Third Age Learners and New Technology: Issues affecting use and access

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ABSTRACT
This paper reviews twenty Australian and overseas research studies about older men and women in the 'third age' of active retirement, learning by choice or necessity in an age of constantly changing new technology. The review of these 'core' papers, selected for their correlation with a list of education, ageing and technology descriptors, is part of a study which asks how, when, where and why seniors learn to use computers to access information and communication technology, what is learned from the interaction and what is done with new skills and knowledge acquired. Emergent themes are briefly outlined and inform the third and final phase of a naturalistic ethnographic PhD research project. The number of older adults in Australia accessing new technology is increasing with the ageing of the population and the entry of the first of the baby boomers into the third age. This has implications for 21st century policy makers, public and private sector employers and NGOs as well as course developers and training providers. Research into the availability and relevance of training and support provision, which matches learners' needs and expectations, is seen as critical and timely.

DESCRIPTORS
The term 'third age' refers to adults older than fifty-five years, who are living in retirement in a range of independent or supported situations, having varying degrees of physical, cognitive and sensory functions. 'Learning' is synonymous with the generally accepted meaning of lifelong learning, including all formal, non-formal, and informal learning across the lifespan. 'New technology' is limited to the acquisition of computer skills as the means of accessing information and communication technology via the Internet.

BACKGROUND
Due to the ageing of the population, the number of older adults looking to acquire new knowledge and skills is growing at an unprecedented rate and will continue to do so as the post World War II baby boomers add to the third age bulge. First identified by Laslett (1986), the third age is described by Manheimer, Snodgrass and Moscow-McKenzie (1995) as an age of "independence and opportunity for self-development, having both individual and societal meanings" (p. 38). Manheimer et al. write that although the expression lifelong learning had its origin many years ago "it is only recently that the concept has been applied to the older adult learner" (p. 42). They suggest that two trends, "technology and aging, are impacting the economy, labor force, education, and recreation" (pp.160-161). King (1997) considers three phenomena of the twentieth century to be the growing number of older adults, the increasing interest in lifelong learning and current and emerging learning technologies (p.1). Scott (1999) sees lifelong learning educational initiatives as a vital part of healthy ageing (p. 115).

LEARNING NEW TECHNOLOGY IN LATER LIFE
Lifelong learning is an integral part of the new learning needed by third age learners as they interact with new technology, and is a common thread linking the themes emerging from a review of the literature. Tight (1998) contends that 'all kinds of learning are valuable and all people more or less continually learn and therefore participate in lifelong learning' (p.115). In evaluating two national surveys aimed at finding out who is and who is not participating in lifelong learning in Britain, Tight does not find anyone who does not participate in learning of some kind.

The Canadian researcher King (1997) notes the increasing interest in lifelong learning by the growing number of older adults throughout the world. Manheimer et al. (1995) offer an

American view looking at the importance of lifelong learning for an emerging generation of retirees. Irizarry and Downing (1997) introduce their study by stating that there are compelling reasons for ensuring that older persons are not left behind in a world where technological advances are taking place on many fronts. Researchers report that older adults use technology for a variety of extrinsic or intrinsic purposes, this dual motivation highlighted by Manheimer et al. (1995) who state that:

> The popularity of computer courses among seniors may stem, on the one hand, from the pleasure of gaining facility with a new technology or keeping up with the grandchildren, or, on the other hand, from a desire to acquire skills (p. 20).

Much has been written about the capacity or otherwise of older adults to adapt to change brought about by the development of new technology, and the ability to learn the required new skills in later life. The Australian National Training Authority (ANTA 2000) found that the most effective motivator in encouraging learning mentioned by people of all ages and conditions, is the idea that "learning can keep your mind active and enable you to keep up with technological change" (p. 8). This report also states that "rapid and widespread social and economic change means that more people across the whole community must engage in more learning, at more stages of their life" (p. 3).

Williamson, Bow and Wale (1997) write that we live in a society that "de-values the ageing experience where the expression 'you cannot teach an old dog new tricks' sums up our attitudes towards older adults" (p. 1). They comment that many older people have absorbed the myth into their everyday lives and firmly believe that they are too old to learn new things. Williamson, Bow and Wale further suggest that this stereotypical view is 'particularly true of new technologies, which tend to be associated with youth and youth culture' (p. 1), that this notion is simply not true, and it prevents older adults from enjoying new opportunities and life experiences. There is a danger of new stereotypes developing, Scott (1999) warning that "information providers need to beware of stereotypes portraying older people as technophobes, or passive dependents, instead of informed consumers" (p. 33).

Manheimer et al. (1995) state that it cannot be denied that people who have experienced technological changes brought about by 'airplanes, telephones and television' are also accepting changes such as space travel, satellite data and telecommunications networks, adding that "prevalent ideas that computers are for the young can affect the viewpoint of older adults toward the technology as well as limit the opportunities open to them" (p. 161). New learning is needed to access the new computer technologies in an age of change. Scott (1999) warns 'we will not have a choice about whether to use information technology. It will be pervasive, so we need to use it wisely' (p. 33), while Irizarry and Downing (1997) refer to computers as 'one of the most pervasive of technologies' (p. 161). Manheimer et al. (1995) ask what the impact is of pervasive technological advances on older adults.

Third age learners are seen to be at risk of being marginalised, isolated and left behind according to Irizarry and Downing (1997) in the inexorable thrust of the information and communication technology era. Swindell and Vasella (16: 1999) and Foskey (2000), on the other hand, claim that the University of the Third Age (U3A) online programs have the potential to reduce isolation and improve a sense of wellbeing among older Australians, particularly in rural areas. Millar and Falk (2000) found that 'positive outcomes as a result of online interaction coincide with positive experiences in a variety of social practices, including literacy and numeracy' (p. 18). Foskey (2000), evaluating U3A online courses for older people living in retirement in rural and remote areas of Australia, suggests that 'innovations of information and communication technology can

be effectively used to broaden and extend the range of opportunities for lifelong learning' (p. 3).   A significant aspect of learning in retirement about and via new technology, is the effect of older adults' attitude toward computers and the Internet.

ATTITUDE TOWARD LEARNING NEW TECHNOLOGY
ANTA (2000) explores skills and lifelong learning attitudes and values and segments the general community, finding that the overwhelming majority of Australians value learning and acknowledge the value of learning to Australia as a nation. While there is not general agreement about all aspects of the uptake of new technologies by older adults, the consensus is that attitudes are modifiable and that even the most negative technophobes can overcome their initial apprehension and even rejection of technology (Czaja and Sharit, 1998, Willliamson, Bow and that Wale, 1997, Morris, 1994).

In some cases over-technical training, inadequate hardware and unfriendly software turn anxiety to technophobia in some, to indifference in others. Manheimer et al. (1995) theorise that technophobes of any age can be cured through careful and positive instruction and that older people are not more anxious than the young, but they qualify their findings by proposing that people with an internal locus of control are 'less anxious and more curious about using computers' (p.163).

A link between success or failure experienced at first contact with computers and the subsequent attitude toward new technology has been suggested by Morris, (1994) who states that 'one necessary ingredient for older adults' successful learning is a positive initial experience with a computer to combat their technological alienation' (p. 548

While their research showed small increases in positive attitude following brief training sessions and the opportunity for frequent practice, Kelley, Morrell, Park and Mayhorn (1999) noted that this result may have been due to the 'volunteer factor' in their sample of seniors, which was composed of happy, well-adjusted people. It is unclear whether the small improvements noted are predictors of subsequent behaviour patterns, or whether prior learning or other attributes are more significant. Czaja and Sharit (1998) feel that the participants in their studies may also have been predisposed to having more positive attitudes, commenting that while it is generally believed that "experience with technology will result in people having more positive attitudes towards the technology" (p. 300), the literature yields mixed results.

Williamson, Bow and Wale (1997) report finding a widespread existence of negative attitudes among older adults. They suggest that this may be due in part to entrenched stereotypes about the technophobic older adult. They state, however, that 'after the initial fear, many older adults can be positive about the Internet and in some case very enthusiastic' (p.6). The commonly held belief that older adults hold more negative views toward computer technology than younger people is arguable. This belief is examined by Czaja and Sharit (1998), who used a multi-dimensional scale to assess the age difference specific attitude to computers, of nearly four hundred middle aged, younger and older American adults. Although they found no differences in overall attitudes of participants aged from 20 to 75, Czaja and Sharit report that the older people perceived "less comfort, efficacy, and control over computers than did the other participants" (p. 329).

A different view is expressed by Mott (2000), who examined the attitudes of mature age students in Britain, some of whom were aged between 55 and 64. These older students reported an increase in comfort following the participation in formal study via web-based instruction. Millar and Falk (2000) claim that older people are "more comfortable with the post-compulsory learning environment as a result of their online interaction" (p. 17), drawing attention to the role played by appropriate and timely training and support in

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overcoming detrimental factors. They report that the establishment of community-based online access centres is a significant step in addressing some of the problems of informal access to new technology for older people in rural Tasmania.

Studies by Manheimer et al., (1995), Swindell and Vasella, (1999) and Foskey, (2000). have concluded that education in later life, through accessing and using new technology as a learning channel, has beneficial effects, Manheimer et al. claiming that many leading adult educators and gerontologists believe that education plays an important role in helping older adults to solve problems – both their own and those of others in their communities. They add that some researchers contend that education can foster older adults' self reliance and independence by increasing their self-esteem and strengthening their mental and physical health (p. 77).

Manheimer et al, (1995) further ask if older persons are 'utilising computer technology in their education endeavours', if they have more difficulty learning new technologies than younger people and if computer technology is 'appropriate to older adults' learning styles' (p. 160). Swindell and Vasella (1999) are among researchers providing answers in the affirmative, finding that the majority of the participants in their study are interested in experiencing more Internet learning, show a 'preference for learning by the Internet, either fully or in combination with other methods . . . and [have] a thirst for further knowledge' (p.vi). Foskey (2000) confirms this view from her study of U3A online courses for older adults in rural New South Wales.

GENDER AND AGE LEARNING DIFFERENTIALS
Barnett, Buys and Adkins (2000) explore the extent to which gender and age differences appear in the choices of ICT sources used by older men and women. They found that when men and women have access to the new computer mediated activities, they make equal use of them, however, that men appear to be more likely to own a computer. Czaja and Sharit (1998) and Mott (2000) found very few gender differences and no age differences in their studies of older adults' attitudes to computers.

Manheimer et al. (1995) suggest that gender equity of computer use and skills and feelings of competence affect the degree of control over lives and intellectual functioning. They concede that women as well as men have technological skills, but also report that men are more receptive than women to new technology. Czaja and Sharit (1998) report that views similar to these, reported in numerous early studies, prompted their study which produced results to the contrary, that largely refute the suggestions that women are less receptive and have more negative attitudes towards computers than men (p. 329). Swindell and Vasella (1999) note that the majority of students in U3A online courses are female. They believe that the high proportion of women attracted to the 'Isolated Bytes' courses, is likely to be of interest to policy makers who are concerned with the low take up by women of Internet technology.

INCENTIVES AND BARRIERS TO ICT LEARNING
In the literature reviewed, there is more written about barriers than incentives, the disincentives identified referring to older adults on the wrong side of the many hurdles, gaps or so-called 'digital divides'. While socio-economic factors head the list of disincentives, other issues such as education and employment background are found to be significant (ANTA 2000, Scott 1999, White et al. 1998, Tight, 1998).

Foskey (2000) cites two major barriers associated with ongoing online course participation as cost and availability of resources, while White, McConnell, Clipp, Bynum, Teague, Navas, Craven and Halbrecht (1999) offer age-related physical disabilities as making 'social interaction more difficult for older adults, adversely affecting their general health and wellbeing and diminishing their quality of life' (p. 339).

Swindell and Vasella identify one of the main barriers to participation in online learning by older adults, as self-perceived isolation, even for residents in large urban areas, and report that 'a number of adult educators, sociologists and gerontologists have argued that later life education should become a societal imperative' (p.252).

Studies concerned with the removal of barriers, include those by King (1997), Redding et al. (1998) and Williamson et al. (2000), who look at topics including:

- disability issues;
- the importance of access to new technologies;
- information needs and information poverty;
- adaptive equipment;
- library and other public access availability; and
- the overarching implications of training and support.

ANTA (2000) reports that content and presentation are critical issues relating to encouraging or deterring participation in training. They found that price is not a major issue, but that when and where courses are offered is important, and that fear of failure and fear of technology are definite barriers. Manheimer et al. (1995) agree with the importance of course location and time in accessing computer training, however, list price as a deterrent. Older adults in rural areas report that transport and access costs are deterrents to learning as mentioned in studies by Swindell and Vasella (1999) and Foskey (2000). Millar and Falk (2000) add that lack of practice time for older adults who do not have home computers, lack of confidence, and the need for skills-learning support, are barriers which may also be associated with limited literacy skills.

Williamson, Bow and Wale (1997) point out that computers may no longer seem new technology to large sections of the community, who have had prolonged access to them within the workforce or in the education system, but to an older person who has been outside of those institutions for ten years or more, they can be completely foreign. Morris (1994) suggests that 'learning about computers can be a special burden for those who did not use sophisticated technology during their developmental years' (p. 541).

Redding et al, (1998) look at new technology from the perspective of training implications, refuting the claim that everyone is computer literate and report that those deciding to use a computer for the first time, are the "fastest growing segment of the computer and technology market" (p.1). Redding et al. suggest that the learning-task for late adopters of technology is very different from that of early adopters, who embraced the new learning and accepted change incrementally as it occurred.

Morris (1996) queries whether there is a shift toward a two-tiered 'have and have not' class structure (p.9), referring to the anticipated prospect of a deficit of well educated younger adults to fill the high-technology job slots as a result of the 'baby bust', which followed the baby boom years. In his 1996 paper, Morris suggests it may be necessary to coax more and more older adults with computer skills to remain in employment. This has implications for those providing vocational and community technology education and training for third age learners who wish to return to the paid or volunteer workforce. He reports that 'older computer users are burdened by both the generational technology gap and the fact that their [technical] needs are ignored by most computer software designers"(p. 532).

This gap in elder friendly technology is now being addressed to some extent but there is still room for improvement for new technology users of all ages, according to Williamson, Wright, Stillman, Schauder and Jenkins (2000) in their evaluation of adaptive technology, designed to assist people with a variety of age-related cognitive and sensory impairments and physical disabilities. King (1997) and Williamson, Bow

and Wale (2000) also advocate the use of assistive equipment and adaptive technology to help remove training barriers faced by many older adults.

TRAINING IMPLICATIONS FOR OLDER ADULT LEARNERS
ANTA (2000) report that in every age group and in every segment, "IT, computers or computing skills was the one field most likely to be mentioned . . . "when considering where there might be a knowledge gap that could be plugged by learning" (p. 10). Scott (1999) comments on the importance of avoiding information overload and King (1997) stresses the necessity of providing learning opportunities that match the needs and learning styles of older adults to ensure that optimum learning outcomes are obtained.

Manheimer et al. (1995) claim that as the number of older adults increases, along with an interest in education, the continuing development of knowledge about the older learner will assist higher education institutions in planning appropriate educational opportunities for this segment of the population. They cite Morris (1994), whose research shows that older adults prefer to have an instructor available to answer questions. This is consistent with the findings of the study by Buys (1998) into computer use and Internet access by older adults in care. Most of the participants in this study indicated that one-to-one support and hands-on experience are most helpful in developing new skills. Millar and Falk (2000) report that older adults using public online access facilities, need continuing help and support. They concur with Foskey (2000) that the biggest difficulty is the lack of straight forward instruction manuals free of jargon and suitable for older persons to understand.

Manheimer et al. (1995), predict that a growing number of older adults can be expected to learn computing skills and expand their 'educational opportunities and capacity to contribute to an increasingly electronic world community' (p. 170). They qualify this by stating the need to overcome the problems of fear of competition with younger students and concerns about the fast pace in mixed age classes. Morris (1994) and Redding et al. (1998) support this view finding that the participants in their studies prefer classes consisting only of older students, many not wishing to learn in an environment placing them in direct competition with young people. Redding et al. explain that students in American LIR, learning in retirement, programs will not have had a recent school experience, and are usually cautious about acquiring the knowledge and skills to use telecommunications software. The LIR curriculum and peer training presentation are designed to remove older adult student anxiety by ensuring that success can be built on success.

Mott (2000) and King (1997) acknowledge that research into learning appropriate to the special needs of older adults, holds both theoretical and practical implication for training. Mott claims her research throws new light on women's 'pragmatic' approach toward computer use, while King writes that in order to assist older adults to become virtual learners, those who work with them need to address the concerns that seniors have about learning technologies and provide equitable learning opportunities for the curious and capable in this population group (p.5).

No studies of older adults can avoid at least touching on aspects of cognitive ageing and the papers reviewed here are no exception. Jones and Bayen (1998) add to the discussion on age differences writing that 'cognitive ageing researchers have identified cognitive abilities that differ in older and younger adults' (p.676). They note that recent cognitive ageing research provides a framework for the cognitive changes that occur in older adults and add "teachers need to design their instruction to compensate for older adults' cognitive slowing, limited processing resources . . . and sensory defects"(p.675).

If claims are correct that learning in later life does reduce the risk of dementia, the reasons may be that education can in some way protect against neuro-degeneration.

Scott (1999) writes that researchers are currently interested in exploring whether using a computer can improve memory recall for dementia and stroke victims. Findings of Barnett, Buys and Adkins (2000) indicate that intellectual skills, which may have declined in old age, can be revived with coaching and practice. The majority of findings support the theory that age-related health concerns, while barriers to some, do not stop the majority of older adults from taking advantage of opportunities to access new technology via the Internet.

CONCLUSION

Learning needs and styles of older adults feature in the core papers and recommendations for service providers and practitioners are offered. Arguments are made for and against age-segregation in peer-led learning groups and age-integration in mixed age formal and informal learning situations. A greater use of the power of the Internet for disseminating information to older adults is urged and a plea for easily accessible elder-friendly websites with worthwhile content is made.

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