Hansen, 1991). In this study, the theoretical stance again assumed the veracity of Tönnies concepts only this time Noble argued that facsimile technology preserved Gesellschaft whereas the answering machine attempted to restore Gemeinschaft. He noted that, ironically, the facsimile was almost universally approved of whilst answering machines were almost universally disliked. From a sample of 120 subjects who had been surveyed by 40 social psychology students, he found that facsimile was almost never used in the home and that it was an overwhelmingly work based machine, owned, if not always used, by males for instrumental purposes. By contrast, even though it was found that the majority of incoming messages left on answering machines were also instrumental in nature, he concluded that the answering machine was used for relational purposes. It was also discovered that a high proportion of answering machine owners were women who claimed that they not only used the answering machine for screening incoming calls, but also so that family and friends could maintain contact.

While the sampling techniques employed by Noble and his team could be criticised (because they had been gathered with a decided lack of uniformity by Noble's social psychology students), the findings that were derived were important in three respects. Firstly, they had emerged from the study of not only the telephone, but also, from the investigation of other telephonic technologies. Secondly, categories of communications motives (i.e. Instrumental, Intrinsic and Mixed motives) were applied, for the first time, to telecommunications episodes conducted on technologies other than the telephone. Thirdly, Noble, perhaps taking a leaf out of Moyal's approach to conducting research, had insisted for the first time that his students complete an interview with each of their five subjects.[2] Hence, for the first time, he had amassed a body of *qualitative* data that, he reasoned, could be used to *supplement* his quantitative data. However, Noble did not hold the view that

[1] It is interesting to read Tönnies. Nowhere in his paper does he attribute gender to each of the concepts. Noble, when asked about this could not attribute the source of his conjecture but argued that gender afforded appropriate metaphors. (Pers. comm. 1993)

[2] Noble had a deep respect for Ann Moyal s research work and held her in the highest esteem. Moyal's description of her use of Bell's 'deep slice methodology' (Moyal, 1989) was replicated almost precisely by Noble in his assignment instructions to his social psychology students.

quantitative and qualitative data could usefully interact. Rather, he sought to generate statistical findings that he could then reinforce with appropriate qualitative excerpts.

At this time Fielding, Clarke and Llewelyn (1991) were also venturing into research that extended beyond investigating the social aspects of site located telephones. They investigated the use of mobile telephones for the maintenance of long distance relationships and concluded that mobile telephones could be used effectively for the preservation of such relationships. Their research was also a blend of quantitative and qualitative methodology. However, neither Noble and his associates, nor Fielding and his team considered the role of telecommunications from the standpoint of informal and incidental learning. After all, the fact that telecommunication technologies enable both information exchange and information diffusion is self evident and therefore, the idea of telecommunications technologies serving as instruments for informal and incidental learning was simply not canvassed.

Furthermore, apart from the study by Moyal (1989b), which included one in three rural and remote subjects in a nationally drawn sample of 200, none of the telecommunications research projects completed in Australia have specifically addressed social dimensions of telecommunications within the rural and remote sectors of Australia. Moyal's qualitative study, which examined ways in which women used and regarded the domestic telephone, was prompted in part by the threatened introduction of timed local calls. It was also influenced, at Moyal's own admission, by overseas trends in feminist scholarship and by their criticism of prevailing sociological and communications research canons. Moyal, a committed feminist, concurred with the argument that gender research is needed to clarify "the women's voices" but her study also sought to record "the diversity and distinctiveness of metropolitan and country women's telephone behaviour and of reflecting the impact on telephone behaviours of major social and cultural change" (Moyal, 1989b, p.288). It did not, however, focus upon the role of the telephone and associated telecommunications technologies for learning.

Moyal, found that the telephone was of prime importance for women in sustaining relationships, was crucial for elderly women in maintaining autonomy and, was vital for "kin-keeping". Lana Rakow (Rakow, 1987, cited in Moyal, 1989b p.286) who had spent six weeks in a small rural community called Prospect investigating "the rich and intriguing topic of women's relationship to the telephone," had concluded that:

> *the telephone runs like a fine thread through the lives of women in Prospect ... Their telephone talk is work women do to hold together the fabric of the community, it builds and maintains relationships, and it accomplishes important care-giving and receiving functions.*

Moyal, (1989b, p.288) probably intentionally, replicated Rakow's metaphor and likewise noted:

> *Telephone communication runs like a thread through the lives of women in Australia ... For Australian women, the telephone has not only, historically, brought them closer and closer, but in modern, fast paced, individually alienating society, it has become a crucial instrument replacement for face-to-face communication, a source of stimulus and information, and a key site for kin-keeping, caring, friendship, support, voluntary activity and contact with the wider world.*

The theme of the vitality of the telephone for women's kin-keeping activities has also been recently addressed by Cox and Leonard (1993). These two researchers, with funding from the Telecom Fund for Social and Policy Research, completed an interview with ten *focus groups* [1] to order to examine cost benefits of the telephone for the maintenance of social networks. While the focus groups included urban and rural groups the overall sample (N=57) was not large. The sample comprised mainly working women; the majority were aged between 25-44 years and few respondents had "close others" located locally. Few of Cox's sample (n=3, 5.3%) used facsimile machines but more than one third (n=22, 38.6%) operated a telephone answering machine. Like Rakow and Moyal, Cox and Leonard gathered qualitative material to argue that the telephone is an essential technology for women with respect to their social milieux. The telephone, according to Cox and Leonard, is essential for women with respect to their personal networking, is vital to women with respect to monitoring of the health of distant kin, and is indispensable for maintaining contact with immediate family (of procreation) members who are separated from each other because of work. They concluded that these unpaid telecommunications processes facilitate social cohesion and well being The telephone, therefore, bestows important, but unacknowledged, economic community benefits. Cox and Leonard also noted that the categorical dichotomy of Intrinsic and Instrumental phone calls "has obscured a range of other functions which allow for the management of complex roles and time demands" and argued that the telephone has allowed the "creation of communities of interest where limited contact is a key to the maintaining of relationships" (Cox and Leonard, 1993, p.1). However, they did not address the process of telecommunications mediated learning which occurs through such relationship maintenance.

The importance of the telephone for women – especially older women – was also investigated by George and Adamson (1994) on behalf of the Older Women's Network of New South Wales. With assistance from the Telecom Fund for Social and Policy research, Adamson and George distributed approximately 2,100 questionnaires of which 870 (41%) were returned. In addition, the researchers instigated a series of seven focus groups and

[1] For the sake of expediency a *Focus Group* may be thought of as a group of people who are invited to participate in a facilitated group discussion, during which, the researcher probes matters of interest and gathers data. Usually, data gathering is by accomplished by means of recording interactions on tape.

conducted ad hoc interviews as their investigation proceeded. They also conducted a short story competition which, after being advertised through the Older Women's Network, attracted 71 responses. George and Adamson (1994, p.24) note that:

> *Story-telling counteracts the tendency of surveys to fracture women's experiences. Social surveys encourage respondents to reduce their experiences to fragments which can be captured in a question and answer format. Stories by contrast provide a vehicle through which the existence and experience of inequality can be described.*

George and Adamson found that the cost of the telephone is a major concern to older women and they argued (p.8) that while the majority of older women have the telephone connected to their home, "high costs may prevent connection or impose a limit on use. 28,500 women over the age of 60 do not, for example, have the telephone connected to their households" (ABS Telephone Connection Survey, 1991). Like other feminist researchers before them, they demonstrated that the telephone is an essential and much valued instrument for preserving independence and for maintaining contact with family and friends but they did not consider the informal learning which transpires during such contacts. They also argued that their research demonstrated that ancillary telephonic aids (such as loud speaking or hands free phones) which could help the frail or disabled, are generally speaking, not being used by elderly women. Accordingly, they claim, "the loud promises of a bold new information age will mean very little," (George and Adamson, 1994, p.11).

Another (fledgling) organisation that has received financial support from the Telecom Fund for Social and Policy Research is the *Telecommunications Needs Research Group* (TNRG). Headed by Patricia Gillard of the Royal Melbourne Institute of Technology, the TNRG appears to have become a valuable contributor to the field of social telecommunications research in Australia in a very short space of time and the work of Murray (1994), Gillard, Bow and Wale (1994) and Williamson (1993, 1994) address epistemological and theoretical arenas that hitherto have largely been ignored.

Murray (1994), for example, begins what promises to be an ongoing, valuable and interesting analysis of the complex interactive relationships that occur during telecommunications episodes between callers and receivers and proposes that telephone calls may be functionary (functional) and/or non-functionary but irrespective, he contends, they are *autonomous*. Moreover, autonomous calls are the manifestation of the cultural values of the calling parties over the telephone. Hence, Murray argues, the autonomous call represents possibly one of the most significant forms of popular culture of this century.

Gillard, Bow and Wale (1994) focus on the social context in which such calls occur – viz. – "the kind of human ecology in which telecommunications are already enmeshed" (Gillard, Bow and Wale, 1994, p.4 . Their research, like that of Murray and of Williamson,

is also ongoing and emphasises qualitative methodology. Ten "people typologies" were selected[1] and face-to-face in depth interviews were conducted with a respondent who represented each "type." As well, all telecommunication network members nominated by each of the ten respondent types were interviewed over the telephone. A series of telecommunication *vignettes* was then derived from the data and while it is too early to report findings in detail, Gillard, Bow and Wale point to the matter of privacy being an important determinant of telecommunications behaviour. The drawing of social (network) boundaries and the delineation of what is or is not private, they suggest, prompt the rules and practices of telecommunication. They also suggest that the kind of relationship which people are seeking is an important social determinant. However, they do assert that the kind of perception, and therefore, the kind of relationship which people have with each other may be an important variable. In this thesis, as we shall see, that matter is of some considerable importance.

Williamson (1993, 1994) has also reported on research in progress but her research focus has been on the information communication and telecommunication needs of adults aged 60 years and over. Working with a sample of 202 respondents drawn from metropolitan and country Victoria, Williamson used data derived from telephone diaries and in depth interviews to propose that there is an overlap between the concepts of information and communication. Her argument, therefore, is quite different to that of Druker (1970), who, with rather dry logic, noted that information presupposes communication which, in turn, presupposes interpersonal perception. According to Druker, information, therefore, is an impersonal commodity which in its raw form, is concerned with logical data. Williamson (1993) however, conjects that information is far from impersonal and, in fact, notes that information often 'crops up' incidentally during communication. Her research findings suggest that telephone conversations frequently shift between communication and information (even if information is the material with which, and about which, people are communicating). In a sense, therefore, even though Williamson has not specifically conceptualised her work as being concerned with the telephone as a medium for informal and incidental learning, she is, albeit unintentionally, discussing precisely that phenomenon. In other words, even though Williamson notes that older people frequently pass on information whilst engaged in conversation over telecommunications, and even though she notes that they not only use the telephone for conversing, but also, for maintaining contact with family and friends, and for supplying and receiving information about health matters

[1] It is not clear from the interim report how the researchers selected their ten subjects but they sought: a mother active in the school and the community; a member of an Aboriginal community; a woman of ethnic background with children; a gay male couple; a single woman in her 40's with a family/friends network; a male businessman with a mobile phone; an under 25 isolated mother without a phone; a city teenager living at home; a country teenager living at home; and finally, a teenager not living at home. These ten typologies were derived from the findings of other researchers.

(Williamson, 1994), her research does not set out to address elements of the adult learning process.

In summary, it is clear that the study of communications has generated a large body of literature and theory. It is also clear that while a relatively large number of works have been produced on the study of telecommunications, which is a subset of the field of communications, very few address the social dimensions of telecommunications. Moreover, only a few of these studies were concerned with ancillary telephonic equipment. Early studies that did canvass social aspects, shed light on motives for telephone calls and devised classificatory categories for explaining them (Keller, 1977; Claisse and Rowe, 1988; Noble, 1987; Moyal, 1989b). However, some contemporary researchers (eg. Cox, 1993; Murray, 1994; Gillard, Bow and Wale, 1994), are challenging the validity of these typologies because, they argue telecommunication episodes are more complex than was suggested by early researchers. Other studies have considered the telephone behaviours of specific population cohorts. Skelton (1989) studied the phone behaviour of teenagers; Harbilas (1989) examined the telephone strategies of migrants; Rakow (1987) addressed the telephone from a feminist perspective as did Moyal (1989b) and Cox (1993). More recently, George and Adamson (1994) and Williamson (1993, 1994) examined the telecommunications needs and behaviours of the elderly.

Early studies were predominantly quantitatively cast and therefore tended to make *descriptive* claims about behaviours people demonstrated over the telephone. (For example, what number of calls, what duration, what motivation, etc.) However, more recent studies have tended to emphasise qualitative methods and thus have been more *interpretive*. (For example, why do people call their kin? why do they rely upon the phone? how is the telephone a 'lifeline'? etc.) Some studies, like the works of Moyal (1989a), Williamson (ongoing), Fielding, Clarke and Lewelyn (1991) and Noble, Rajendra and Hansen (1991) have involved a blend of both quantitative and qualitative.

There have been a number of descriptive studies about the use of telecommunications technologies for distance education and notable amongst these was the early work of Johansen (1978) who used the DACOM classification for assessing the suitability of computers for a number of communications functions. However, in more recent times, Fielding, Clarke and Llewelyn (1991) and Noble, Rajendra and Hansen (1991) appear to stand alone insofar as researching ancillary telephonic equipment is concerned, with Fielding and associates investigating mobile telephones while Noble and his team researched the answering machine and the facsimile machine.

It is apparent though, that the concept of adults learning informally through the telephone and other telecommunications technologies has not yet been deliberately investigated although clearly, the fact that the telephone is primarily used for transceiving oral information is taken for granted. But such transceiving, which is stimulated by the fundamental human need to communicate, may also involve one or both parties becoming engaged in learning. Hence, it is argued, telecommunications are a medium, through which, people can learn and it is to learning that we now turn our attention.

1:3: Informal and Incidental Learning and Telecommunications

It is useful to clarify, briefly, and from the standpoint of this study, what is meant by *informal* and *incidental* learning. Thereafter, it is also pertinent to consider the dimensions of informal and incidental learning with reference to the writings of other theorists. To begin, therefore, it is contended for the purposes of this investigation that informal learning may be thought of as the acquisition of knowledge and/or the development of understandings and/or the arousal of conscious feelings through normal day-to-day experiences. Where such knowledge and/or understandings and/or conscious feelings occur serendipitously, it is contended that the learning which occurs can be described as *informal incidental learning*[1] Such day-to-day experiences clearly take in activities which range beyond telecommunications. However, within the context of this study, they specifically include activities such as making and receiving telephone calls, sending and/or receiving facsimile messages, and transceiving UHF radio messages. Also included can be listening to another (or others) speaking on the telephone, reading a facsimile message (or an e mail message) intended for someone else, and hearing the UHF transmissions of others. It should be noted, however, that broadcast radio and television were not considered within this study.

With respect to this study, there are four fundamental elements to this definition of informal and incidental learning. First, the receiving of information or some form of message either directly or indirectly by means of telecommunications technology (or because of such apparatus) is seen as axiomatic and this is true even if no actual telecommunications episode occurs. For instance, the absence of a telephone call might signal that a relative could be unwell and may prompt the person who has been expecting the call to investigate the well being of their relative. Alternatively, the non-receipt of an expected facsimile transmission may confirm to the expectant receiver that the person who was supposed to send the transmission is unreliable, or alternatively, that the receiving capacity of their own machine has malfunctioned as they have previously suspected. In other words, telecommunications technologies do not actually have to operate in order to relay a message from which an individual may learn something.

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[1] Throughout this thesis, it is taken as given that incidental learning is also informal.

Secondly, the outcomes of informal and incidental learning which are generated through the medium of telecommunications may, as with all forms of learning, be *manifest* and/or *latent*. In other words, the impact of information from a telecommunications episode may generate either immediate and/or reflective learning. An example of a *manifest* outcome to informal learning is a mother learning over the telephone that her son's wife is pregnant for the first time and therefore, she the son's mother, is destined to become a grandmother. By contrast additional, *latent* learning outcomes may surface when that same information lingers in the mind as a matter for resurrection and further reflection. Consider, for example, the same mother who has earlier learnt about her daughter-in law's pregnancy over the telephone. Now, some time after the call, as she reflects upon the regime of fertility drugs her daughter-in-law had taken in order to conceive, her appreciation of her own good fortune in not having such difficulties seems to swell. This retrospective but unanticipated response to what she was previously told over the telephone exemplifies *latent* learning.

Thirdly, as Jarvis (1987, p.206) notes, living and learning are coterminous and therefore informal and incidental learning can occur at any time and at any place. For telecommunications this means that informal and incidental learning no longer unfold only at home and/or at work. Rather, because a number of telecommunications technologies are mobile in nature, learning can occur peripatetically. Fielding's (1991) research into the maintenance of relationships through the use of mobile telephones exemplifies this. A farmer's wife who hears two truck drivers telling each other a joke over UHF radio illustrates incidental learning which has been facilitated by mobile technology.

Fourthly, given that informal and incidental learning occur within an individual's day-to-day milieu, it follows that informal and incidental learning that occurs over the telephone or other telecommunications technologies may not only involve an individual's day-to-day networks, but can also range beyond those networks. Hence, a person can learn informally or incidentally from a perfect stranger. Tele-marketing, for example, relies entirely upon people learning informally about goods and services over the telephone and neither the caller nor the callee need be members of a common social network. However, if a man learns from a tele-marketer about a commodity such as a fishing holiday and informs a friend about that same holiday, then clearly he is diffusing his recently acquired snippet of informal learning to a member of his network.

Thus, in summary, informal learning is viewed as a process of knowledge acquisition and/or the gaining of understandings and/or becoming conscious of feelings having been prompted as a result of telecommunication. Furthermore, this process may transpire either consciously or unwittingly in everyday life and may occur either intentionally or

serendipitously in which case it can be thought of as *incidental learning*. Both informal and incidental learning typically occur (for children and adults alike) in an individual's everyday environment. For most adults, this means that the bulk of their informal and incidental learning occurs in settings that are not aligned to the formal education system and networks are, therefore, important although not essential. It also means that for most adults, technologies typically found within their environment may be used as vehicles for informal learning. Therefore, because telecommunication episodes are an integral and everyday aspect of the environment for the majority of people, telecommunication technologies may constitute a normative, albeit taken for granted, informal learning medium. In short, telecommunications technologies, and the telephone in particular, represent an important but often overlooked learning resource within the everyday environment.

In fact, informal learning is an often overlooked notion that nestles discreetly into the broader rubric of learning. Learning, together with teaching, is one of the quintessential twin elements of education. And since education – especially formal education – has been a major concern of humanity since the earliest of times, it is not surprising that there has been an abundance of research about teaching and learning. But the foci to date have been mainly about what Peters (1966) described as the *matter*, the *manner* and the *cognitive perspective* of teaching children in schools and about the processes whereby they learn in such formal settings. Accordingly, there has been much less research about adult learning although it is likely that this will change because now, for the first time, adults in developed countries such as the USA outnumber people under the age of eighteen (Merriam, 1991, p.7). Surprisingly though, despite the avalanche of studies that seek to enhance the understanding of teaching and learning, the study of informal learning remains largely ignored.

One approach to clarifying the nature of informal learning has been to examine the concept of informal learning in relationship to the concept of formal learning. Marsick, who also sought to define informal and incidental learning, began by contrasting these terms with formal learning (1987, 1990, p.12). She usefully summed up the essence of education and the manner in which it can be distinguished from learning thus:

> *Training and education are delivery systems. By contrast, learning is the way in which individuals or groups acquire, interpret, reorganise, change or assimilate a related cluster of information, skills and feelings* (Marsick, 1990, p.4).

Hence, education can be thought of as the structural systems within which formal learning activities occur. Coombs (1973, in Coles, 1977, p.94) having noted that "there is not yet a clear and commonly accepted terminology for discussing some of the important modes of education" later prepared a series of definitions about educational forms for

UNICEF whilst working in collaboration with the International Council for Educational Development (Coombs et al., 1973, in Fordham, 1979, p.210-211). The statement by Coombs and his associates about formal education is apt and again stresses the notion of a system that delivers learning activities. They describe it as:

> *... the hierarchically structured, chronologically graded 'education system', running from primary school through the university and including, in addition to general academic studies, a variety of specialised programmes and institutions for full time training (and part time training).*[1]

For children, formal education activities are mandatory and are typically delivered within schools or by the school system by means of distance education. On the other hand, many of the informal learning activities which children experience occur outside of the classroom – in the home, the playground, behind the bike sheds, and so on. Sociologists often refer to this as *socialisation* and the socialisation process is considered to be life long (see for instance Berger, 1963, p.106). For adults, participation in formal learning activities is usually a voluntary matter with formal adult education programs typically being provided by delivery agencies such as universities and other higher education institutions.

Coombs and his associates (1973, in Fordham, 1979, p.211) described the informal learning process but used the term education instead of learning. However, if the terms are interchanged, their definition becomes succinct and apt although it does not canvas the possibility of informal and incidental learning transpiring through telecommunications. They describe informal education (but not informal learning) as:

> *... the truly lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment – from family and neighbours, from work and play, from the market place, the library and the mass media.*

Gunn, (1986) subsequently proposed a revision of Coombs' definition. Gunn traverses the range of learning definitions proposed by Coombs (i.e. what Coombs referred to as formal and non-formal modes of education) but it is in the realm of informal learning that his contribution is viewed as useful to this study because he proposes that informal learning can be also be media generated. While Gunn clearly acknowledges that a good deal of informal adult learning occurs independently, he also proposes that informal media learning can emanate from print and/or broadcast media (Gunn, 1986, p.39). For the purpose of this study, it is argued that Gunn's distinction may also be expanded to include telecommunications. Gunn also proposes that some adult learning is *dormant* in nature –

[1] Note that the words in brackets after the quote are mine.

that information received or heard is stored within the repository of the mind to be called upon and used when and if the occasion to use it arises. This classification is consistent with the *latent* informal learning described at the outset of this section.

But with the notable exception of Jarvis (1987), and to a lesser extent Marsick (1987, 1988, 1990), few writers have systematically examined the process of informal learning. Tough (1971) earlier explored adult learning projects where adults deliberately generated self-directed, structured learning. Tough arbitrarily defined a learning project as a series of related learning episodes[1] which added up to at least seven hours and he considered an episode to be a period of time during which deliberate learning takes precedence over other activities. But even though he acknowledged that adults frequently needed help with their learning, he did not comment that those same adults were probably, during the course of their learning projects, also engaged in informal learning activities.

However Marsick (1990) pointed out that adults also learn informally during self-directed learning activities. She observed that while a good deal of informal adult learning may indeed be intentional as described by Tough, informal learning may also be "triggered by a chance encounter with a person or event or by a need imposed on the person by the organisation" (Marsick, 1990, p.215). Marsick, therefore, is not only concerned with planned informal learning events, but also with informal learning that is frequently, but not always, *incidental.* Incidental learning, according to Watkins (1988, p.25) is "learning which is a by-product of accomplishing a task." Such learning is usually *unplanned* and can occur anywhere within an individual's environment and at any time. Incidental learning activities , therefore, may be described as a series of disjointed increments of learning. And, as has already been established, such disjointed incidental learning increments may occur in conjunction with intentional learning and unfold serendipitously.

While the *intentionality* of self-directed learning is central to Tough's account of learning, Marsick's explanation recognises that informal learning activities may also begin "in pursuit of the collective needs of the organisation" and further, she conjectures, informal learning may also occur in tandem with collective learning activities (Marsick, p.215-216). Thus, on the one hand, what Marsick proposes can, for the sake of this study at least, be thought of as informal learners serving as intentional *directors* of their learning process. On the other hand, it can be reasoned that other learners become involved in informal learning activities as *respondents* to learning situations which have emerged and in which they find

[1] It should be noted that the term *episode* is used in this study too but it is used to refer to any telecommunications event and in this study a telecommunications episode may, or may not be interactive, and can occur either asynchronously or during real time.

themselves.[1] Further, both directed and responsive informal and incidental learning may involve one to one interactions, or one person interacting with many or, finally, several persons interacting with an individual or another group.

It is contended here that this distinction of informal learners being in either a *directing* or in a *responding* role can usefully be applied to informal and incidental learning episodes which involve telecommunications because all telecommunication episodes, irrespective of the form of technology used, involve initiating and responding parties – viz. – the initiating caller and the responding callee. In other words, in any telecommunications episode, there is always an initiating party or agency within the communications dyad (i.e. the person or persons who initiate the telecommunications episode wherein is nestled the potential learning experience) and equally, there is always a responding party or agency within the dyad (i.e. the individual or persons who, during the act of responding, become participants in a telecommunications episode during which learning may occur).

However it does not follow that informal learning occurs solely because a telecommunications episode has been initiated by the calling party. Rather, a number of possibilities emerge. For example, informal learning may occur when an individual returns a call. Such a call may be made in response to a person who has previously left a message either on an answering machine or with somebody else informing the returning caller about their wish to receive either a return response or specific information about a particular matter. Equally, informal learning may transpire quite incidentally either during a telecommunications episode, or, as has already been noted, in conjunction with or as a result of critical reflection which occurs during or after a telecommunications episode. The former may happen, for example, when an individual tunes an UHF or CB radio and through happenstance tunes into a conversation between other people. The latter may emerge when, after a telecommunications episode has been completed, (a telephone call has been concluded or a facsimile transmission has been received, read and filed) critical reflection occurs so that new learning surfaces as "the penny drops." These pathways of directed and responsive informal and incidental learning are illustrated in Table 1:1 below.

A relevant feature of Marsick's work is her emphasis on these modes of learning within the workplace (Marsick, 1987, 1988, 1990). In fact, Marsick's paradigm was developed specifically for learning in the workplace. Her model emphasises the importance of developing a learning environment within the workplace, stresses the relevance of self directed learning and underscores the importance of work based mentoring and studying an organisation's culture. Implicitly, Marsick's concern with the workplace is wedded to a

[1] Jarvis (1987, p.65, p.76) addresses this kind of distinction too but the terms he uses are pro-active and reactive.

metropolitan and urban context and not to a rural and remote setting. Nevertheless, her emphasis on work based informal and incidental learning has relevance to this study because, it can be argued, the majority of rural and remote farmers and their families, live and learn at their place of work. But at the same time it is important to recognise that in a remote context especially, isolation from others means that the mentoring practices such as those advocated by Marsick become impractical. Rather, telecommunications mediated interactions become the obvious substitute to face-to-face contact and become, therefore, the fundamental medium for much informal and incidental learning.

TABLE 1:1: Informal and Incidental Learning via Telecommunications

	Role within Telecommunications Dyad	Type of learning involved	Direction of Learning Process	Examples	Learning Outcomes (i.e. information, understandings, feelings)
1	**1a:** Caller initiates episode with targeted party or agency	Self directed informal learning	Caller directs learning agenda	To Party: Caller checks on well being of kin or friend To Agency: Caller obtains weather forecast details	Caller gains information sought and feels happy, or, if unsuccessful, feels irritated and has to explore alternative strategy.
	1b: Party or agency receives unexpected call	Other directed informal learning	Party/agency responds to caller directed learning agenda	Party: Assures caller about well being Agency: Provides caller with weather forecast details	Party/agency provide known information to caller who now understands the situation.
2	**2a:** Caller phones back another party or agency	Other directed informal learning	Caller responds to Party/agency directed learning agenda	To Party: Caller tells party when next committee meeting scheduled To Agency: Caller tells school why child has been absent	Caller provides known information to Party/Agency. Party agency understands that rescheduling of timetable needed and feels annoyed.
	2b: Party or agency receives expected call	Self directed informal learning	Party/agency directs learning agenda	Party: Asks caller when next committee meeting is scheduled Agency: School asks caller why child has been absent	Party/agency provided with information by caller and understands or has to seek alternative strategy to obtain information, if caller unhelpful.
3	**3a:** Caller initiates call as per **1a** and **2a** above	Incidental informal learning	Caller directs or responds as per **1a** and **2a** above but also responds to party/agency incidental learning agenda	Party and Caller: One or other or both learns gossip from the other during episode and discusses this further to learn more Agency and Caller: One or other or both learn about recent commodity prices during episode and discusses this further	Information exchanged, understandings gained and feelings altered for one or other or both of the communicating parties.
	3b: Party or agency receives call as per **1b** and **2b** above	Incidental informal learning	Party/agency directs or responds as per **1b** & **2b** above & responds to caller's incidental learning agenda		

Source: Jens J Hansen, 1995.

A thorough examination of adult learning to emerge in the recent literature was produced by Jarvis (1987). His exposition of adult learning details, within the one complex model, a series of nine possible pathways of adult learning. These are summarised below in Table 1:2 (See also Jarvis, 1987, pp.24-36 for an introductory explanation of each of the nine pathways).

The pathways were derived from a series of workshops, facilitated by Jarvis, during which participants focused upon the adult learning process. Beginning with Kolb's learning cycle (see Jarvis, 1987, p.17), participants at the initial workshop were invited to critically reflect upon their own learning experiences, first in pairs and later in groups of four. In light of their discussions on their own experiences, group participants then critiqued and modified Kolb's model before critically examining a model which had been devised by another workshop group. Subsequently, a revised model of Kolb's learning cycle was generated by a plenary of the workshop and this revised model became the basis for considering the adult learning process at the second workshop. In turn, the emergent model from the second workshop plenary session became the basis for critical appraisal during the third workshop and, subsequently, the model derived from each successive workshop became the base for the ensuing workshop. In all, this process was repeated nine times. Jarvis' model, therefore, was evolved by a sequence of nine groups each of whom critiqued preceding schemata of adult learning. In short, the final version was a product of the successive but compounding critical reflections of nine groups of people who had each focused upon the adult learning process.

Jarvis' model of adult learning pathways are based upon a number of elements which Jarvis argues are, collectively, pivotal to understanding the social context of adult learning. These overarching variables include the social context of the person (i.e. adult learners are the sum of the social variables which have shaped them as persons), the social situation within which a learning episode occurs (i.e. whether it occurs in a setting or situation which demarcates the episode as formal, non-formal, informal or incidental), the manner in which the learner reflects upon previous experiences and upon the present learning process (i.e. how the learner approaches the learning experience), and finally, the kind of response an individual makes to the actual learning situation (i.e. how the learner cognatively processes the learning experience).

Jarvis does not apply his model to learning which transpires at a distance (neither through the medium of telecommunications nor through the engagement of other appropriate technologies which can facilitate learning at a distance). However, his model is considered useful to this study because the learning pathways he proposes can be examined with a view

to demonstrating their validity to learning which occurs, not in a social context, but rather, unfolds in a *telecommunications context.* The nine adult learning pathways proposed by Jarvis are summarised in Table 1:2 below.

TABLE 1:2 Summary of Jarvis' Adult Learning Pathways

Pathway Name	Simple Explanation of Learning Pathway
Presumption	The learner's response to any situation is conditioned by previous socialisation. Primary socialisation is learnt during childhood; secondary socialisation (induction eg. to a new work setting) is learnt as an adult.
Non-consideration	Person preoccupied or too busy to learn from the learning situation they are in. Signalling a boiling kettle to a family member and, in the process, not really listening to the person talking on the other end of the phone call is an example of this.
Rejection	Person rejects or dismisses situation they are focused upon as too difficult to understand or not worthy of consideration as an opportunity to learn. Receiving a fax with complex budgetary figures and deciding that they are somebody else's concern exemplifies this.
Pre-conscious	This is incidental learning derived from experience with the learner either reflecting upon and understanding the experience or subsuming the event into their repertoire of experience — eg. distinguishing between telephone rings (internal versus outside calls).
Practice	Involves practicing and rehearsing sequence of behaviours that may or may not remain learnt. Developing a set patter while phoning members of a telephone tree to disseminate information is an example of this.
Memorisation	Involves 'trotting out' a remembered response when asked about something or confronted with a situation where specific knowledge is needed. For example, giving details about a fax number need not involve understanding but does involve memory.
Contemplation	This involves making an intellectual decision about a matter. The person, having mulled over the issue, determines how to act in future if the need arises. Reflecting upon a fax cover sheet layout for the future is an example of this.
Reflective Practice	Relates to problem solving. A skill is learnt, reflected upon and experimented with in practice. Learning how to send multiple faxes and then experimenting with polling (sending during off peak times) is an example of this.
Experimental Learning	Prior understandings are later subjected to experimentation so that heightened understandings evolve. For example, a person may receive phone information that later encourages them to experiment with farm equipment to learn new ways.

Source: Adapted from description by Jarvis 1987, pp.24-36.

The distinction between Jarvis' social context and the telecommunications context being examined in this study is clear. The social context which Jarvis is concerned with clearly addresses learning which emerges during and after face-to-face encounters. By contrast, the telecommunications context with which this study is concerned, focuses only upon circumstances surrounding the uses of telecommunications for learning. Hence the telecommunications context occurs between people who, while spatially separated, are linked by telecommunications. Moreover, while Jarvis' exposition encompasses any one or more of formal, non-formal, informal and incidental learning, this study is concerned only with informal and incidental learning. However this study is also concerned with the identification of specific learning functions which telecommunications technologies may assist. To that end, the DACOM (*Description and Classification of Meetings*) taxonomy devised by Pye et al. in 1973 is important (Short et al., 1976; Johansen, 1975; Parker, 1975).

Pye and his associates sought to devise an empirically based taxonomy of functions which are encountered in face-to-face meetings. Using an open-ended interview schedule to derive indicators that were subsequently included in a questionnaire, Pye's team asked a sample of 311 respondents to complete a rating scale about the relevance of one hundred and four descriptors which canvassed meeting functions, meeting procedures and activities, and finally, meeting ambience. The data were then analysed using factor analysis and cluster analysis techniques.[1] In the following year Connell replicated Pye's work and came to the conclusion that items such as task allocation, information exchange, conflict resolution, decision making, problem solving, exchanging views, bargaining and negotiating and finally, generating ideas were all valid functions or activities to include in the DACOM taxonomy (Connell, in Short, 1976 p.40-41).

But as reported earlier, Johansen and his associates (1978) subsequently used a modified version of the DACOM taxonomy for investigating computer mediated communications. Johansen was consequently moved to comment that, in his view, the DACOM criteria were applicable across a range of technologies (Parker, 1975, pp.122-127). Thus it is contended that the DACOM criteria are pertinent to this study because they provide a specific checklist of functions which adults engage in when they employ telecommunications technologies for informal and incidental learning activities.

In summary, education has been described as an heirachical system within which learning – mainly of a formal nature – traditionally occurs. However, there are a number of other forms of learning, including informal and incidental learning that are not exclusively restricted to the formal education system. The focus of this study is confined to informal and incidental learning episodes that occur through the medium of telecommunications. Such learning, it is reasoned, is at once directed and reactive within the context of the communications dyad.

Furthermore, this study is concerned with the *telecommunications context* of adult informal and incidental learning. Accordingly, Jarvis' model of adult learning in a *social context* is seen as useful because the pathways suggested by Jarvis may also be applicable to informal and incidental adult learning which occurs through telecommunications. Finally, it is also considered probable that the criteria identified by Pye, and later revised by Johansen, can provide a checklist for detailing specific telecommunication behaviours.

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[1]Short et al. report that from an analysis of meeting functions, "a 9-factor varimax analysis accounting for 45% of the variance was the most appropriate for the functions scales", and for meeting activities " a 6-factor varimax solution accounting for 47% of the variance was the most appropriate for the 'activities scales'," Details of these two sets of factors and the associated cluster analysis results can be seen in Short et al., 1976, pp 37-39.

1:4: Justifying Research into Telecommunications for Incidental and Informal Learning in Rural and Remote Communities

Three reasons lie behind the selection of rural and remote communities as the focus of this study. Firstly, because the researcher had spent some seven years as an adult educator in a very remote area of New Zealand, a first hand appreciation of the importance of telecommunications for rural and remote communities had been developed. As early as 1981, the researcher had been told at a seminar on regional development for the West Coast of New Zealand, that telecommunications are an essential link to the outside world not only for isolated women, but also in the event of a farm accident occurring or, as is the want on the West Coast, during times of flood (Hansen, 1981).

Secondly, and partially as a result of the West Coast experience, the researcher felt that this was an uncharted area of research. Indeed, as has already been demonstrated in the traversal of the literature thus far, virtually no research has been conducted into the uses of rural and remote telecommunications. Moreover, while there has been a considerable body of mainly descriptive research into the area of distance education, there appears to be a total absence of research into the uses of telecommunications for informal and incidental learning. Certainly, research into the uses of telecommunications technology for informal and incidental learning within rural and remote communities has not, until now, been undertaken.

The third and final reason for undertaking this study is rooted in the investigator's relationship with the late Associate Professor Grant Noble. Following the completion of research into the uses of, and the attitudes urban and metropolitan dwellers displayed towards telecommunications technologies (Noble, Rajendra and Hansen, 1991) Noble had, in 1992, applied for and received funding from the Telecom Fund for Social and Policy Research into Telecommunications. The decision to concurrently gather the data elements which would be relevant to this study was therefore made shortly after Noble had been successful in winning funding from Telecom. In short, it was apparent that some funding would be available for this research project if it was conducted in tandem with Noble's broader research.

Noble's proposal to Telecom was to plan and prepare, but not yet mount, a broadly descriptive investigation of how rural and remote dwellers use telecommunications. He was awarded $19 000 in financial support from the Grants Committee not only to mount this project, but also to complete a data analysis of the residual data that had been gathered during a previous urban telephone study. Thus in 1992, while Noble was on study leave, the writer assumed responsibility for designing, planning and preparing Noble's rural and remote study. The intention was that the Ph.D study would specifically focus on

telecommunications for informal and incidental adult learning while the overall study gathered general data relating to farmers' uses of telecommunications.

Regrettably, it has to be noted that in 1992, Noble wrongly assumed that the Telecom Grants Committee would award ongoing financial support for the study which by that stage had been planned and prepared. However, the Grants Committee resolved not to support Noble's application for funding continuation. Despite this resolution, it was decided that it would be impracticable to alter the design of the already printed questionnaire which has formed a part of this study even though the Telecom Grant Committee's decision meant that specific data about farming operations were now largely obsolete to the specific study being reported here. This obsolescence was inevitable and the reduced funding also meant the sample size for the Ph.D study had to be reduced.

It must also be pointed out that at the same time, the writer was awarded a post graduate scholarship by the Telecom Grants Committee so that the proposed Ph.D. study could proceed, albeit in modified form. Accordingly, as the acknowledgments attest, the writer is grateful to Telecom for their support. Hence, this study into rural and remote uses of telecommunications for informal and incidental adult learning was born partially out of the investigator's prior experience within a remote region, partially out of an intuition that research into the intersection of the domains of *telecommunications*, and, *informal and incidental learning*, and, *rural and remote* had yet to be undertaken and finally, and of great pragmatic importance, this study was able to proceed because funding was made available through various Telecom avenues

1:5: Generating Questions and a Conceptual Framework for the Research Program

The most fruitful way toward achieving an understanding of the importance of telecommunications to the informal and incidental learning of rural and remote people is to look at how telecommunications technologies fit into the context of their lives and particularly at how they use telecommunications in their networking. Accordingly, the overall intention of this study was to investigate how rural and remote adults use telecommunications, and more specifically to determine to what extent and how rural and remote adults use telecommunications as a medium for facilitating informal and incidental learning. Hence Aronson's (1971) general summation of questions about the telephone, which have not been specifically addressed within rural and remote Australia were seen as a useful starting point. Aronson notes:

> *The questions yet to be answered are, in brief, who talks to whom, for how long, and for what reasons and with what results?* (Aronson, 1971, p.162)

Implicitly, however, Aronson's questions address the universal population of telephone users and their universe of locales – i.e. the question may be directed, at once, towards men and/or women, to young children and/or pensioners – in fact at all phone users whether they be urban, rural or remote. Arguably therefore, for the purposes of designing and completing a *manageable* research project, Aronson's questions range *too* widely. Nevertheless, for *this* research Aronson's questions prompted a beginning because they invited restatement and reframing. Aronson's questions were initially restated as a single global question from which flowed a sequential series of specific questions. (See reframed general research question and sequence of derivative specific questions in Table 1:3 below.)

TABLE 1:3: Key Research Questions and anticipated data forms

Order	Theme	Question / s	Main Data Form
1st Global	*Describing Informal Learning Networks*	For adults using telecommunications and other related processes within a rural context generally, and more specifically, in a remote setting, who learns what from whom, and how, for what reasons and with what results?	*Descriptive and Interpretive*
2nd Specific	*Mapping uses of telecommunication technologies*	At work and at home, which telecommunications technologies do rural and remote adults use? Under what circumstances do they mainly use these technologies and for what purposes? What telecommunications barriers (if any) do they encounter?	*Descriptive*
3rd Specific	*Determining uses of Telecommunications for Learning*	To what extent, if any, are telecommunications used by rural and remote people to facilitate adult learning activities?	*Descriptive and Interpretive*
4th Specific	*Assessing the Importance of Opinion Leadership*	To what extent, if any, are identified opinion leaders who live in either rural or remote settings, more reliant upon the telephone than those who are not seen as opinion leaders?	*Interpretive*

Source: Jens J. Hansen, 1995

Thus for the purposes of this study, Aronson's original battery of questions was reframed to ask:

> *For adults using telecommunications and other related processes within a rural context generally, and more specifically, in a remote setting, who learns what from whom, and how, for what reasons and with what results?*

Clearly a variety of data need to be generated in addressing the above question. Data need to be assembled which adds to our understanding of the roles telecommunications play within rural and remote communities in preserving psychological neighbourhoods (Aronson, 1971; Noble, 1987a; Moyal, 1992). Specifically, what *telecommunications networking*

patterns occur within country areas? Moreover, do telecommunication technologies aid or inhibit the initiation, development, maintenance and preservation of psychological neighbourhoods? Are there barriers to tele-networking and if so, what are they? Furthermore, is it possible to suggest that identifiable networks can be typecast and are telecommunication interaction patterns and informal and incidental learning exchange patterns between typological groups a function of group membership? These are important questions to pose because networks, it may be argued, form the basis for peoples' interactions with each other and it is through such interactions that a good deal of informal and incidental learning occurs.

But there is also a need to both determine and describe technological usage patterns; i.e. to *plot* which technologies are used, by whom, when and for what reasons by rural and remote dwellers. In urban settings, usages of telecommunication technologies are mainly shared between the separated locations of home and work (Noble, Campbell, Hansen, et al., 1993). However, because some rural and many remote dwellers live and work out of the same place, it can reasonably be surmised that their telecommunications interactions occur within their home/work location. This single site home/work environment is the predominant setting for this research and the *descriptive* research question which addresses this domain may be stated as follows:

> *At work and at home, which telecommunications technologies do rural and remote adults use? Under what circumstances do they mainly use these technologies and for what purposes?*

A corollary to the above question is the interpretive issue of determining what role (if any) telecommunications have in facilitating informal learning and information exchange between rural and remote adults. The term informal learning, as discussed earlier in this chapter, was described, albeit with reference to the term education, by Philip Coombs (1973) and later refined by Gunn (1986). Furthermore, informal and incidental adult learning processes were also explored by Marsick (1987, 1990) and by Jarvis (1987). All of these writers concur that the majority of learning activities which adults engage in throughout their lifelong learning span are *informal*. Accepting this concept, this research seeks to examine the phenomenon of informal learning for rural and remote dwellers. More specifically, the study seeks to determine to what extent adults use telecommunications for informal and incidental adult learning. Here then, the question to pose is:

> *To what extent, if any, are telecommunications used by rural and remote people for informal adult learning activities?*

But informal learning, when it is not being gained through direct experience (or the linking of previously gleaned information to a current experience), necessarily involves a process of information transmission and/or information exchange. Not uncommonly, information is sought from *opinion leaders* (Katz, 1957). An opinion leader was defined by Katz and Larzarfield as "the almost invisible, certainly inconspicuous, form of leadership at the person to person level of ordinary, intimate, informal, everyday contact."

Reporting on a (1954) study by Berelson, Lazarfeld and McPhee, Katz notes that they proposed that mass media influences are passed onto networks by opinion leaders and the hypothesis incorporating this process is known as the *two step flow of communication*. Networking is at the forefront of this hypothesis which addresses three factors. The first is the impact of personal influence and here Katz argues that people who change their mind late in the piece are more likely to have been influenced by personal contacts than by the media. The second factor concerns the flow of personal influence as exemplified by "opinion leaders" and here Katz proposes that given the homogeneity of groups, it is likely that opinion leaders are not unlike the people whom they influence. Finally, the third factor proposes that opinion leaders were more exposed to the media compared to those whom they influenced.

As Katz sums it up "Now the argument is clear: If word of mouth is so important, and if these specialists are more exposed to the media than the people whom they influence, then perhaps ideas often flow from radio and print to opinion leaders and from these to less active sections of the population" Within the context of this study telecommunications are studied as the principal medium of information flow and accordingly, those who can be identified as rural and remote opinion leaders are, in all probability, more frequent users of telecommunications technologies than non-opinion leaders. Furthermore, in accordance with Katz' hypothesis, it is thought that opinion leaders mainly use telecommunications to interact with others who are from the same social grouping as themselves – viz. Native opinion leaders primarily interact with other Natives and Newcomers, likewise, predominantly interact with other Newcomers.

Hence, the possibility cannot be discounted of telecommunications technologies serving as important instruments for informing rural opinion leaders in the first place, and for facilitating their information diffusion processes in the second place. The derivative question therefore, can be stated thus:

> *To what extent, if any, are identified opinion leaders who live in either rural or remote settings, more reliant upon telecommunications (such as the telephone) than those who are not seen as opinion leaders?*

1:6: Structure of the Thesis

The methodological approaches used in this study are described in the next chapter. The strategies employed for gathering a sample of rural and remote subjects are described and the development of the research instruments employed in this research is detailed. The overarching principles which determined how the in-depth semi-structured interviews proceeded are presented and the procedures used for one to one and group discussions are described not only for a face-to-face context but also for interviews which were conducted through the use of telecommunications technologies. Finally, data management strategies and data analysis procedures are briefly described. The point is emphasised throughout this chapter that both qualitative and quantitative methodologies are used in this research and that each approach is used in such a way as to inform the other.

Research findings are presented in Chapters Three to Six. The characteristics of the research sample are presented in Chapter Three, and Chapters Four and Five respectively present findings on rural and remote uses of the telephone and other telecommunications technologies. These chapters are, necessarily, descriptive. They comprise a blend of qualitative and quantitative data which, in a manner which appears to be typical for much telecommunications research, describes calling frequency, calling duration, caller motives and so forth.

Chapter Six however is interpretive. This chapter is concerned with building upon selected data elements, including some that were presented in preceding results chapters, in order to begin to describe who learns what from to whom within rural and remote settings. In other words, this chapter considers, within the context of this thesis, Aronson's restated battery of questions. Accordingly, an important focus for this chapter is the concept of *networks* because network membership and networking are seen as critical in determining who learns what from whom.

Chapter Seven is devoted to a fuller discussion and interpretation of research findings and three matters are addressed. First, research methods used in this study are reviewed. Secondly, an innovative approach to conceptualising the context of telecommunications together with the dynamics of telecommunications episodes is proposed so that an improved understanding of the telecommunications process might be achieved. Thirdly, Jarvis' model of adult learning in the social context is used as a template for heightening understandings not only of the telecommunications process, but also, of the social context of adult learning.

Finally, Chapter Eight offers suggestions for further research.