

'Real Time, Real Young, Real Smart.'

The use of the Internet for real time teaching with 5 to 8 year olds.

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Abstract

Real time teaching with real young learners

The project sought to use real time teaching via the Internet to provide direct instruction to geographically, socially and educationally isolated students in the five to eight year age groups. Twelve students enrolled at Brisbane School of Distance Education participated in Netmeetings with their teacher over a period of two years. Despite minor technical difficulties, we found that the students were highly motivated to learn using Netmeetings. The students demonstrated higher levels of cognitive function, enhanced memorisation of new concepts and an increase in attention span. Netmeetings enabled the teacher to use direct instruction to provide an individualised program to the students. It allowed the teacher to monitor the students' development and collect data for evaluation. Netmeetings helped the students overcome their isolation, and enabled the teacher to support their Home Tutors. We found that real time teaching via the Internet could become an integral part of the educational programming for students of distance education. The resolution of minor technical and pedagogical issues associated with this innovative mode of delivery, together with the keen and inspired learning outcomes demonstrated by the students, were triumphs that reinforced this project's finding that real time teaching with real young learners is real smart.

Introduction

The project sought to use real time teaching via the Internet to provide direct instruction to geographically, socially and educationally isolated students aged five to eight years. The students were enrolled at Brisbane School of Distance Education (BSDE). Twelve students participated in the project over a period of two years with their teacher, Megan Hastie.

Prior to the use of Information Communication Technologies (ICTs) with these students, the standard mode of delivery for their educational programs had been through print, audio and video resources. The students' parents were their Home Tutors and had no specific home technical support. The students had limited contact with their teacher at BSDE due to geographic isolation and communication issues.

The project attempted to enhance the learning outcomes of these students by using ICTs to provide direct instruction. This involved a trial of real time teaching via the Internet, using Microsoft Netmeeting. Thus, the project's use of ICTs for learning sought to combine a pedagogical need with a technological solution for servicing the needs of these students. Solutions such as these are encouraged by Education Queensland in their Education and Training Reforms for the Future (ICTs for Learning, Education Queensland, 2003).

This paper documents the processes involved in conducting a trial of real time teaching via the Internet with children aged five to eight years. Theoretical and technological issues are explored. The paper attempts to contribute to current debate on the use of ICTs in education with very young children. The use of online learning at tertiary level is well documented in current research. However, little is known about the use of real time teaching via the Internet with very young children. The findings of this paper indicate that enhanced learning outcomes are likely to result from the use of real time teaching via the Internet with children aged five to eight years.

Theoretical Framework

This paper draws on 'Direct Instruction' as the basis for its theoretical framework. Direct Instruction grew out of Englemann's work with disadvantaged children in the 1960's (Englemann 1966).

Direct Instruction is defined here as teacher-directed instruction. The teacher delivers a tightly scripted curriculum to the student, giving the student small pieces of information and immediately asks the student questions based on that information. The teacher is in control of the interaction, telling, showing, modelling, demonstrating and prompting rapid active responding of the learners.

Marzano and Pickering have used the Direct Instruction model to develop their 'Dimensions of Learning' (DOL). Marzano claims Dimensions of Learning provides a metaphor for learning that can be used to plan instruction, curriculum, and assessment. The program organizes learning into five "dimensions," or kinds of thinking, including: attitudes and perceptions, acquiring and integrating knowledge, extending and refining knowledge, using knowledge meaningfully, and habits of mind (Marzano 2003).

The impetus for the project was to provide Direct Instruction via Information Communication Technologies (ICTs) to distance education students aged 5 to 8 years. The students could not attend a regular Education Queensland state school. Communication and instruction between the teacher and these students would have been severely limited and, in some cases, impossible without the use of the Internet for real time teaching.

A second premise was that the use of ICTs, in particular Microsoft Netmeeting, enabled and encouraged the students in the project to use ICTs as a tool for learning rather than as a separate skill. By the use of a background automatic technology, each child is thus able to concentrate on the pedagogical elements of instruction rather than distractions. This was based on the belief that children in the early childhood years could successfully acquire computer skills and apply these to their learning.

A third premise was that in a direct instruction model, children in the 5 to 8 year age group master developmentally appropriate concepts with greater facility when the concepts are of interest to the student, are sequentially arranged, and when they engage the student in activities that are interactive in ways that required complex cognitive reasoning.

Methodology

This project sought to use direct instruction to enhance the learning outcomes for of students aged five to eight years enrolled at Brisbane School of Distance Education (BSDE), real time teaching via the Internet. The project was conducted at BSDE over a two and a half year period, between April 2001 and June 2003. Participation in the project was voluntary. This school is one of the schools of distance education operated by Education Queensland (Education Queensland 2003). The teaching modes used at BSDE have included print, audio and video materials. With the advent of the Internet, the potential for online development and delivery of courses is being explored. Based on previous experience in an adult online learning environment (Hastie & Palmer 1997), a program was developed to explore the use of real-time Internet based communications technology in early childhood education using Microsoft Netmeeting software (Microsoft 2002).

The teacher used a desktop computer with Internet access via the BSDE server. The teacher worked hands-free using a headset with built-in microphone. A web cam was used for a short phase of the project, but was discontinued due to bandwidth restrictions. A graphic tablet was used to draw free-hand pictures and text on the whiteboard.

The students used a desktop computer in their homes. Students accessed the Internet using dial-up connections, cable or ADSL. Students also used a freestanding microphone or headset with built-in microphone, a web cam and graphic tablet.

Instructions for downloading Microsoft Netmeeting were developed and distributed to the students' parents, their Home Tutors. Netmeetings were scheduled on a weekly basis with individual lessons ranging from fifteen to forty-five minutes in duration, depending on the age and attention level of the student. Netmeetings were voluntary and regarded as an activity that would allow the student to engage in teacher-directed activities that would augment and supplement the student's existing program. Netmeetings provided a communication tool for the teacher and students where previously communication had been severely limited. Each student participated in one Netmeeting per week. Students often requested more than one Netmeeting per week, but this was not always possible given the time constraints on the teacher in the project.

Netmeetings were aligned with Marzano's Dimensions of Learning model, (Marzano 2003) as follows:

- (a) Netmeetings sought to provide a means to foster highly positive attitudes and perceptions about school and to provide direct instruction in assisting students to achieve the educational expectations of BSDE.
- (b) Netmeetings sought to enable the students to acquire and integrate knowledge. The students could use what they already know, develop understandings of new information and assimilate it for ready recall.
- (c) Netmeetings sought to enable the students to extend and refine their knowledge, so that they could modify what they knew, even when what they knew is accurate.
- (d) Netmeetings sought to provide students with opportunities to use knowledge meaningfully because the students were asked to perform tasks that required decision-making, investigation, experimental inquiry, problem solving, and invention. The students were engaged in thinking that was extended over a significant period during the project. The students were actively involved in choosing content and activities thereby allowing student-directed learning that focused on authentic tasks.
- (e) Netmeetings sought to develop the students' habits of mind by helping them learn to seek accuracy, avoid impulsivity, and persist when answers are not apparent.

Project Characteristics

Duration of Project	2 years
Number of Students	12
Number of Netmeetings conducted	150 approx
Number of Netmeetings per student	Average 30 per year (range 1-80)

Format for a real time lesson via the Internet

Teacher preparation time: the teacher prepared a series of pages on the electronic whiteboard - a component of Microsoft Netmeeting that allows the simultaneous interactive use of a shared workspace. The teacher applied a direct instruction approach to the selection of content so that it matched the individual learner's level of development, interest and need. Activities were developed to reinforce Education Queensland's key learning areas in English, Mathematics and other subject areas (Education Queensland, 2003). The electronic whiteboards were designed to be 'user-friendly' and highly motivational. The pages on the electronic whiteboard featured brightly coloured text, hand-drawn pictures and clipart.

Establishment of the Internet link between teacher and student: the teacher logged-on to Microsoft Netmeeting via the BSDE server, and then called the student. The student would accept the call, thereby establishing the link between teacher and student. The first page of each lesson was dedicated to welcoming the student to the Netmeeting, and fine-tuning the audio and electronic whiteboard functions.

Lesson content: the student and teacher would work interactively through the pages of the electronic whiteboard prepared by the teacher prior to the lesson. Both teacher and student would use coloured text and pictures on the electronic whiteboard that was typed or drawn free hand using the mouse, graphic tablet or keyboard. The teacher would provide immediate feedback to the student both orally and visually through verbal responses and written responses on the electronic whiteboard. Extra pages were added dynamically during the Netmeeting to enable the student and teacher to explore ideas spontaneously. The teacher would also provide support to the student's Home Tutor during the Netmeeting, as requested.

Conclusion of the Netmeeting: the teacher and student would negotiate learning experiences for the following week's Netmeeting. These were recorded on the final page of the electronic whiteboard. The teacher would conclude the Netmeeting by praising the student's efforts orally and also by typing text messages on the final page of the electronic whiteboard.

Follow-up to the Netmeeting: the completed pages of the electronic whiteboard provided the teacher with data for monitoring and evaluating the student's progress. Following the Netmeeting, the teacher and student would continue to communicate via email, and other modes, until the next Netmeeting.

Case Studies

The following case studies feature four students who represent a comprehensive cross-section of the online real time learners in the project:

Student 1: isolated, male, overseas.

Student 1 was a six-year-old Australian boy, living overseas on a small remote island with his parents and younger sister. Primary education facilities on the island were limited and were not in English. Distance education provided the opportunity for an education equivalent to his Australian peers.

The student's father was highly computer literate and set up the family's home computer for Netmeetings. The high reliability, robustness and clarity of the Internet connection with Student 1 enabled the electronic whiteboard and audio functions to operate simultaneously. The mother of Student 1, his Home Tutor, taught him to operate Netmeetings. Initially the student's mother participated in the Netmeetings. Within a few weeks of beginning Netmeetings, Student 1 insisted that his mother allow him to work independently. Student 1 said that Netmeetings were like going to

a real school with his own teacher as opposed to just being at home with Mum. Netmeetings were usually of twenty to forty-five minutes' duration. At the beginning of the trial, Student 1 would concentrate for twenty minutes but this increased to forty minutes by the end of the trial. Student 1 would frequently prolong the Netmeeting with his teacher by chatting about topics of interest to him. Netmeetings with Student 1 were often extended to sixty minutes so the teacher could provide support, in the form of discussion, to his Home Tutor.

A typical Netmeeting with Student 1 involved drawing and writing on the electronic whiteboard pages. Netmeeting activities focussed on English, Mathematics and Science. These subject areas were chosen in collaboration with the Home Tutor and Student 1, as a way of augmenting the print materials used in the BSDE program.

Student 1 used a graphic tablet to hand draw pictures and complete handwriting tasks. This allowed the teacher to observe the formation of letters and numerals by Student 1. Student 1 would switch between the graphic tablet and keyboard at will. Student 1 usually chose to use the keyboard to type words and text, and chose the graphic tablet for drawing and handwriting tasks. The use of the graphic tablet and keyboard enabled Student 1 to encode his thoughts efficiently and to write and illustrate text.

A web cam was used on occasions with Student 1. This enabled Student 1 and his teacher to see each other for short intervals of time at the beginning and end of the Netmeeting. On one occasion, Student 1 used the web cam to perform a dramatic role-play. However, bandwidth restrictions limited the use of the webcam. Student 1 frequently invented games to play with his teacher on the whiteboard pages. In one game, Student 1 created a maze through which objects were moved using a variety of tools in the toolbar. Student 1 used Netmeetings primarily as a means of overcoming his educational and social isolation, and for practising curriculum related skills such as writing and number work. Netmeetings were also used to provide support, such as behaviour management, to the Home Tutor of Student 1.

Student 2: gifted, female, rural.

Student 2 is an eight-year-old Australian girl, living on her parents' farm in a rural area. It is possible for Student 2 to access a State school in her area, but this would involve considerable travel. Student 2 was identified as a highly gifted and talented learner. Her parents chose to use distance education as a means of providing enrichment and extension for her. As a result, the progress of Student 2 through the standard curriculum was accelerated and compacted allowing her to devote time to her music studies.

The parents of Student 2 set up the family home computer for Netmeetings. This computer is also used in the family business. Her parents have two telephone lines into their property. Initial trials of Netmeetings indicated that one rural telephone line alone would not support the electronic whiteboard and audio bandwidth simultaneously. Her parents agreed to dedicate both phone lines to Netmeetings. This meant that the family and their business were off-line for the duration of her Netmeeting. One phone line was used for the electronic whiteboard, and the second phone line for audio. At the start of each Netmeeting, the audio link was established between teacher and student by telephone. Student 2 used the family's conference phone enabling her to work hands-free during the Netmeeting. This allowed her mother to observe and participate in the lesson. Netmeetings were of forty-five minutes duration. This student operated at a high level of concentration throughout. A time limit needed to be imposed on Netmeetings due to the teacher's other commitments.

As a gifted learner, this student had been frustrated by the standard curriculum. Netmeetings enabled the provision of individualised lessons. A typical Netmeeting with Student 2 involved the planning of a project on a topic of her choice. Subsequently she would research and write about her chosen topic and email her work to her teacher. A distinctive feature of Netmeetings with this student was her facility with language. Student 2, a highly prolific writer, rapidly mastered touch-typing as it enabled her to encode her thoughts quickly. Previously her handwriting had been clumsy and restrictive. Keyboarding skills liberated her and allowed her to write, edit and publish multiple works. Student 2 used Netmeetings as a stimulus for further learning and as a means of communicating with an intellectual peer, her teacher. The teacher and student met several times during the project because she was able to travel to BSDE.

Student 3: home-school, female, coastal metropolitan.

Student 3 was a seven-year-old Australian girl, living in a coastal metropolitan town. While she was able to attend a State school, her parents chose to home-school her so they could be involved in her education and provide enrichment. Her father set up the family computer to enable her to participate in Netmeetings. He taught her to log-on to the Internet, open the Netmeeting menu and start Netmeetings independently. Her mother, also her Home Tutor, was not interested in computers and was less capable in this regard than her daughter. She was, however, supportive of her children's participation in Netmeetings. In this instance the student took on the major responsibility for operating the family's home computer and would set up the computer for her younger brother's Netmeetings. Student 3 was very exuberant and friendly, and enjoyed communicating with others.

Netmeetings with Student 3 were usually of thirty minutes duration and typically featured a high level of verbal and visual interaction between student and teacher. The Netmeeting audio link was robust and clear enabling verbal interaction between student and teacher that was equivalent to a telephone call. This student usually requested English and Mathematics activities for Netmeetings. Guided writing lessons during Netmeetings enabled her to plan, write, edit, publish and illustrate text. This enabled the collection of data on Student 3 for evaluation purposes. Student 3 did not use a graphic tablet. She was able to write letters and numerals and to draw detailed pictures on the electronic whiteboard pages, using the computer mouse. This student used Netmeetings mainly as a tool for communicating with her teacher and also as a way to apply her computer skills to her general mastery of curriculum concepts, particularly writing. The teacher and Student 3 met in person on one occasion.

Student 4: overseas, female, ESL issues.

Student 4 was a six-year-old Australian girl, living in another country. Student 4 held dual citizenship and was bilingual. English was her second language. She attended a local international school. Her parents used distance education as a means of developing her English skills, and as a way of providing her with an education that was equivalent to her Australian peers. Netmeetings were limited to fifteen minutes duration to match her level of development and attention.

A typical Netmeeting would focus on developing reading and writing skills in English. Student 4 frequently requested Mathematics activities and displayed a level of competency in mathematics that surprised her teacher. When invited to draw on the electronic whiteboard pages, Student 4 repeatedly drew flowers.

The Home Tutor of Student 4 participated fully in the Netmeetings. This was essential due to technical difficulties associated with the audio signal. Instructions typed on the electronic whiteboard pages by the teacher were used to overcome the

audio difficulties. The mother would explain the typed instructions to the student, and work through the electronic whiteboard activities with her. Netmeetings provided a cost-effective mode of communication with her Australian based teacher. More importantly, Netmeetings provided the student with an opportunity to acquire and practise English skills. Netmeetings also enabled the teacher to provide support, in the form of verbal and written exchanges, to the Home Tutor.

Findings

Real time teaching via the Internet enabled Australian distance education students to use ICTs to access their Australian teacher and receive direct instruction in an educational program that matched the curriculum of their peers in mainstream education. Real time teaching via the Internet enabled the students in the project to overcome the disadvantage of their geographical, social and educational isolation. The project found that real time teaching via the Internet provided a cost effective communication tool for students of distance education, particularly for students living overseas. The cost of a real time lesson via the Internet was negligible compared to the cost of international phone calls.

Through the use of a direct instruction approach, real time teaching via the Internet appeared to enhance the cognitive functioning of children in the five to eight year age groups. The students in this project demonstrated that their capacity to learn new concepts was accelerated. A similar phenomenon has been observed in adult postgraduate learners (Hastie & Palmer 1997). When a new concept was introduced during a Netmeeting, the students usually mastered it after one attempt, or at most after three attempts. When the student made an error during a Netmeeting, the student usually mastered the concept immediately following direct teaching. The students were keen to record correct responses on the whiteboard pages, even though the students understood that the teacher accepted errors as part of the learning process. The authors believe that real time teaching using a direct instruction approach stimulated learners to master developmentally appropriate concepts because the concepts were of interest to the student, were sequentially arranged, and engaged the student in activities that were highly interactive.

Enhanced cognitive functioning was also evidenced by the apparent growth in attention levels of the students in the project. During the project, students demonstrated prolonged and growing levels of attention. For instance, Student 1 and Student 2 initially participated in Netmeetings of twenty to thirty minutes duration. Towards the conclusion of the project, these students voluntarily extended their Netmeetings to forty-five or more minutes. The authors believe this contrasts with observations of shorter attention spans of five to eight year old students in normal classrooms. The authors believe that the students' attention spans increased through 'shared attention' when the teacher and student concentrated on the whiteboard together, and that this was because the teacher modelled good concentration (Hausner 1998).

Students appeared to develop greater memorisation of new concepts. The authors believe that this is because the students were encouraged to use multiple intelligences. Real time teaching via the Internet required the students to engage in learning that was simultaneously linguistic, logical/mathematical, spatial, bodily/kinaesthetic, and interpersonal (Gardner 1983).

The students in the project demonstrated rapid and accurate recall of concepts learned in the previous week's Netmeeting. The authors believe that the use of the

whiteboard to encode thoughts enabled students to retain information better because they learned to use it meaningfully. (Marzano 2003)

The use of the whiteboard combined with verbal interaction seemed to maximise the students' learning by integrating their visual and auditory sensory capacities. This appeared to encourage the students to focus more fully on the concepts being taught. The whiteboard, in particular, was a major focus of each Netmeeting. With its brightly coloured visual images, the whiteboard was a highly interactive, multi-layered and compelling focus for learning. A headset with built-in microphone enhanced the concentration of students by causing less distraction than a freestanding microphone. The authors conclude, therefore, that real time teaching via the Internet using a direct instruction approach enabled the students in the project to achieve learning outcomes that surpassed that of normal classrooms.

The project found that the students in the trial developed cognitive and computer literacy skills simultaneously. Computer literacy was the tool for the students to communicate with their teacher and to learn core curriculum content. The use of ICTs, in particular Microsoft Netmeeting, enabled and encouraged the students in the project to use ICTs as a tool for learning rather than as a separate skill. The computer literacy skills of the students accelerated as a result of real time teaching via the Internet and rapidly surpassed the requirements for their age groups. For instance, the students rapidly acquired keyboard skills so they could type messages to their teacher. Student 3 would run her own Netmeetings from start to finish. Students 1, 2, and 3 taught themselves many of the toolbar functions, and frequently taught their teacher new uses for these tools.

The authors found that real time lessons provided highly individualised learning. This was especially the case for Student 2, a gifted learner, who could easily have been under-served. Real time teaching via the Internet enabled Student 2 to realise her potential in ways not previously available to her. The poor quality of rural telephone lines to Student 2 presented technical difficulties that almost excluded Student 2 from participating in the project. This highlighted issues of rural isolation and disadvantage that need to be addressed at the political level.

In the six months prior to commencing Netmeetings, Student 1 had been reluctant to write. Six months following the start of Netmeetings, Student 1 developed the ability to write multiple sentences where previously he had avoided writing a single sentence. Student 1 learned to compose, edit and publish factual and fictional text. We found that the writing development of Student 1 accelerated as a result of the teacher modelling writing and giving direct instruction and assistance to him about his writing during Netmeetings.

Real time lessons via the Internet enabled the parents of Student 3, a home-schooler, to retain the major responsibility for her education while keeping in close contact with her teacher at BSDE. It allowed the teacher to closely monitor the progress of Student 3.

Real time lessons via the Internet enabled Student 4 to develop English skills. The authors found that there is a need for the development of specific courseware to teach English to Australian students living overseas. Competencies demonstrated by Student 4 during Netmeetings provided valuable insights for the teacher who had previously underestimated the capabilities of Student 4.

The difficulties experienced with audio clarity during Netmeetings with Student 4 showed that Netmeetings are possible with limited audio, but that the interactions between teacher and student are seriously compromised. It was found that the higher reliance on the whiteboard interaction caused by poor audio clarity was

frustrating for both teacher and student. The project found that whiteboard interaction without audio function limited the learning outcomes of the student.

The authors were surprised to find that the web cam had limited use with students in the project. Technical issues related to server bandwidth restrictions at BSDE limited the use of the web cam. Student 1 used a web cam to demonstrate a role-play to his teacher, and this proved somewhat useful. However, in trials undertaken between the teacher's and student's homes, it was found that the fragmented nature of web cam images did not encourage the participants to use it for anything other than a greeting and farewell at the beginning and end of the Netmeeting. This has also been documented in an adult postgraduate learning environment (Willie, Pui & Palmer 1999).

Real time teaching enabled the teacher to view the students' cognitive processing first-hand. This was in contrast to the usual evaluation of distance education students where assessments are based on the students' completed work samples. The authors found that samples gathered during Netmeetings could replace face-to-face evaluation and were therefore more useful to the teacher and the student. It was more time efficient and more cost effective.

The authors found that lessons designed using a direct instruction approach and delivered using real time teaching via the Internet enabled curriculum content to be streamlined and compacted for students of distance education.

An unexpected finding of the project was the deep and enduring friendships that developed between the teacher and students and their families. The authors found that the virtual classroom created during online real time lessons via the Internet was a warm, friendly, creative and productive place to be.

Conclusion

Real time teaching via the Internet appears to enhance the cognitive functioning of children in the five to eight year age groups. The high level of motivation of the students who participated in the project demonstrates that very young children are willing and able to access real time teaching and learning via the Internet. This project demonstrates that real time teaching via the Internet using a direct instruction model with children in the five to eight year age groups is a pedagogically sound and cost effective way to support young learners, and represents a major innovation in distance education. In short, real time teaching with real young learners is real smart.

APPENDIX: Requirements for a Successful Netmeeting

To set up a project such as that described in this study, the authors make the following recommendations:

Technical requirements

1. Equipment requirements for teacher and student:
2. Minimum system requirements to install and run Microsoft NetMeeting can be viewed online at <http://www.microsoft.com/windows/netmeeting/> (Microsoft, 2002)
3. Headset with built-in microphone
4. Graphic tablet
5. Telephone line available while computer is connected to Internet
6. Printer.

Teacher requirements:

1. Training – 1-2 hours practice with software
2. Buddy system for first 1-3 Netmeetings
3. Mentor group for pedagogical and technical support.

Technical Support:

1. Infrastructure (network) – externally resourced
2. Initial set-up – in-house technician or local computer store
3. Ongoing support contact (local or remote).

Student requirements:

1. Basic familiarity with computer
2. Hand-eye co-ordination
3. Basic fine-motor control.

Support Person requirements:

1. Basic computer literacy
2. Access to a telephone
3. Common language with teacher.

Pedagogical requirements:

1. Development of programs to incorporate real time teaching, supported by school/workplace administration
2. Identification of specific learning areas suited to Netmeetings
3. Scheduled preparation time for teacher
4. Adjustment of teacher-student ratios.

References

Brisbane School of Distance Education 2003. Retrieved June 1st, 2003 from <http://www.brisbanesde.qld.edu.au/>

Education Queensland 2003, Learning and Teaching. Retrieved June 1st, 2003 from <http://education.qld.gov.au/tal/>

Education Queensland 2003, Schools of Distance Education. Retrieved June 1st, 2003 from <http://education.qld.gov.au/curriculum/service/distance/>

Education Queensland 2003, ICTs for Learning. Retrieved June 1st, 2003 from <http://education.qld.gov.au/ictsforlearning/>

Englemann, Siegfried E. (2001) 'If the Children Aren't Learning, We're Not Teaching', an interview by George A. Clowes. Retrieved 23rd July, 2003 from <http://people.uncw.edu/kozloffm/ziginterview.html>

Gardner H, 1983, *Frames of Mind*, Basic Books, New York:

Hastie M, Palmer T 1997, 'The Use of the Internet In Supporting Continuing Medical Education In A Rural Australian Hospital', Presentation at Yale University School of Medicine.

Hausner L 1998, *Teaching Your Child Concentration*, Regnery/Gateway, Los Angeles.

Marzano R J, 2003, 'Dimensions of Learning', Mid-continent Regional Educational Laboratory (McREL). Retrieved 23rd July, 2003 from <http://www.dsea.org/teachingtips/tips/dimensionlearn.htm>

Microsoft 2002 – Netmeeting Retrieved May 1st 2003 from <http://www.microsoft.com/windows/netmeeting/>

Willie S, Pui C, & Palmer T., 1999, 'Remote Lecture Presentation Preferences for Internet Delivered Continuing Medical Education', in *World Conference on Educational Multimedia, Hypermedia and Telecommunications 1999 Vol. 1*, pp.154-159. Retrieved June 1st 2003 from <http://www.aace.org/DL/index.cfm/fuseaction/ViewPaper/id/4234/toc/yes>