A study of the effects of two training delivery modes on health professional participants’ self-reported knowledge translation in cognitive assessment of people with dementia

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Faculty of Health and Medical Sciences
Health Professional Education
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Thesis Declaration

I, Terrie Simpson, certify that:

This thesis has been substantially accomplished during enrolment in the degree.

This thesis does not contain material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution.

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Date: 14/03/2018
Abstract

The aim of this research project was to determine whether a training workshop in cognitive assessment could be satisfactorily delivered using video conferencing.

The main research question is:

- Does the method of delivery of training in cognitive assessment affect the knowledge translation outcomes?

The secondary research questions are:

- Do the interactions and behaviours differ between training which is delivered face-to-face and that which is delivered via video conferencing?
- Which factors have the greatest impact on the knowledge translation outcomes?

The study used a comparative mixed methods case study approach. Two workshops were analysed: one using traditional face-to-face delivery; the second using online video conferencing. The purpose of the workshops was to teach participants how to conduct assessments of people with dementia using the Hierarchic Dementia Scale-Revised (HDS-R) and to use the assessment results for care planning. The researcher, who was also the educator, had presented the workshop in a face-to-face format more than twenty times previously but had not previously conducted training via video conferencing.

In designing the study, the researcher considered various theories and models of general and online education including Moore’s theory of transactional distance, Garrison et al.’s model of community of inquiry and Gorham’s concept of the effect of teacher immediacy behaviours on student learning. The researcher also considered findings from previous studies of synchronous online learning.

The workshop participants were qualified health professionals working with people with dementia. Nineteen participants attended the face-to-face workshop and ten participants attended the video conference workshop. The participants at the face-to-face workshop were predominantly occupational therapists and those at the video conference workshop were mostly nurses. Informed consent was obtained from all participants.

Audio-visual recordings were made of the first half of each workshop. These were analysed to identify: the type, length, direction and tone of the interactions; indicators of social presence, cognitive presence and teaching presence; verbal and non-verbal immediacy
behaviours and interactions related to discussion and debate. Feedback evaluation was gained from participants at the end of each workshop and further feedback was sought from the participants three months later to determine the level of knowledge translation in the workplace. The data from the two workshops were compared to identify differences in the interactions which occurred during the workshops, the participants’ perceptions of the workshops and subsequent variations in knowledge translation.

Differences were identified in the interactions which occurred during the workshops with the participants of the video conference workshop interacting with the educator less than the participants at the face-to-face workshop. Analysis of the types of interactions appeared to show that the video conference workshop was more didactic in nature and the face-to-face workshop exhibited more of the types of interactions and behaviours which, according to most research, create an effective learning environment.

The video conference participants were more satisfied with the workshop experience than those who attended face-to-face. The knowledge translation survey demonstrated that the video conference participants had made more changes in their practice and shared their learning more with others.

The initial data appears to contradict most research into the teaching behaviours and interactions which contribute to effective learning. However, disclosures made by participants at the end of the video conference workshop revealed that, although the students had not been interacting with the educator, those who were attending with others had been discussing and problem-solving with their colleagues. This activity had not been visible/audible to the educator and was not picked up on the recordings.

This study demonstrates the importance for health professionals of learning with their peers. It also demonstrates the motivation and enthusiasm of health professionals located in rural and remote locations who overcame substantial technical difficulties to complete the training.

The study suggests that there is scope to develop a “blended” learning workshop for distance learners using recorded lectures and guided learning activities, with opportunities to speak or correspond with an educator as required.
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### Glossary of terms and abbreviations

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<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asynchronous</td>
<td>Occurring at different times.</td>
</tr>
<tr>
<td>CIHR</td>
<td>Canadian Institutes of Health Research.</td>
</tr>
<tr>
<td>CoI</td>
<td>Community of Inquiry. A conceptual framework that identifies the elements of teaching: cognitive, social and teaching presence.¹</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing professional development.</td>
</tr>
<tr>
<td>DTSC</td>
<td>Dementia Training Study Centre. An Australian Commonwealth funded initiative which aims to improve the knowledge and skills of tertiary qualified health and aged care staff providing dementia care in Australia. DTSC has since been replaced by Dementia Training Australia (DTA).</td>
</tr>
<tr>
<td>Face-to-face</td>
<td>Educator and participants are all physically present in the same location.</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner.</td>
</tr>
<tr>
<td>HDS-R</td>
<td>Hierarchic Dementia Scale-Revised. An assessment of the cognitive abilities and limitations of people with dementia.</td>
</tr>
<tr>
<td>IPE</td>
<td>Interprofessional education. Students of different health professionals learning with, from and about each other.</td>
</tr>
<tr>
<td>Knowledge translation (KT)</td>
<td>The process of moving knowledge into action or the incorporation of evidence-based practice information into the practices of health professionals.</td>
</tr>
<tr>
<td>MMSE</td>
<td>Mini Mental State Examination. A widely used 30-point questionnaire used by clinicians to assess cognitive impairment.²</td>
</tr>
<tr>
<td>MoCA</td>
<td>Montreal Cognitive Assessment. A brief screening tool for mild cognitive impairment.³</td>
</tr>
<tr>
<td>OT</td>
<td>Occupational therapist.</td>
</tr>
<tr>
<td><strong>PAS-CIS</strong></td>
<td>Psychogeriatric Assessment Scale – Cognitive Impairment Scale. An assessment of cognitive impairment which forms part of the Aged Care Funding Instrument (ACFI) in Australia.</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Synchronous</strong></td>
<td>Occurring simultaneously, at the same time.</td>
</tr>
<tr>
<td><strong>Text chat</strong></td>
<td>Computer-based communication via typed text, normally consisting of short, informal messages.</td>
</tr>
<tr>
<td><strong>Video conference (VC)</strong></td>
<td>A conference or meeting between two or more participants at different sites using computer networks to transmit audio and video data.</td>
</tr>
<tr>
<td><strong>Webinar</strong></td>
<td>A presentation or lecture which is transmitted over the internet frequently followed by a formal question and answer session.</td>
</tr>
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Chapter 1 – Introduction and Background

There are currently over 400,000 Australians living with dementia and this figure is expected to increase to over 500,000 by 2025.\textsuperscript{5} Dementia is a syndrome caused by disease of the brain, usually of a chronic or progressive nature, that affects memory, thinking, behaviour and the ability to perform everyday activities.\textsuperscript{6} Cognitive deficits in dementia interfere with an individual’s ability to live independently therefore interventions are required to support individuals in their activities of daily living and to maintain quality of life.\textsuperscript{7} As the symptoms of dementia are progressive and irreversible, the interventions required will change as the disease progresses. Effective care and support of a person with dementia requires a comprehensive understanding of the individual’s cognitive abilities and limitations across a wide range of cognitive functions.\textsuperscript{8}

Background

Training health professionals to conduct cognitive assessments of people with dementia is complicated by a number of issues. People with dementia are unable to provide consent to being used as model patients and it is very difficult for people without dementia to act in the role and previous attempts at using role play as a training modality have been unsuccessful. This makes it difficult for health professionals to practice cognitive assessment skills in a workshop or simulated setting. In addition, cognition is an abstract concept which, unlike many other clinical features, is not easily described or understood. Cognition is the process of knowing, learning and understanding through thought, experience and the senses. It includes memory, perception, language and concentration, and affects an individual’s ability to communicate and carry out functional activities. It cannot be objectively measured or quantified and its assessment, particularly in people with dementia, can be complicated by confounding factors such as physical and sensory deficits, expressive and receptive language difficulties and the overlapping of the cognitive functions.\textsuperscript{9}

The Hierarchic Dementia Scale–Revised (HDS-R) is an assessment tool which assesses twenty separate cognitive functions and can be used for people with dementia at any stage from diagnosis through to end-of-life care.\textsuperscript{8} The HDS-R was developed from the Hierarchic Dementia Scale (HDS) in 2015 to amend some outdated aspects of the original assessment and to bring the assessment into line with current health and safety requirements.\textsuperscript{10} Unlike many other cognitive assessments there is no set procedure or script for conducting the
assessment: items can be completed in any order and the process is intended to be tailored to the individual’s level of dementia and their degree of attention and engagement. This requires the use of specialist communications skills and a high level of clinical judgement and reasoning by the practitioner.

A 2014 survey of Health Professionals in Western Australia found that previously delivered training for the Hierarchic Dementia Scale, which did not include any “hands-on” use of the assessment materials, had limited effectiveness and identified a significant demand for further training. In order to bring about change in practice behaviour i.e. knowledge translation, it was felt that interactive teaching methods, which include handling of the assessment materials, and dialogue between the educator and participants, rather than formal lecture, were required. A project to design and deliver a new format of training workshop for the HDS-R was funded by a Fellowship from the Dementia Training Study Centre. New workshops were designed based on adult learning theory, utilising a constructivist approach and a mixture of didactic, interactive and experiential learning methods. Evaluation of these new workshops demonstrated an increased level of participants’ confidence in their ability to use the HDS-R assessment and to teach those skills to their colleagues.13

Having designed a workshop format for teaching the use of the HDS-R in a face-to-face setting which has shown positive results on evaluation, the question arose as to whether this format could be replicated using online technology in order for health professionals in rural and remote settings to benefit from the training at a reasonable cost and with minimal disruption to the delivery of services in the workplace. Although part of the workshop uses didactic teaching methods, albeit with learner participation and interaction, the main element, where participants learn how to administer the assessment, involves significant interaction between participants with the educator responding to queries, identifying and resolving misunderstandings and reinforcing learning on a reactive basis. Evidence from face-to-face participant evaluations has demonstrated that this teaching method has significantly increased confidence in participants’ ability to assess people with dementia using the HDS-R. However, techniques that are effective in the classroom may not translate effectively to distance learning situations as the frequency and usual patterns of interaction are altered and isolated learners do not have the opportunity to interact freely with other learners.15
Significance of the research

Health professionals working in rural and remote areas often encounter difficulties in accessing continuing education and this sometimes acts as a deterrent to taking up positions in isolated areas.\textsuperscript{16} The cost of providing face-to-face training in rural and remote areas can be excessive due to the significant travel and accommodation costs, travel time and the limited number of health professionals based in each location.\textsuperscript{17} Although online (asynchronous) education has often been used to overcome these barriers it has been criticised by some as a cost-cutting measure without evidence of any long-term effectiveness.\textsuperscript{18} Kaufman and Brock (1998) recommend the use of video-conferencing to provide interactive and therefore more effective training in a relatively cost-effective manner.\textsuperscript{12} In this specific case of training in the use of the HDS-R, it is clear that most health professionals are unable to secure study leave and funding to travel to metropolitan areas to attend a one-day workshop and where attempts have been made to host workshops in rural or remote areas, there are not sufficient numbers in a single location to make this economically viable.\textsuperscript{11}

Distance learning and the use of online technology in education

Distance learning enables those who are unable to physically attend training institutions to participate in education. Historically, recipients of distance education were often women who were prevented from attending higher education establishments.\textsuperscript{19} The first model of distance learning was the correspondence course which relied on sending course materials and instructions to students’ homes and the students then returning their written assessments to the tutor. This only became viable after the development of reliable postal services and there are records of such courses dating back to the 18\textsuperscript{th} century.\textsuperscript{20}

In 1913, Thomas Edison, predicted that the invention of film would completely change the school system within ten years.\textsuperscript{20} Changes have occurred much more slowly than he predicted with the gradual introduction of slides, film, radio and then television during the twentieth century. Computers were introduced as a tool for delivering education in the late 1970s and this became more prevalent in the 1990s with the introduction of personal computers, broadband communications and digital video.\textsuperscript{20}

A video conference is a conference or meeting between two or more participants at different sites by using computer networks to transmit audio and video data.\textsuperscript{21} Video conferencing was first demonstrated at the World’s Fair in New York in 1964.\textsuperscript{22} The first commercially available videotelephony system, the PicturePhone was produced in 1971 by
With the development of ISDN telephony in the 1980s, which can transmit voice, video and data, and the invention of the world wide web in 1989, it was possible for video conferencing to be made more accessible. However early video conferencing systems required expensive hardware and dedicated systems. A study in 2008 reported the initial start-up costs for a videoconferencing system to be up to $55,000 (Canadian). It is now possible for video conferencing to be carried out using standard personal computers, laptops, tablets or even mobile phones. This means that video conferencing should be an easily accessible, cost-effective option for providing education to health professionals in rural and remote locations. However there does not appear to be any current research which compares the educational experience and outcomes of video conferenced CPD courses for health professionals in cognitive assessment with courses delivered in the traditional face-to-face manner.

Aims
This study aims to explore how the use of video conferencing to teach cognitive assessment affects the knowledge translation outcomes. In order to do this, it seeks to examine and compare the interactions and behaviours which occur when the workshop is run in a face-to-face environment and when using video conference technology where the participants and educator are in multiple, separate locations. By analysing observational data and feedback from the participants related to their experiences during the training and any changes in their practice in the following three months it aims to identify which factors of the training have the greatest impact on subsequent knowledge translation in the workplace.

Research questions
The main research question is:

- Does the method of delivery of training in cognitive assessment affect the knowledge translation outcomes?

The secondary research questions are:

- Do the interactions and behaviours differ between training which is delivered face-to-face and that which is delivered via video conferencing?
- Which factors have the greatest impact on the knowledge translation outcomes?
Structure of the thesis

The thesis is structured in chapters which guide the reader through the development of the study and the collection and analysis of the data. The thesis concludes by answering the research questions and using the evidence to make recommendations for further developments in teaching health professionals to use the HDS-R assessment.

This first chapter has introduced the topic and described the context in which the research study takes place. The following chapter will identify and examine existing literature which has informed the study.
Chapter 2 - Literature Review

This chapter explores the currently published literature which has informed the study. There are several pertinent areas of research: theories of communication in learning; technology and terminology for online learning; previous studies of video conferencing in education; health professional education and the teaching of cognition; selection of outcome measures; and methodological options. The literature related to each of these areas is described and summarised separately before a final summary which gathers together the conclusions drawn from the literature review to inform the research study.

Literature search strategy

The literature search was undertaken initially using the CINAHL database which includes literature from the nursing and allied health professions. This database was selected because the target audience for workshops teaching the Hierarchic Dementia Scale-Revised (HDS-R) is nurses or allied health professionals who are involved in the assessment of people with dementia. Due to a lack of standardised terms and definitions in the use of online learning environments, a wide variety of search terms were used such as: “online learning”; “synchronous”; “video conference”; “health professional education”; and “cognitive assessment”. Search results were then combined using “AND”.

Many articles were discarded as being irrelevant where the technology used was asynchronous or text-based, however some of the articles covering these topics had some value related to theories of learning. The reference lists of relevant articles were hand-searched for further related articles and a search was made for more recent articles in which relevant articles were cited. No specific cut-off dates were used in the literature review as some of the earlier studies in online education were considered useful in describing technological developments and articles related to educational theories remain relevant many years after publication. A table of the pertinent aspects of previous studies included in this review is included at Appendix 1.

Theories of communication in online learning

Distance or online learning uses different communication methods to face-to-face learning, therefore the experience for the participant will be altered. This part of the literature review explores theories of communication and learning related to the separation of educator and learner, and attempts to identify the essential elements of communication which need to be present for effective learning to take place. It then considers how the
communication within the two learning environments, face-to-face and video conferencing, can be analysed in order to make comparisons between the interactions occurring in each.

Some researchers have concluded that it is the quality of the teaching, rather than the selection of technology, that is associated with increased satisfaction in distance learning. Good pedagogy should not be affected by distance or technology provided the technology enables two-way interaction and communication.

**Transactional distance**

Moore’s theory of “transactional distance” describes the psychological distance created when the educator and learner are separated by space and/or time. This creates a psychological and communications “gap” in which misunderstandings may occur. In asynchronous learning environments the separation includes both space and time but in synchronous systems such as video conferencing the learners and educator are only separated by space.

Transactional distance is made up of “dialogue” and “structure”. Dialogue relates to the interactions between the teacher and learner; structure is the rigidity or flexibility of the learning program and hence its ability to respond to an individual learner’s needs. The theory of transactional distance states that less rigid structures and increased learner autonomy decrease transactional distance. Learner autonomy, or the learner’s sense of self-direction or self-determination is contingent upon both the dialogue and structure of a course of learning and is also a major feature of adult learning.

According to Moore’s theory, in order to reduce transactional distance as much as possible when conducting distance learning or distance teaching, there needs to be a high degree of interaction between the educator and learners and the structure should be flexible and responsive to learner needs. The theory suggests that, if the use of video conferencing reduces the level of interaction between the teacher and learners, this could be offset by a more flexible structure, otherwise misunderstandings may occur.

**Social presence and immediacy**

Social presence refers to the ability to replicate the characteristics of face-to-face interaction in an online environment. A video-conferenced teaching environment cannot be as socially present as a physical classroom yet is more socially present than a text based online “chat” or asynchronous modes of learning. Immediacy behaviours are the
behaviours which convey social presence. These include verbal behaviours such as encouraging, praising and self-disclosure, and non-verbal behaviours such as smiling, gesturing and body movements.

Gorham (1988) developed scales to assess immediacy behaviours in the classroom based on classes of undergraduate college students enrolled in basic, unassessed, non-mandatory communication courses. Gorham’s cohort of students is similar to that being studied in this project i.e. the students are adult learners taking part in a voluntary educational program which does not include any form of examination. By including only those items of the scales which are relevant to both face-to-face and video conference teaching in short workshops, these scales have the potential to form a basis for analysis of the interactions between participants and educator in this study.

Hackman and Walker (1990) used Gorham’s scales in a study of teaching in a televised classroom. They demonstrated a correlation between teacher immediacy behaviour and students’ perceived learning (self-report) and satisfaction.

Community of inquiry model
Garrison et al.’s (2000) model of “community of inquiry” (CoI) was developed to analyse interactions in text-based computer “conferencing” and was based on theories and concepts of learning in higher education. The model describes the components required for a “worthwhile educational experience” which are not explicitly related to learning outcomes. The three elements of the model are social presence, cognitive presence and teaching presence. Each of these three elements can be further broken down into three or four categories. Although originally developed for text-based computer learning, the community of inquiry model has been widely used since its inception to analyse interactions in various online teaching environments including video conferencing and blended learning.

Interactions related to discussion and debate
An observational instrument containing 326 items loosely based on Gorham’s and Garrison et al.’s theories was created by Schullo (2005) in order to analyse pedagogical strategies in synchronous online learning environments. The instrument has subsequently been used in a variety of studies of the interactions in synchronous online learning. Schullo’s tool as a whole is very complex and many sections require observers to subjectively analyse the quality of interactions. However, one section which describes directly observable
interactions related to discussion and debate occurring between the educator and the learners can be administered objectively. In Schullo’s research the tool was only used to record which of the types of interactions took place but did not record the time or frequency. Use of this subsection of Schullo’s tool has the ability to add a further dimension to the data analysis framework for this study.

Summary of theories of communication in online learning
Gorham’s scales for assessing social presence and immediacy behaviours, Garrison et al.’s community of inquiry model and Schullo’s checklist of interactions related to discussion and debate can be combined to create a multi-dimensional framework for analysing the interactions which take place in synchronous learning environments. This combination has the potential to provide a multi-faceted, evidence-based analysis and comparison of various types of interactions occurring in both the face-to-face and video conference workshops. Such an analysis can also demonstrate the dialogue and structure of the two workshops, thereby facilitating evaluation in relation to Moore’s theory of transactional distance.

Technology and terminology for online learning
This section of the literature review considers the evidence for different types of teaching and technology for distance learners taking into account the type of training to be undertaken and the features of the participants. It also discusses the evolving terminology used to describe the teaching formats and technological systems.

Synchronous and asynchronous learning environments
Distance or online learning can be either synchronous or asynchronous. A synchronous learning environment involves simultaneous interaction between participants such as video conferencing or teleconferencing, but the term is also used by some for online chat and instant messaging where there is a flow of text-based communications between the participants. An asynchronous learning environment is one where there is either no communication or interaction between the educator and learners or where the communication is separated by time. Examples of asynchronous learning include online learning modules which are prepared by an educator and made available to learners who participate at a time of their choosing, or use of technologies such as email, discussion boards and blogs. There appears to be a grey area between synchronous and asynchronous learning environments with online text-based chat and message forums
being assigned to either category often according to the length of time over which
discussions take place i.e. hours or days.\textsuperscript{30,37,38}

The American Library Association identifies five basic modes of teaching delivery: face-to-
face; web-based synchronous; web-based asynchronous; webcasts; and blended.\textsuperscript{39} Face-to-
face instruction occurs where the educator and learners are physically located in the same
room. Web-based or online synchronous teaching occurs where the educator and learners
are in separate locations and the distance learners receive instruction content
simultaneously with real-time instruction from, and interaction with, the educator such as
video conferencing.\textsuperscript{39} However, as stated earlier, the term “online synchronous” has also
been used to refer to online “chat” where the communication is purely text-based but
where the educator and learners are present on the internet at a prescribed time to hold
discussions via typed questions and answers.\textsuperscript{25,37} Web-based asynchronous learning may
consist of pre-recorded video instruction or online learning modules which the learner can
interact with at a time of their choosing and the term is also used to describe email or
message forums where the participants communicate in their own time. Webcasts or
webinars generally involve unidirectional audio and video from the educator to the
learners at a specific time, with learners being able to communicate, usually via typed
questions, at the end of a session. Blended learning uses a combination of different
methods throughout a course, for example, some face-to-face learning and some online.

Terminology

As technology has evolved, so has the terminology associated with it. Much published
research fails to explicitly define the systems under review, so it is often not possible to
specifically identify the technologies being studied and their relevance to this area of
research. The terms “e-learning”, “technology-assisted education”, “online training” or
“online learning” have all been detected in the literature without clarification of the type of
technology involved.\textsuperscript{32,40-42} Similarly many journal articles refer to “synchronous online”
learning without establishing whether the users are interacting via video, audio and/or
text.\textsuperscript{35} Clarification of both the technologies and the teaching methods being used is
essential if published research is to have value into the future.

Developments in video conferencing

Until recently (2010s onward) video conferencing required expensive infrastructure
restricting its use to large businesses and organisations which were able to fund and
maintain systems at various sites.\textsuperscript{22} A description of a video conferencing system used in
1997 used a “fully equipped television studio” and a link to a NASA satellite, the instructor had to type in computer commands to display text and graphics and the students used “telewriting” to answer questions.43

Many earlier video conferencing systems either did not allow two-way audio-visual feedback or they limited real-time communication to one speaker at a time with considerable time delays thereby curbing natural discussion and conversation. In other systems communication by the learners was limited to the use of text messaging.44 These issues have been overcome through the development of more sophisticated technology and some systems now facilitate an “open microphone mode” where several participants can speak at once as in a face-to-face classroom.45

As technology has developed and more interaction methods have become available in video conferencing systems, there is the danger of overwhelming participants who may be watching a presentation, reading PowerPoint slides, and attempting to read and reply to text messages at the same time. This can be over-stimulating and stressful for learners and result in cognitive overload.34,45,46 Most systems provide options to deactivate specific interaction modes at any time.

Recent developments in everyday computing hardware and software is now enabling user-friendly multi-way audio and video thereby creating real-time, multi-channel interactivity at a much lower cost than the original video conferencing systems as it is accessible via desktop computers, laptops, tablets or mobile phones. A number of web-based video conferencing systems are available which may or may not have been designed for the purpose of delivering education, for example Skype®, GoToMeeting®, Adobe Connect and Webex™ Training Centre®.

**Studies of video conferencing and online learning**

There has been much research published on the use of video conferencing and other synchronous and asynchronous technologies for teaching purposes (see Appendix 1). This section of the literature considers the lessons learnt from previous studies.

**Familiarisation with technology over time**

Much of the previous published research has related to undergraduate or postgraduate teaching of assessed curricula which are undertaken over a period of time. The regular use of technology over a substantial time period (usually a full semester or longer) allows both learners and educators to become familiar with the requirements and processes and to
overcome camera-shyness. This cannot occur in a single, one-off workshop as was required for this study. However, many health professionals in rural and remote locations across Australia regularly use video conferencing for service delivery, training, supervision and communication purposes so, although they may not be familiar with specific software, many will be accustomed to the general principles involved and the experience of appearing on screen.

Prevalence of studies into video conferenced education

A meta-analysis of internet-based learning in the health professions published in 2008 considered 201 studies, however only 20 of these used synchronous rather than asynchronous online learning, and only eight included video technology rather than relying on text-based or audio only interactions. The only study in this meta-analysis which directly compared face-to-face and synchronous online teaching via video was that by Markova et al. which used a webinar format rather than video conferencing. The PowerPoint slides from a face-to-face lecture were simultaneously transmitted to a single distance learning site via the internet with audio content being relayed separately via a telephone line. The remote learners observed the lecture on a screen and then took part in a scheduled question and answer session. The use of a telephone line to transmit audio between the two sites and a staff member at both sites to coordinate meant that the interactions occurred smoothly. There was no statistical difference between the learning which occurred at either site, as measured by pre- and post-tests of knowledge, however the learners stated a preference for face-to-face delivery.

As can be seen from Appendix 1, there is a paucity of high quality studies of video conferenced education for the continued professional development of health professionals.

Technological issues

The inclusion of new technologies in education has not been without challenge or difficulty. Many studies of video conferencing for education purposes have identified issues with interacting using this technology due to the inability to read body-language and other non-verbal signals and the requirement to keep microphones switched off until the moment of speaking to avoid picking up background noise. Additionally, studies have highlighted
the increased levels of concentration and focus required for training via video conferencing and the requirement for frequent breaks or shorter lesson times.\textsuperscript{17,45,55,60}

Despite advances in technology, technical problems have been a regular feature of training via video conferencing even in very recent studies.\textsuperscript{15,44,49,50-57} However, good reliable technology on its own will not create a meaningful learning experience and many studies have reported that technological problems have not impeded student learning.\textsuperscript{15,55,61}

**Effects of video conferencing on communication**

The presence of live video images of presenters and participants does not create a true replication of the non-verbal communication which takes place in face-to-face encounters. Body language, gestures, facial expressions, eye contact, tone of voice, pacing and pausing assist in making meaning in everyday communications.\textsuperscript{62} The quality, size and head-and-shoulders-only video content of presenters in video conferencing systems reduces its impact and participants in previous studies have reported finding the audio content far more valuable than the video.\textsuperscript{59,63} Falloon’s study which explored the use of a synchronous virtual classroom in an online postgraduate teacher education program, reported that six students out of 30 found the video particularly beneficial whereas seven of the 30 students found the audio to be more important than the video.\textsuperscript{59}

Where two-way video is enabled, this can lead to communication interpretation errors as a presenter may look directly at an individual’s image on the display screen when asking or responding to a question, but, depending on the position and direction of the camera, it appears that they are looking away rather than seeking to establish eye contact.\textsuperscript{45} One student in Falloon’s study stated that some presenters “appeared to be more concerned with reading from their script than addressing their audience”.\textsuperscript{59} This may have been a misinterpretation of the presenters’ body language as their eyes would have been focusing at a point on the screen below the level of the camera and thus giving the effect of looking down and avoiding eye contact.

It has been shown that where communication is filtered and features are lost or diminished, this will reduce the sense of immediacy, the psychological feeling of closeness and the students’ satisfaction with distance learning.\textsuperscript{15} There is a concern therefore in using this technology that non-verbal communication can be either reduced or misinterpreted.
Health professional education and the teaching of cognition

The practice and education of the health professions generally requires a complex blend of applied knowledge, expert skills in decision making, clinical problem solving, critical thinking and clinical reasoning as well as some hands-on practical skills. Teaching strategies which promote communication, collaboration and coaching during the learning experience have been shown to help develop good thinking in clinical practice.\textsuperscript{15,61}

Selection of teaching methods and technology

Different teaching methods and technologies may be more suited to the teaching of different types of skills.\textsuperscript{36} For example, instructional videos may be the best method for teaching physical assessment skills but video conferencing may be a more effective distance teaching method for communication based skills such as counselling, goal setting, crisis management, interdisciplinary teamwork and transcultural issues.\textsuperscript{64} Health-related distance education programs also need to include opportunities for group activities and hands-on practice to consolidate the theoretical learning.\textsuperscript{64} The skills being taught in the HDS-R workshop are more akin to communication based skills therefore the use of video conferencing, together with hands-on experiences and group discussions, should create a program suitable for distance learners of the HDS-R.

Taylor’s study into the potential use of video conferencing to support health professional students on clinical placements found that students were uncomfortable using video conferencing for emotionally charged conversations.\textsuperscript{63} Concerns raised by the students included: lack of privacy i.e. not knowing if anybody else was listening in at the remote site; inability to use and read body language, particularly eye contact and gaze; and self-consciousness at seeing their own image on the screen. The study suggests that learners may be less willing to share personal or emotional information via video conferencing. Although personal and emotional disclosures sometimes occur in HDS-R workshops they are not a required element of the training and therefore these findings are unlikely to impact on the outcomes.

Issues related to the teaching of cognition

This study aims to examine the delivery of training of a specialised form of cognitive assessment to qualified, practicing health professionals as an element of continuing professional development. Cognition is a particularly difficult topic to teach as it requires an understanding of abstract concepts which can be difficult to define and rely on the use of complex language to describe. The concepts cannot be reduced to images, diagrams or
measurements and there are often significant misunderstandings of the terms used.\textsuperscript{6,65} When teaching health professionals to perform assessments it is important to ensure that the training covers both the underpinning conceptual knowledge and the practical skills required to administer the assessment.\textsuperscript{53}

The assessment of cognition is carried out through the observation of an individual’s reactions to a range of verbal, visual or other sensory prompts. The HDS-R is a complex, free-form assessment which requires a deep understanding of the process of dementia on cognitive abilities. The assessor needs to continually adapt the selection of test items, the presentation method and the language used depending on the performance of the client. Unlike the commonly used standardised and scripted cognitive assessments such as MMSE, MoCA and PAS-CIS, successful use of the HDS-R requires a high degree of adaptability and careful selection of the available test items in order to reduce stress and maintain client engagement whilst determining the person’s highest level of ability in each of the twenty cognitive subscales.\textsuperscript{10}

The amount of training and level of understanding of cognition varies amongst different health professions and there are also geographical differences. In the United States the professions most likely to carry out cognitive assessments are psychologists, neuropsychologists and speech-language pathologists, whereas in the UK and Western Australia cognitive assessments are more frequently carried out by occupational therapists.\textsuperscript{9} In New South Wales hospital cognitive screening is normally carried out by nurses or medical officers. Nurse education rarely includes training in the use and administration of cognitive assessments, yet the World Federation of Occupational Therapists includes knowledge and skills in cognition and cognitive assessment in the minimum standards for the education of occupational therapists.\textsuperscript{66-68}

Lande and Wanless’ study into the use of terminology between different health professions working with patients experiencing traumatic brain injury, found that there were significant differences between the use of the terms mild, moderate and severe to describe levels of cognitive impairment and that health professionals had poor understanding of different types of memory i.e. long term, short term, remote, recent, immediate and working memory.\textsuperscript{9} Another study revealed that rehabilitation therapists were unable to discriminate between the general concepts of attention and memory.\textsuperscript{65} Successful training in the administration and use of cognitive assessments needs to overcome any previously acquired misunderstandings and resolve inaccuracies in the use of terminology. According
to Koder and Klahr, successful education in the assessment of cognition requires both formal teaching and observational, experiential training. In order for training workshops for the HDS-R to be successful it appears to be important for the educator to regularly check for understanding especially between participants from different professions and provide opportunities for reflection, collaboration and problem-solving. The literature indicates that interactive communication is essential for this type of learning and that social presence and immediacy behaviours need to be maximised in whichever learning medium is used.

**Selection of outcome measures**

This section of the literature review considers how the success, or otherwise, of the teaching can be measured. Appropriate outcome measures are required in order that the achievements of the two workshops can be compared.

**Student assessment**

The formal assessment of students completing a course of learning provides a source of empirical data which has routinely been used to determine the effectiveness of the education. However, the sole use of grades as an outcome measure has come under question due to the confounding factors of student attendance, oral and written communication skills and self-direction. Well-motivated students will supplement classroom learning with self-directed study to compensate for inadequate teaching or delivery methods which do not suit their learning styles. This has been borne out by the large number of studies comparing different teaching methods which report no difference in learning outcomes.

Vollmar et al’s study compared online asynchronous delivery with face-to-face delivery and found no statistical difference in learning outcomes between the two groups. The study included a question in its feedback survey asking whether the learners had actually used the online learning modules. 37 of the 84 members of the online group (44%) admitted that they had not accessed the online learning materials. Further analysis of the data identified a significant difference in knowledge gain between those who had and had not accessed the online materials. Those who used the online learning materials performed significantly better on the knowledge assessment than those in the face-to-face group who underwent direct teaching (improvements of 4.77 questions versus 3.6 questions out of 20).
Jedlicka et al.’s 2002 study of distance education for occupational therapy students compared synchronous video conferencing with synchronous online chat and self-directed learning for mental health studies by using quantitative assessment data and qualitative feedback from the participants.\textsuperscript{60} The assessment data showed no significant difference between the three teaching methods on student performance in multiple choice examinations. Feedback from the students showed that the majority (77\%) valued the synchronous video conferencing over the other two methods due to the increased interaction, opportunity for immediate feedback and the face-to-face nature of the interactions.

**Alternatives to formal assessment of learning**

The training workshop used in the current study does not include an assessment of students’ learning. The aim was to study the existing workshop format and the inclusion of an assessment of learning would have been a significant change, therefore this could not be used as an outcome measure. Hackman & Walker (1990) suggested that studying student perceptions and satisfaction is preferable to studying assessment scores as it is only the students who are able to decide whether the distance learning medium employed is acceptable.\textsuperscript{2626}

**Knowledge translation**

Knowledge translation (KT) is the process of moving knowledge into action or the incorporation of evidence-based practice information into the practices of health professionals.\textsuperscript{71,72} More explicitly it is “a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of [the population], provide more effective health services and products and strengthen the health care system”.\textsuperscript{73}

The process of knowledge translation was studied by Pathman et al. who described a linear process which progresses from pre-awareness to awareness then on to agreement, adoption and finally adherence.\textsuperscript{74} Their study of the use of paediatric vaccines by family physicians demonstrated that individuals move through these stages in a stepwise progression but may not always continue onto the next step. They also showed that there are exceptions to the model with some individuals adopting an intervention without agreeing to it.
Estabrooks developed a model of knowledge translation which suggested three distinct types of knowledge utilisation i.e. conceptual; instrumental; and persuasive. Conceptual utilisation is where there is a change in thinking, but not necessarily a change in behaviour. Instrumental utilisation is the concrete application of knowledge or research. Persuasive or symbolic utilisation is where the knowledge is used as a persuasive or political tool. A fourth category of overall knowledge translation was later added to the model.

KT was explicitly used as an outcome measure in only one of the studies of training via video conferencing identified in the literature: Allen et al.’s study of continuing medical education for physicians. KT was measured via participant questionnaires. Three months after the intervention participants were sent a list of intended practice changes which had been reported on post-intervention evaluation questionnaires and asked to indicate which of those they had implemented. Although each of the nine items were identified as intended practice changes by only one or two participants, at the three-month follow-up between five and nine out of eleven participants claimed to have made each of the changes.

The limited use of KT as an outcome measure in these studies of teaching via video conference may be due to the majority being conducted with undergraduate students who are learning about their area of practice for the first time rather than being in a position to elicit change in the workplace. The assessment of knowledge translation requires a time period between training and assessment during which changes in practice can occur. This substantially lengthens the data collection timescale and may have been a limiting factor for some studies.

Fordis et al.’s study which compared online asynchronous learning with face-to-face workshops for continuing medical education for physicians, used KT as an outcome measure. The study does not use the term knowledge translation but refers to “behaviour change”. Patient records from before and after the intervention were scrutinised to identify changes in patient screening and treatment. This was only done for a subset (approximately 38%) of each participant group. For each study participant 25 patients meeting the inclusion criteria were selected before and after the training and their records were checked against the guidelines. This would have required a substantial investment in time both in the initial scrutiny of the records and checking for inter-rater reliability. The study also analysed gains in knowledge by assessing the participants at pre-intervention, immediate post-intervention and 12 weeks later.
Knowledge translation has been regularly used as an outcome measure in studies related to general training in dementia and other areas related to health and medicine.\textsuperscript{72,78-82} A literature review of studies of knowledge translation in dementia education identified 22 articles, none of which used video conferencing as an education medium although some reported on the use of blended or multi-modal delivery methods including asynchronous online technology and a webcast.\textsuperscript{82} Vollmar et al.’s study of dementia education in Germany which compares online education with face-to-face presentation is included in that review.\textsuperscript{70} The published article uses the term knowledge transfer in its title yet only reports on knowledge acquisition through a knowledge assessment carried out prior to, immediately after and six months after the training. The original study design included obtaining information on GP practice changes via scrutiny of patient notes and conducting post-intervention qualitative interviews with a subset of participating GPs.\textsuperscript{83} However these appear to have been omitted from the final study resulting in a study which only has knowledge translation as an implied secondary outcome without any evidence.

Knowledge translation is the ultimate aim of training provided by Dementia Training Study Centre and an evidence-based knowledge translation survey is routinely sent to participants after attending courses. It is logical and feasible to use KT as an outcome measure in this study and to use the DTSC’s standard survey.\textsuperscript{79}

This section of the literature review confirms that it is appropriate to use learner perceptions as one of the outcome measures for this study rather than rely on assessment data. Quantitative indicators of knowledge translation are also required to measure the relative effectiveness of the two training delivery methods and hence answer the research question.

**Selection of methodology**

This section considers the potential methodologies which could be used to investigate the use of video conferencing for the HDS-R workshop. It looks at some of the strengths and weaknesses of previous studies in order to justify the selected methodology for this study.

**Methodological options**

Methodologies for studying the use of video conferencing in education have varied from purely quantitative studies to purely qualitative studies with many using mixed methodology (see Appendix 1). A mixed methodology enables analysis of a range of factors including both the measured effectiveness and the perceived acceptability of a teaching
method. Some studies are single case studies where only one teaching event or course is investigated, others explore two or more similar events using a collective case study approach and others set out to directly compare different approaches i.e. the comparative case study approach.

Critique of methodologies used in previous studies

Schullo’s study used a mixed methodology, multiple (5) comparative case study approach to examine pedagogical strategies and the use of tools in synchronous web-based systems in university graduate courses. The courses included nursing, education, engineering (x2) and library and information science. Each case had a different instructor with differing levels of experience with the technology and different approaches to the preparation for and use of the web-based system. Comparisons were made between the cases but due to the immense volumes of data generated and the number of variables it is difficult to draw any generalisable conclusions. There is no comparison of the web-based systems to “traditional” teaching methods apart from some qualitative feedback from students and instructors.

Kear et al.’s study which attempted to compare face-to-face tutorials with video conference tutorials held by the UK Open University only studied the qualitative perceptions of the participants obtained via online forums, online focus groups and participant surveys. Audio visual recordings of the video conference tutorials were reviewed by the researchers but were not analysed systematically or quantitatively. When carrying out case study research it is important to use multiple, varied sources of data in order to create converging evidence (triangulation) which will substantiate claims. In this study all the evidence related to qualitative perceptions. Although these perceptions were from various sources: the students; the tutors; and the researchers, the sources were too similar to enable triangulation of the evidence. Comparisons were made with face-to-face tutorials generally rather than making direct controlled comparisons between the video conference tutorials being studied and specific equivalent tutorials delivered face-to-face. Participants perceived that learner-educator and learner-learner interactions were less frequent than in face-to-face environments, but as the study did not include any comparative evidence this cannot be quantified or substantiated.

Comparative case studies

When conducting a comparative study, it is important that there are not too many differences between the cases as this can make it difficult to draw generalisable
conclusions. This was seen in Schullo’s study which used five different cases where different subjects were taught to different students by different educators.

In Fordis et al.’s study, as a follow-up to the initial training, participants of the face-to-face workshops had access to faculty to answer queries via telephone and email which was only used by 4% of participants. The online participants were able to receive follow-up via email or scheduled synchronous web conferences which 85% attended. By using different follow-up learning/reinforcement options for the two groups it is not clear whether the acceptability of the type of follow-up caused the different take-up levels or whether this was a factor of the online participants’ desire for further information/clarification.

Summary of review of methodologies
In order to make progress in the area of education delivery, it is important to compare new methods with those that are being used currently to ensure that any new developments are either improving or maintaining outcomes whilst reducing costs and/or increasing availability. Although a single or collective case study can provide much information about a method of education delivery, a comparative study which includes both the current and new forms of delivery is required to demonstrate whether quality is being maintained as new methods are introduced.

Summary
Synchronous online education using video conference technology has been shown to be more effective and more acceptable to participants than asynchronous online education and more suitable for the type of training being delivered in this study. When compared to face-to-face training, video conferencing can be more convenient for distance learners as it reduces travel requirements and hence monetary and time costs. The teaching of cognitive assessment normally requires a high level of interaction between participants and educators therefore there needs to be a focus on reducing transactional distance and optimising social presence. Video conferencing technology is constantly evolving and improving but there is not yet any evidence that it can facilitate the same level of interactions and immediacy as the face-to-face learning environment.

The use of qualitative participant feedback and evidence-based measures of knowledge translation are suitable outcome measures to analyse the acceptability and effectiveness of workshops where there is no formal assessment of learning. The workshops can be analysed qualitatively using the community of inquiry model, analysis of immediacy
behaviours and interaction related to discussion and debate. Moore’s theory of transactional distance can be used to reflect on the outcomes in relation to the structure and dialogue of the workshops.

The following chapter will demonstrate the application of the pre-existing research literature to create an evidence-based method and methodology for this study.
Chapter 3 – Methodology and Methods

This chapter describes the selection of methodology used for the research, the approaches taken and the methods used to gather and analyse the data. It then goes on to describe the processes undertaken at each stage of designing and carrying out the study.

Comparative case study methodology

The purpose of this research study is to explore how the use of video conferencing to train health professionals in the use of the Hierarchic Dementia Scale-Revised affects knowledge translation outcomes. The methodology selected is comparative case study as this has the ability to consider a wide range of features of the two workshops rather than focusing on a narrow perspective which may miss salient information or evidence. Case study research involves the study of a particular case, or cases, where the case is complex and bounded, studied in its context and analysed holistically. Case study research has frequently been used in the fields of both education and health which combine to create the setting for this study and it has been used effectively to evaluate continuing professional development for health professionals, the study of which requires an appreciation of the large assortment of influencing factors.

One of the defining characteristics of case study research is the delimitation or bounding of the case(s) or object(s) of study. Here the cases are two separate workshops which took place on specific dates and each had a defined and limited group of participants. The cases are complex in that there is a variety of factors combining to influence the interactions within the workshops and the subsequent development of knowledge and practice in the participants’ workplaces. A holistic analysis of the cases requires a mixed methods approach to the collection, study and interpretation of data i.e. quantitative analysis of the proceedings of the workshops and the participants, combined with qualitative analysis of the thoughts, feelings and perceptions of those involved.

Structured, focused comparative case study enables the comparison of two or more cases by gathering standardised data from each, thereby making systematic comparison possible. A single case study may be instructive, but it doesn’t allow for comparison and identification of causal factors. George and Bennett recommend having a single investigator to plan and conduct the case studies in order to provide structure and focus which can be more difficult to achieve in collaborative research.
Controlled comparison is a form of comparative case study where the cases investigated differ in all but one aspect. In this study the variable factor is the method of delivery of the workshops. Studies comparing an educational intervention with no intervention are unable to discriminate between the effectiveness of the intervention being studied and outcomes achieved solely due to content exposure. This study could also be defined as quasi-experimental in that the one variable, the standard face-to-face workshop, has been manipulated i.e. adapted to a synchronous online environment (video conference), in order to measure the impact on knowledge translation outcomes. The data from the two workshops were compared in a cross-case analysis which is the process of identifying similarities and differences between the cases.

The study focused on face-to-face and synchronous online environments (video conferencing) only. The inclusion of a third case: online asynchronous environment, was considered but not included for two main reasons. Firstly, a high level of interaction and communication is thought to be required for the teaching of cognitive assessments which is not possible in an asynchronous environment. Secondly, this would have created a third case which was significantly different from the others and, although the outcomes of the cases could be compared, it would not be possible to compare the processes and interactions occurring during the training. The researcher has been unable to locate any previous research which compares face-to-face and video conference delivery of one-off, unassessed learning experiences for health professionals.

Processes for case study research

Various processes have been suggested for undertaking case study research. Stuart et al. suggest a five-step approach for use in operations management:

1. Define the research question
2. Develop the instruments
3. Gather the data
4. Analyse the data
5. Disseminate the findings

A more complex nine-step approach is suggested for use in nursing research by Rosenberg et al.:

1. Pose the research question
2. Identify underlying themes and underpinning theories (where appropriate)
3. Identify the case, its context and the phenomena of interest
4. Determine the specific case study approach
5. Identify the most suitable data collection methods
6. Select appropriate analysis strategies
7. Refine the analysed data through the analytical filter
8. Use matrices to reduce data into manageable chunks and conceptual groupings
9. Determine conclusions and develop a case description

The process taken for this study has expanded on Stuart et al.’s approach by including some of the more relevant steps in Rosenberg et al.’s approach:

1. Define the research question
2. Identify the cases and their phenomena of interest
3. Determine the case study approach
4. Identify and/or develop data collection tools
5. Gather the data
6. Analyse the data
7. Determine conclusions/findings

Although the process is presented here as a linear progression for the purpose of clarity, it must be acknowledged that at times it was reiterative and “messy”. For example, the research question was defined, refined and amended multiple times; in determining the conclusions the researcher was prompted to return to further analyse the data.

Step 1 - Define the research question

The main research question is:

- Does the method of delivery of training in cognitive assessment affect the knowledge translation outcomes?

The secondary research questions are:

- Do the interactions and behaviours differ between training which is delivered face-to-face and that which is delivered via video conferencing?
- Which factors have the greatest impact on the knowledge translation outcomes?
Step 2 - Identify the cases and their phenomena of interest

Two cases were selected: a face-to-face workshop and a video conference workshop. These are naturally bounded cases and therefore lend themselves easily to case study research. The phenomena of interest are included in the following set of questions. George and Bennett recommend that in comparative case study research, a set of standardised, general questions should be developed which can be asked of each case.  

- Who are the participants?
- During the workshop, what was the general pattern and the qualities of the interactions between the educator and participants?
- What components of social, cognitive and teaching presence, defined in Garrison et al.’s (2000) model of community of inquiry as being necessary for a worthwhile educational experience were present?
- What immediacy behaviours i.e. behaviours that convey social presence were present?
- What other directly observable strategies related to discussion and debate were present?
- What benefits did the participants feel they had gained directly after the workshop?
- What changes did the participants make in their practice during the three months after the workshop?

Step 3 - Determine the case study approach

The overall approach being used for this study is positivist i.e. it is based on what can be empirically observed and measured. It assumes that there will be a relationship between the participants’ experiences during the workshop and their subsequent use of the knowledge in their workplaces. It uses a mixed methods approach to collection and analysis of the data, leaning more towards quantitative methods. Qualitative data is used to assist in interpreting and explaining the results obtained from the quantitative data, rather than as an end in itself.

Surveys are used to collect the data required to answer the questions:

- Who are the participants?
- What benefits did the participants feel they had gained directly after the workshop?
• What changes did the participants make in their practice during the three months after the workshop?

Short, structured interviews are used to elaborate on the first two questions including motivations for attending and expectations.

A matrix of observed interactions is used to answer the questions:

• During the workshop, what were the general qualities of the interactions between the educator and participants?
• What components of social, cognitive and teaching presence, defined in Garrison et al.’s (2000) model of community of inquiry as being necessary for a worthwhile educational experience, were present?²⁵
• What immediacy behaviours, i.e. behaviours that convey social presence, were present?²⁷
• What other directly observable pedagogical strategies were present?³³

Step 4 - Identify and/or develop data collection tools

Surveys

Intermethod and intramethod mixing were used to gain a variety of qualitative and quantitative data relating to the participants’ perspectives of the workshops.³⁹ Intermethod mixing is the use of two or more methods of data collection, i.e. surveys and interviews; intramethod mixing is the use of both quantitative and qualitative data within a data collection method i.e. having closed and open questions on the surveys.

Due to the limitations imposed by the host organisation (Dementia Training Study Centre) some of the data collection tools were pre-determined. The post-workshop feedback survey is a questionnaire containing both closed and open-ended questions to gather quantitative and qualitative data regarding the participants’ perceptions of the learning experience and their confidence in being able to use the learning in their workplace immediately following delivery of the training.³⁹ It includes a set range of questions which were a mandatory requirement for all educational courses run by the Dementia Training Study Centre and fed into their federal reporting structure. This feedback survey had previously been expanded specifically for the HDS-R workshops to provide further evaluation. These additional questions related to the participants’ prior knowledge of the assessment and their confidence and expectations of putting their new learning into practice. This survey tool has not been formally tested for validity and reliability but has
been found to have acceptable face validity through repeated use, feedback and development by dementia education teams within DTSC.

The requirements of the DTSC for ongoing evaluation of workshops meant that the existing questions could not be changed. Previous experience showed that most participants fully complete the existing survey therefore no further questions were added for fear of overwhelming the participants and returning incomplete data. The feedback survey is shown at Appendix 5.

Similarly the Dementia Training Study Centre had recently developed an evidence-based knowledge translation survey which was designed to be used three to six months after each educational course or event run by the organisation. Knowledge translation is the synthesis, dissemination, exchange and application of knowledge to improve health, provide more effective health services and strengthen the health care system. The knowledge translation survey had been formally piloted in previous studies with similar Australian health professional participants. It was designed to identify both the degree to which participants had used the knowledge from the training themselves and any peer-to-peer training they had completed. The researcher was encouraged to use this tool so that the data collected could also feed into the federal reporting system. The only allowable changes were to refer directly to the topic of the workshop, the type of workshop and the date(s). The knowledge translation survey was created as an online tool and is shown at Appendix 7.

Interviews

To provide further data which could not be gathered from the surveys, short structured interview questions were developed. The standardised interviews facilitated the collection of further qualitative data in a structured and time-efficient manner. These interviews were designed to take no more than 10 minutes to conduct and consisted of mainly closed questions which, if circumstances had allowed, could have been added to the post-workshop feedback survey. The interview questions are included at Appendix 6.

Workshop Analysis Matrix

A matrix was created to facilitate analysis of the interactions which occurred during the workshops using structured quantitative observation. This was done using a Microsoft Excel® spreadsheet. The matrix enabled the researcher to dissect recordings of the
workshops into separate unidirectional interactions noting the start and end times of each
in order to calculate the length of each segment.

The first section of the matrix contained columns for recording the originator and receiver
of each interaction i.e. educator or student(s) or general audience; the type of interaction
i.e. question, answer, provision of information; and the general subject matter i.e. course
content, course structure, technology, etc.

The remainder of the matrix was then divided into three sections: the first to record
elements of cognitive, social and teaching presence using Garrison et al.’s community of
inquiry model (2000); the second to record verbal and non-verbal immediacy behaviours
based on research by Gorham (1988); and the third section to record directly observable
pedagogical strategies suggested by Schullo (2005). This enabled the workshops to be
analysed from different perspectives and provided a quantitative observational description
of each workshop. A sample of the completed matrix is shown at Appendix 3.

Sampling

Purposive sampling was used as workshop participants needed to be qualified health
professionals working with people with dementia. Potential participants from the WA
Dementia Training Study Centre database were emailed with a flyer and invited to take part
(see Appendix 4). Due to the high uptake of places at previous workshops, only a subset of
the database of more than 3,000 names was used with priority being given to those who
had unsuccessfully applied to attend workshops in the past. For the video conference
workshop distribution of flyers was limited to health professionals working outside the
Perth metropolitan region. Allocation of places was controlled by an administrator working
for the WA Dementia Training Study Centre. Due to oversubscription of the face-to-face
workshop, the administrator followed the normal protocol of excluding multiple
registrations from individual organisations. All successful registrations were followed up by
phone or email to ensure intention to attend.

Attendance limits of 20 participants for the face-to-face workshop and 10 participants for
the video conference workshop were set. As the study would be evaluating two entire
workshops it was necessary for all participants at both workshops to be involved in the
research. Ethics approval was gained from The University of Western Australia, approval
reference RA/4/1/7923 with reciprocal approval from Curtin University, approval reference
HR09/2016. Consent to participate in the research was a prerequisite for attending the
workshops as consent was required for the video recording of the workshops. Health professionals wishing to attend but who did not consent to participate in the research were offered training at alternative times.

**Workshop formats**

The learning outcomes for both workshops were:

- Understand the underpinning theory of the Hierarchic Dementia Scale-Revised
- Demonstrate ability to assess people with dementia using the Hierarchic Dementia Scale-Revised
- Combine the results of the Hierarchic Dementia Scale-Revised with the Possibility Oriented Approach to provide person-centred interventions

The face-to-face workshop ran on one full day, whereas the video conference workshop was split into two half days which were presented two days apart. This was due to the increased stress/attention required for computer-based interaction and a preference for online learning to be spread over a greater number of short sessions. The general format of the workshops is shown in Table 1:

### Table 1 - Workshop format

<table>
<thead>
<tr>
<th>Morning / Day One</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Session One - Introduction and theory of HDS-R</td>
<td>1 hour 15 minutes</td>
</tr>
<tr>
<td>Session Two - Familiarisation with assessment tool</td>
<td>2 hours</td>
</tr>
<tr>
<td>Video showing HDS-R being completed</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Afternoon / Day Two</td>
<td></td>
</tr>
<tr>
<td>Session Three - Introduction to the Possibility Oriented Approach</td>
<td>1 hour</td>
</tr>
<tr>
<td>Session Four - Care planning activity</td>
<td>1 hour</td>
</tr>
<tr>
<td>Summary and questions</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

As the workshop format requires participants to interact with the components of the HDS-R assessment kit, kits were dispatched in advance to those participants of the video
conference workshop who did not already have access to one. Both workshops were hosted and funded by the Western Australia Dementia Training Study Centre at Curtin University as part of their routine provision of training and education for health professionals working with people with dementia. This included the cost of despatching and returning the HDS-R kits to the video conference participants.

The same educator (the researcher) presented both workshops thereby reducing variability in teaching styles and ensuring consistency of information between the workshops. The didactic elements of the workshop were equivalent in both cases with the same PowerPoint presentation being used. Issues surrounding the use of video conferencing from the literature review have informed a list of tips for presenting in video conferences which can be found at Appendix 2.

In the face-to-face workshop, familiarisation with the assessment tool was achieved with groups of four or five participants circulating around “stations” (tables) to examine the assessment materials and consider how to administer the assessment whilst the educator moved between the stations to answer questions or listen to feedback.

In the video conference workshop each site had an assessment kit and the educator explained each section then provided time for the participants to examine the materials and ask questions or make comments. There were between 1 and 3 participants at each video conference site.

In the face-to-face workshop a video showing the HDS-R being conducted was presented to the group at the end of the first session before breaking for lunch. The video conference participants were provided with online access to the video and they viewed this in their own time between day one and day two as it was anticipated that streaming of the video via the video conference software may have been problematic.

The selection of video conferencing software for this study was based on cost and availability with the requirement that the video conference workshop could be recorded and that non-essential options, such as private text messaging between learners, could be disabled. The selected software was Webex™ Training Centre from Cisco which was available free of charge to the Dementia Training Study through their host agreement with Curtin University and for which training and technological support was provided. Webex training centre provides audio and video plus a number of other features such as “chat”/text messaging and polling of participants. The video of the person speaking is
shown in a large window on screen whilst the video of up to six other locations is visible simultaneously. In addition, the presenter’s screen showing pictures, documents, videos or presentations can also be shared. The tips on presenting via video conference compiled from the literature and included at Appendix 2 were followed to ensure that the video conference workshop was of the highest quality possible.

Step 5 - Gather the data

Video recordings

Video-recordings were made of both workshops which could be coded after the event to identify the number, length, type and tone of the interactions using the matrix created based on earlier studies by Gorham, Garrison et al. and Schullo (see Appendix 3). The face-to-face workshop was video-recorded through the use of a static video camera and a “body cam” worn by the educator in order to create audio-visual records of both the educator and the participants within the educator’s visual field.

The Webex™ software was used to record the sound, vision and online text messaging from the video conference workshop. A static video camera directed towards the computer screen at the educator’s site was also used as a back-up and to record any additional activity which would not be picked up by the main recording.

Post-workshop feedback

Participants at the face-to-face workshop were given paper copies of the questionnaire to complete before leaving the workshop and these were returned to an administrator as they exited the venue. The responses from these hard copy questionnaires were entered onto a Microsoft Excel® spreadsheet by an administrator. Participants from the video conference workshop were emailed a link to an online survey using Qualtrics® online survey platform immediately after the end of the workshop. The questions were identical in both survey formats. A sample of the hard copy questionnaire is included in Appendix 5.

All participants were invited via email to complete telephone interviews following the workshops and the first two participants to volunteer via email from each workshop were selected. The interviews were conducted by telephone at a time to suit the interviewees, recorded and transcribed verbatim where clarity of the recording allowed. The interview questions are shown in Appendix 6.

At the end of the video conference workshop, the participants were asked if they had any additional questions. This instigated a short open discussion between the participants and
the educator similar to a focus group. Although this was spontaneous and unplanned the conversation revealed additional qualitative data regarding the participants’ perceptions. The conversation was transcribed and included with the survey and interview data discussed below.

Knowledge translation

A link to the online knowledge translation survey using Survey Monkey® was emailed to all participants approximately three months after each workshop to identify the impact of the training on the individuals’ workplace and their confidence and experience in administering the HDS-R (see Appendix 7). Follow-up emails were sent one month later to remind those who had not yet completed the questionnaire.

Analysis of the survey and interview data

Quantitative data from the post-workshop surveys and the knowledge translation surveys were analysed using Microsoft Excel®. Graphs were created to enable visual comparison of the data gathered from each workshop. Direct comparison of data from different cases is often used in case study research where the volume of quantitative data is insufficient for statistical methods of analysis.86,94

Qualitative data comprising open-ended questions from the surveys and interview recordings for the two workshops together with the discussion at the end of the video conference workshops was transcribed, segmented and manually coded. Cross-case comparison was used to identify trends in the participants’ perceptions of the experience during the workshops and their motivations for attending the training.

Workshop analysis matrix

Each workshop consisted of four sessions:

1. Theory and background of the HDS-R
2. Practical experience of conducting the HDS-R
3. Theory of the Possibility Oriented Approach and its use in care planning
4. Practical exercise in care planning.

Only sessions one and two were analysed as it was expected that there would be high degree of similarity between the interactions in sessions one and three and sessions two and four of each workshop. The same PowerPoint presentations were used in sessions one
and three for the face-to-face and video conference workshops. Sessions two and four did not rely on PowerPoint presentations.

In session two of the face-to-face workshop the participants were divided into five small groups: each group moved between five stations where they explored the assessment materials and instructions whilst the educator moved between the stations answering questions and providing guidance where required. Due to the amount of repetition as the five groups passed through the same five stations, only part of this session was analysed, equivalent to two groups passing through each of the five stations.

In session two of the video conference workshop each site had a full assessment kit and the educator talked the participants through each “subscale” of the assessment endeavouring to provide time for the participants to explore and discuss between themselves at sites where there was more than one participant and to ask questions of the educator. The Webex™ recording of this session of the video conference workshop was analysed in full.

Although there were two sources of video footage from each workshop, only one was used to analyse any segment of the workshop. For the face-to-face workshop the static camera was used for session one whilst the body cam footage was used for the majority of session two. Analysis of the video conference workshop relied entirely on the internal recording of the Webex™ software as the static camera had not captured images of the participants.

In order to complete the workshop analysis matrix, the start and end times of each interaction were identified. Each interaction was then analysed according to the separate sections of the matrix and indicators were inserted to indicate where each type of behaviour or interaction had occurred. An interaction was deemed to have ended when the speaker stopped talking or changed topic or when a different person started speaking.

Each interaction was initially classified according to the speaker and audience i.e. educator speaking to one particular student or the entire audience, a participant speaking directly to the educator or to other participants. The type of interaction was classified as provide information, definitive or general questions, definitive or suggested answers, correcting self or others, clarification or silence. For example, when the educator was teaching the course content this was classified as “provide information”. Open questions were classified as “general” whereas closed questions such as “What is the most common type of dementia?” were classified as “definitive”. The subject of the interaction was classified as course structure when discussing the operation of the workshops e.g. explaining the timetable or
organising participants into groups; course content described delivery of the learning materials and the classification of “technology” was used when explaining the operation of the software or troubleshooting software problems.

Classification of the indicators of cognitive, social and teaching presence was achieved by referring to Garrison et al.’s table which is reproduced in Table 2. Classification of the verbal and non-verbal immediacy behaviours required careful listening and observation. Having noted that there were few interactions which indicated the use of humour, praise or criticism, the recordings were replayed in full to listen for these specific features. For the classification of Schullo’s directly observable strategies it was often difficult to ascertain where “active listening” had occurred as this can be subtle and, in the video conference workshop, was limited to non-verbal communication.

On completion, the matrix was scrutinised for anomalies such as unusual patterns of data or one-off occurrences of types of interactions. The video recordings were then watched again in full and paused at random points to check consistency of the analysis. It must be noted that much of the classification required subjective decisions. A more robust analysis would have been achieved by having more than one person carrying out the analysis and checking for concurrence, however the resources available for this study did not provide for that level of scrutiny.

The resultant data from both workshops was analysed within Microsoft Excel® using pivot tables to identify the number and total amount of time of each type of interaction. These were recorded separately for session one and session two of each workshop. The data from the two workshops were then compared to identify similarities and differences between the face-to-face and video conference workshops.

**Summary**

The comprehensive analysis of various aspects of the two case studies enables multiple comparisons to be made between them. The results will be presented in Chapter 4. In Chapter 5 the results will be discussed to generate conclusions about the factors influencing knowledge translation and the potential for further distance education in this field.
Chapter 4 – Results

This chapter describes the data collected and compares the data across the two workshops. The data is presented chronologically i.e. it commences with a description of the participants at the commencement of the workshops then describes what happened during the workshops, presents the feedback from the participants immediately afterwards and again three months later.

Although a large volume of data was generated across the study, there was only a small amount of data in any single category. Neither complex statistical analysis nor qualitative data analysis software were used as the small volume of data in any set meant that this would not be meaningful or worthwhile. Quantitative data has therefore been analysed through the simple calculation of percentages and the observation of trends observed in graphical representations. Manual thematic analysis has been used to interpret the qualitative data.

The Workshops

The face-to-face workshop was conducted on 10th May 2016 and was video recorded using a static video camera at the back of the room directed towards the screen and educator at the front of the room. In addition, the educator wore a body cam fastened to her chest. The static camera recorded throughout the morning sessions. The battery on the body cam ran out during the first session in the morning but was replaced during the interval. The recordings from the static camera were used to analyse the first session and those from the body cam were used to analyse the second session therefore the lack of coverage from the bodycam during the first session did not affect the results.

The video conference workshop was conducted on the mornings of 4th and 6th April 2016. Major technical difficulties were experienced at the commencement of the first session on 4th April despite the set up being tested and checked thoroughly beforehand. The technical issues related mainly to the audio content. One potential participant was unable to transmit or receive any audio content and therefore decided to drop out and her data has not been included in the participant profiles given below. Another participant was unable to receive or transmit audio content but decided to continue. The issue was partly resolved midway through the first morning when she was then able to hear the audio from the educator and other participants but at no time was she able to transmit audio and therefore relied on the text message facility within the software to interact with the educator and other participants.
The first morning and part of the second morning of the video conference workshop were recorded via the Webex™ software. Additionally, a static camera was used at the educator’s location during the first morning, directed towards one of the two computer screens. Unfortunately, whilst resolving the technical difficulties the main input from the video conference software was switched to the other screen and therefore the video recording was not beneficial in analysing the interactions. The recording from the Webex™ software only showed the participant(s) who were speaking at any point in time. This was adequate for the pre-planned analysis of the interactions, but it did not allow for observation of the participants when they were not speaking.

The Participants

Nineteen participants attended the face-to-face workshop and ten attended the video conference workshop. The participants were largely allied health professionals and nurses. The face to face workshop was predominantly attended by allied health professionals whereas the majority of attendees at the video conference workshop were nurses. The feedback surveys did not provide a breakdown of the type of allied health professionals however at the commencement of the workshops the participants introduced themselves and it could be ascertained from the recordings that all the allied health professionals present at both workshops were occupational therapists, the undergraduate who attended the face-to-face workshop was a fourth year occupational therapy student and the remaining participant was a diversional therapist working in aged care.

![Figure 1 - Professions of workshop participants](image)

The work settings of the participants at the two workshops were similar with the majority being employed to work in residential aged care or across multiple care settings.
All the participants at the face-to-face workshop were based in the Perth metropolitan area. Nine (90%) of the video conference participants were based in regional towns in Western Australia (WA) whilst one individual (10%) was based in Brisbane, Queensland. There were two or three participants at each of the WA locations.

Prior to attending, the participants at the face-to-face workshop had significantly more knowledge or experience of the HDS/HDS-R assessment than those who attended the video conference workshop. Only two (20%) of the participants at the video conference workshop had previously seen the assessment, whereas eleven (58%) of those attending the face-to-face workshop were already familiar with using it.

Overall the two groups of participants were substantially different. Although they worked in broadly similar settings, the participants at the face-to-face workshop had more prior
experience of the HDS or HDS-R assessment. With the majority of participants at the face-to-face workshop being Occupational Therapists, they had more formal undergraduate training in conducting cognitive assessments than the nurses who made up a larger proportion of the video conference workshop.

**General analysis of the workshop interactions**

The matrix shown at Appendix 3 was used to analyse the interactions in the workshops. The video and Webex™ recordings were played, paused and rewound in order to identify the start and end point of each interaction. An interaction was a single, unidirectional segment of communication of a consistent type, content or tone. For example, when the educator switched from presenting information to asking a question of the audience, these were deemed to be two separate interactions.

**Session One**

Session one lasted for one hour, twenty minutes for the face-to-face workshop and fifty-seven minutes for the video conference workshop. There was a much higher degree of participation by the participants in the face-to-face workshop with participants speaking 17% of the time as opposed to 4.5% of the time in the video conference workshop. There were also more and longer periods of silence in the video conference workshop part of which can be accounted for by some participants using text to communicate which was then read out by the educator. In these small number of cases the participants’ contributions are attributed to the educator as she read them out.

Comparing the number of occasions when the participants spoke at each workshop, it can be seen that when participants from the video conference workshop spoke, they did so for a shorter period of time than those at the face-to-face workshop. The average length of an interaction by a participant in this first session was 6 seconds for the video conference workshop and 19 seconds in the face-to-face workshop.
In the video conference workshop, technology issues took up approximately 10% of the time in the first session whereas technology was not mentioned at all during the face-to-face workshop. More time was spent sharing personal experiences in the face-to-face workshop, however there were more occurrences of personal experience being shared in the video conference workshop, albeit shorter in duration (four occasions in the video conference workshop compared to two occasions in the face-to-face workshop). Excluding the technology issues, the interactions for session one of each workshop were related to course content and course structure in broadly equal proportions.
The interactions were also categorised by type: providing information; question; answer; or clarification. The types of interactions were broadly similar across the two workshops. The majority of the time was spent by the educator providing information. Questions were posed both by the educator and the participants and a small amount of time was spent by the educator clarifying information when there was a perception of misunderstanding.
Overall during session one, there was much less interaction by the participants and more episodes of silence in the video conference workshop than in the face-to-face workshop. A substantial amount of time at the video conference workshop was spent dealing with the technology and the course content was covered far more quickly due to the lack of input from the participants.

Session Two
In the second session of the workshops the participants explored the components of the assessment kit and learnt how to use it practically. They considered how they would use it
for particular clients in their care and estimated what score would be reached for a person with dementia who they knew well.

In the face-to-face workshop four tables were set up around the room, each holding components of the assessment kit together with the instructions for those sections. The participants worked in small groups, exploring and discussing the items on each table whilst the educator moved from table to table answering questions and providing additional information. The analysis of this section relates to the interactions at the table where the educator was at any point in time. Only part of this session was analysed, giving an equivalent length of time exploring the assessment kit as for the video conference workshop, ensuring that it included the educator discussing all twenty subscales with participants.

In the video conference workshop, the educator explained the components of the assessment section by section, encouraging the participants to look at the physical test items they had in front of them. Time was provided for the participants to investigate and discuss with their colleagues if they were working in a group. For the video conference workshop this session was analysed in full.

The periods of silence in the face to face workshop included the times the educator was moving between tables or not actively engaged with the participants although it was evident from the general noise levels that the participants were actively communicating between themselves. In the video conference workshop the periods of silence were when the educator was not speaking and none of the participants were talking via an open microphone, however feedback at the end of the workshop indicated that during these times, those participants at locations with two or more participants were engaged in discussions with their colleagues.
The content of the interactions during the second session of both workshops related almost entirely to the course content. The exceptions included: five seconds in the face-to-face workshop related to personal experiences; in the video conference workshop one minute and five seconds was spent explaining the course structure and one minute, 45 seconds related to technology issues. These data have been excluded from the graphs below.
The pattern of interactions for session two of the video conference workshop remains very similar to that for session one. In contrast, session two of the face-to-face workshop was more collaborative in style. The participants spoke almost the same number of times as the educator and more questions were asked by the participants. In many instances, more experienced participants were answering questions and providing information for other members of their group rather than relying on the educator even when she was present.
Indicators of cognitive, social and teaching presence

Garrison et al.’s community of inquiry model of computer conferencing is made up of three main elements which create the overall educational experience: cognitive presence; social presence and teaching presence. The elements are made up of a number of categories as shown in Table 2 below.

Table 2 - Indicators of cognitive, social and teaching presence

<table>
<thead>
<tr>
<th>Element</th>
<th>Categories</th>
<th>Indicators (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive presence</td>
<td>Triggering event</td>
<td>Sense of puzzlement</td>
</tr>
<tr>
<td></td>
<td>Exploration</td>
<td>Information exchange</td>
</tr>
<tr>
<td></td>
<td>Integration</td>
<td>Connecting ideas</td>
</tr>
<tr>
<td></td>
<td>Resolution</td>
<td>Applying new ideas</td>
</tr>
<tr>
<td>Social presence</td>
<td>Emotional expression</td>
<td>Emotions</td>
</tr>
<tr>
<td></td>
<td>Open communication</td>
<td>Risk-free expression</td>
</tr>
<tr>
<td></td>
<td>Group cohesion</td>
<td>Encouraging collaboration</td>
</tr>
<tr>
<td>Teaching presence</td>
<td>Instructional management</td>
<td>Defining and initiating discussion topics</td>
</tr>
<tr>
<td></td>
<td>Building understanding</td>
<td>Sharing personal meaning</td>
</tr>
<tr>
<td></td>
<td>Direct instruction</td>
<td>Focusing discussion</td>
</tr>
</tbody>
</table>

Every interaction was classified into one or more of these categories. Almost 100% of interactions in both workshops were classified as “open communication”.

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**Figure 14 - Session 1 face-to-face workshop indicators of cognitive, social and teaching presence**

**Figure 15 - Session 1 video conference workshop indicators of cognitive, social and teaching presence**
The patterns of interactions on the above graphs for session one is very similar apart from the reduced level of interaction by the participants of the video conference workshop. However, there is a marked difference between the graphs below showing the same analysis of interactions for session two.

*Figure 16 - Session 2 face-to-face workshop indicators of cognitive, social and teaching presence*

*Figure 17- Session 2 video conference workshop indicators of cognitive, social and teaching presence*
The data indicate that in the face-to-face workshop participants were more active in the “exploration” and “building understanding” categories. The analysis does not include the communication which occurred between the participants at each of the sites of the video conference workshop, nor the interactions between participants at the face-to-face workshop when the educator was not present.

**Analysis of immediacy behaviours**

Gorham identified a range of verbal and non-verbal “immediacy” behaviours which contribute to effective classroom teaching. Only behaviours which could be related to both face-to-face and video conference workshops were used in the analysis. Behaviours considered to have a negative effect are indicated by an asterisk on the following graphs and these include: asking specific questions, criticising, negative facial expressions and facing the board or PC.

In both workshops the educator was facing the audience at all times i.e. facing the screen in the video conference workshop. In the face-to-face workshop the educator was moving around constantly and in the video conference workshop the educator was sitting still in order to remain on the camera. These behaviours were included in the original analysis but are excluded from the graphs below.

![Figure 18 - Session 1 immediacy behaviours](image)
The comparative analysis of session one, shows that more positive immediacy behaviours were used in the video conference workshop than in the face-to-face workshop. The educator/researcher was aware that she was attempting to create a sense of community to make up for the lack of interaction from the participants (see Appendix 10 - The educator/researcher’s reflections on the workshops).

In the video conference workshop the screen displayed the names of the participants at each site therefore it was easy for the educator to use names and this was also necessary as it was not possible to make eye contact with individuals when asking questions directed at a specific individual or group. In the face-to-face workshop the participants wore name badges, but these were not always visible to the educator at a distance and, when in close proximity, would have required the educator to divert her gaze to the person’s chest area, therefore the use of names was more difficult.

![Figure 19 - Session 2 immediacy behaviours](image)

The use of immediacy behaviours reduced substantially in session two of the video conference workshop. By contrast, in the face-to-face workshop the non-verbal immediacy behaviours of using hand/arm gestures and showing(pointing markedly increased. This was due to the educator joining with the participants in small groups as they familiarised themselves with the assessment kit items. As the educator was explaining elements of the assessment she pointed to, or picked up, relevant pieces of equipment. During the
equivalent session of the video conference workshop the educator formally picked up and showed items only to indicate which articles she was referring to so that the participants could select those items from their kits. In session two of the face-to-face workshop, the majority (74%) of the specific questions came from the participants whereas in the video conference workshop 70% of the specific questions came from the educator.

**Analysis of discussion and debate interactions**

The final area for analysis of the interactions which took place during the workshops used a subset of items from Schullo’s research of pedagogical strategies used in synchronous web-based learning. These are directly observable interactions relating to discussion and debate of the course material which are not included in either Garrison et al.’s or Gorham’s analyses, but which appear to have an effect on learner experiences and potentially on learner outcomes.

In session one there was a far greater degree of discussion and debate happening between the educator and the participants.

In both sessions “active listening” by the educator was much less apparent in the video conference workshop than in the face-to-face workshop. Active listening is demonstrated by non-verbal cues such as head-nodding, eye contact and appropriate facial expressions, together with short verbal interactions such as “yes” or “uh-huh”. The screen display in the video conference workshop swapped over as different people spoke so that the current speaker showed in a larger window and the images of the other participants were smaller. It was therefore more difficult to see any non-verbal cues of active listening by the educator when one of the participants was speaking and they may have been overlooked.

In the Webex™ recording it is only possible to see and hear the current speaker so it has not been possible to scrutinise the recordings for missed cues. Due to the partial duplex sound transmission, only audio content from the current speaker was transmitted and recorded. Any simultaneous speech was not transmitted or recorded unless it “overtook” the existing speaker in volume.
Figure 20 - Session 1 discussion and debate interactions by time

Figure 21 – Session 1 discussion and debate interactions by frequency
Figure 22 - Session 2 discussion and debate interactions by time

Figure 23 - Session 2 discussion and debate interactions by frequency

Quantitative feedback at end of workshops

Participants at the face-to-face workshop completed hard copy questionnaires prior to leaving the workshop at the end of the day. Participants at the video conference workshop were provided with a link to an online survey with the same questions which they all completed shortly after the end of the workshop
All participants at both workshops agreed or strongly agreed that the workshops were well run and informative (two participants at the face-to-face workshop omitted to complete an item). There is possible evidence here of a ceiling effect which may have been reduced by using a positively loaded scale, but the researcher was required to use the existing DTSC evaluation survey. There was a greater proportion of participants from the video conference workshop who strongly agreed with the statements. This was unexpected due to the significant technological difficulties that were experienced and may have been due to the novice learners being more tolerant while the content of the learning was highly relevant and comprehensible. Those participants at the face-to-face workshop who had more prior knowledge may have been more critical as a result.

![Figure 24 - Face-to-face workshop evaluation percentage agreement](image-url)
Participants were asked how confident they felt in being able to use the HDS-R following the workshop. Confidence at the end of the workshop appears to be higher amongst the video conference participants despite their lower level of knowledge and experience prior to the workshop. In the video conference workshop the participants only interacted directly with the educator or with their own colleagues and they all had very limited prior experience.

The participants were asked what barriers they perceived in being able to use the HDS-R. Time was perceived to be a much greater barrier for participants attending the video conference workshop than for those attending face-to-face.
All participants at both workshops were provided with electronic resources to enable them to pass their learning on to other people in their workplaces. These included electronic copies of the PowerPoint presentation, a guide to running a workshop, participant handouts and teaching materials. The participants of both workshops were mostly confident in teaching others to use the HDS-R.

Ad-hoc discussion at end of video conference workshop

At the end of the video conference workshop, the participants were asked if they had any additional questions. This instigated a short open discussion between the participants and the educator which was transcribed and thematically analysed. This is an example of how case study research can be flexible to incorporate unplanned data sources. Five themes emerged: travel, technology, access to training, cost and learning together.
Travel
The participants from the location nearest to Perth stated that if they had been required to drive to Perth for the training they would not have been able to attend. For them, it would have incurred a two hour drive each way and they would have been expected to travel there and back in one day. Participants from a location approximately four and a half hours driving distance from Perth also stated that being in a country location was a limitation to travel.

Technology
Two of the participants commented on the use of technology. One stated that they were used to technological problems in their work environment. Another participant stated that, once the technological issues had been sorted out, the workshop was quite user-friendly.

Access to training
Participants from one site stated that at their workplace they are unable to be taken away from the workplace for a full day, whereas they can take a half day out for training and therefore, the design of the video conference workshop being split into two half days was a significant factor in them being able to attend. A participant from another site also stated that reducing the time away from the workplace was important.

The participant from Queensland stated that it was “really good” that she had been able to access the training from another state. She had missed out on a face-to-face workshop held in Brisbane the previous year as she had only found out about it afterwards.

Cost
One participant stated that a limiting factor in attending any training in Perth was the additional cost of the travel and accommodation. The educator also explained that providing training in other states is limited by the cost of travel and accommodation for the educator.

Learning together
One participant who had attended the training together with a colleague described the “huge advantage” of having somebody alongside her so that they could “brainstorm together”. They felt that this should be included as a recommendation for participants for future workshops. They were also interested to know how it had felt for the participant who had been on her own.
The participant who had been on her own agreed that having a colleague with her would have enhanced her experience. She stated that if she attended something similar in the future she would prefer to have another staff member with her. She was however keen to share her learning and the learning resources with other staff in her workplace.

**Qualitative feedback at end of workshops**

Qualitative data from three of the open-ended questions on the evaluation surveys carried out at the end of each workshop were thematically analysed. These data were taken from the questions:

- What were the three most valuable things you learnt?
- What elements of this learning activity worked well/could be improved?
- Any further comments about this training.

One question: “Please indicate any other dementia-related topics you would like to learn about” was excluded from the thematic analysis as it was not relevant to the participants’ experience at these workshops and was included for the Dementia Training Study Centre’s future planning only. All included responses from the evaluation surveys are shown at Appendix 8. The data were manually thematically analysed separately for each workshop. The following major themes emerged for both workshops: the workshop experience; the learning outcomes; plans for the future; and suggestions for improvements. There were many similar sub-themes across the two workshops. The provision of resources, which were provided to both sets of participants, was only mentioned by those who attended the face-to-face workshop.

Participants from the face-to-face workshop commented on the value of using a video of the assessment during the workshop however the participants from the video conference workshop only referred to the use of the videos when making suggestions for improvements.

*Great to see the videos of the assessment being completed - the best training tool.* (F2F participant)

*Perhaps having some pre-session activities. E.g., watching video prior to the education. (VC participant)*

This may have been due to the video conference participants watching the videos in their own time between day one and day two and there is a possibility that not all participants
took the time to do this which has been a finding in other studies where students are required to do online learning in their own time. Not surprisingly, the use of technology and distance learning were only referred to by participants from the video conference workshop.

The workshop was delivered in a flexible, contemporary way that facilitated learning in a regional setting.

It would have been impractical for me to attend the workshop had it been held in Perth, due to time away from work and cost, so the Webex was a positive all round.

Thank you for the opportunity to be involved in this training via distributed learning. It enabled us to be able to complete this training in a cost and time efficient way.

Despite some technical difficulties, the webinar was an excellent, interactive way of receiving training, given that I live and work in the country.

The responses from each workshop are represented diagrammatically in Figure 29 and Error! Reference source not found. with the area of the cells representing the relative proportion of the respondents who mentioned each topic. There was comparatively more feedback from the participants of the video conference workshop than for the face-to-face workshop.
Figure 29 - Face-to-face workshop evaluation feedback
Figure 30 - Video conference workshop evaluation feedback
Post workshop interviews

Short interviews of less than ten minutes duration and using standardised questions were carried out with two participants from each workshop within two weeks post training. These interviews were designed to gather further qualitative feedback in a time-efficient manner. All participants were invited by email to take part in these interviews and the first two to respond from each workshop were selected.

Motivation to attend

The two interviewees from the face-to-face workshop were both existing users of the HDS (one an infrequent user, the other a regular user) who wanted to learn about the changes that had been made to the assessment in the development of the HDS-R. They also wanted to refresh their knowledge on how to carry out the assessment.

“I’ve used the HDS in the past and I wanted to know about the changes and also I wanted a refresher”

“it was an opportunity for some, you know, updating my clinical skills”

One interviewee from the video conference workshop had previously used the original HDS on one occasion and was wanting to purchase the HDS-R but wanted to know more about it in order to create a business case for the capital expenditure. The other video conference participant was not familiar with the HDS/HDS-R and was looking for ways to develop his role within his organisation.

“I want to get our facility to buy one.”

“I’m really trying to become a team leader and believe that this would be one of the ways we can better serve our clients in the community.”

Meeting expectations

Both interviewees from the face-to-face workshop felt that the workshop met their expectations in terms of learning about the changes to the assessment and refreshing their knowledge. One felt that the viewing of videos showing clinicians carrying out the assessment was particularly beneficial for her but overall there would be more benefits for people who had not previously used the assessment.

“It definitely met my expectations. Yes.”
One interviewee from the video conference workshop explained that he had low expectations because he generally learns better in a classroom situation, but he felt he actually learnt more than he had expected. The other interviewee from the video conference workshop stated that her learning had been enhanced by having a senior colleague attending the workshop with her.

“Because my director of nursing was there... I think her being there helped.”

What worked well?
The interviewees from the face-to-face workshop commented on the interprofessional/multidisciplinary nature of the workshop and the ability to network and communicate with other health professionals.

“...the opportunity to talk to your colleagues and it was multidisciplinary.”

“There were people there who weren’t OTs and it was good to talk to them.”

Both interviewees from the video conference workshop stated that having the physical assessment kit in front of them was particularly beneficial as they were able to interact with the contents of the kit rather than just observing.

“...having the toolkit... I found that really useful.”

“...the kits were a big help.... the ability to play with equipment and the paperwork as well.”

What didn’t work well?
One interviewee from the face-to-face workshop referred to the time interval (approximately two hours) between viewing a video of an assessment and using the information to create a care plan. The other interviewee from the face-to-face workshop felt that it was more aimed at people who were new to doing the assessment rather than those who were experienced.

“The time frame between [watching the videos] and doing the care planning ... it was a bit hard to try and remember all of it.”

“I thought it was really good for people new to [the HDS-R]”
Both interviewees from the video conference workshop referred to the technical problems which particularly impacted the beginning of the workshop and one referred to not being able to talk to participants in other locations.

“You couldn’t talk to anybody else.”

“I would have to mention, it’s really just, you know, the technical problems, the technology issue.”

What could be improved?
The interviewees from the face-to-face workshop both felt that the workshop would have been better for them if it had been exclusively for experienced users. One also would have liked to have genuine people with dementia present who they could try the assessment on, although she acknowledged that there would be ethical implications to this.

“I was sitting with some people who hadn’t really used it a lot and so there were lots of questions.”

One interviewee from the video conference workshop would have liked more time spent looking at individual case studies and some technical support when trying to watch the video (video conference participants did this in their own time between the two workshop sessions rather than having the video streamed online). The other video conference participant would have liked a specific workshop for decision makers so that they didn’t need to spend as much time looking at the finer details of the assessment.

“We need more time for the evaluation process.”

“Adapt [the workshop] to people who are higher up so they don’t have to spend so much time.”

Thoughts about alternative versions of the workshop
One interviewee from the face-to-face workshop found it difficult to imagine what it would be like attending a video conference workshop as she had no experience of this type of delivery and would always opt to attend face-to-face as it is more familiar and comfortable. The other interviewee from the face-to-face workshop felt that the outcome would have been the same whichever workshop she had attended because she was already very experienced in the use of the assessment.

“Probably for me, because I’m experienced, it would have been the same.”
“I’ve never attended a video conferencing presentation so it’s difficult to sort of put it in context.”

Both interviewees from the video conference workshop felt that the learning outcomes would have been the same if they had attended the face-to-face workshop although one stated that they would have preferred the experience of the face-to-face environment more.

“I don’t think it changed the information at all.”

“I don’t think there is much difference to what we get taught... I would still choose face to face.”

Knowledge translation survey

Online knowledge translation surveys were emailed to all participants three months after each workshop. Due to poor initial response follow-up emails were sent, however the overall response rate did not exceed 50% (five from the video conference workshop and nine from the face-to-face workshop of which seven completed the survey to the end). Therefore, some of the responses collected were more than four months after the workshops.

The fifty percent response rate for the knowledge translation survey was disappointing, particularly as participants had been advised that this was an essential part of the research project when they agreed to take part. Only one survey email was returned as undeliverable indicating that the person was no longer employed at the organisation. An average response rate by individuals for academic research was calculated at 52.7% by Baruch et al. in 2008 with the expectation that this was likely to decline in the future due to survey saturation. The response rate in Goodenough et al.’s study which used an almost identical survey with a similar cohort of participants was only 23% however this was sent six months rather than three months after the intervention and participants were not anticipating the survey.

The first section of the survey investigates the conceptual stage of knowledge translation, i.e. how the workshops had influenced the participants’ mindset and beliefs. The participants were asked to indicate how often in their typical work week any information or skills gained from the HDS-R workshop had influenced their thinking about their practice.
Responses from the video conference participants indicate that the workshop had a greater influence on their mindset and beliefs than those attending the face-to-face workshop. This may have been due to a lower level of knowledge prior to the workshop resulting in a greater scope for change. By comparison, many of the participants at the face-to-face workshop were already familiar with or actually using the assessment.
beforehand, therefore they would have undergone the conceptual changes prior to attending the training.

The second section of the knowledge translation survey asked the participants about instrumental changes i.e. the ways in which they had actually changed their practice. The responses were similar across the two groups of participants although more respondents from the video conference workshop indicated that they had tried a new procedure, technique or intervention which fits with this group’s previous lack of exposure to the HDS-R assessment.

![Figure 33 - KT Survey section 2 – face-to-face workshop instrumental changes](image-url)
Section two also asked the participants to share some brief details of what they had tried or not. Some of the participants from the face-to-face workshop revealed that the workshop had renewed their interest and confidence in using the HDS-R as an assessment.

*I have renewed my interest in using the HDS assessment with residents.*

*I am more inclined to use the HDS as a cognitive assessment as I am more confident with the assessment procedure and assessment items*

Responses from the video conference participants related more to changes in their approach which had become more person-centred and strengths-based.

*Focus on abilities rather than deficits*

*There has been a change in my approach to other assessments*

The third section in the knowledge translation survey was concerned with persuasive changes i.e. educating or influencing others. The responses regarding influencing other staff members were similar for the two workshop groups. However, only video conference participants indicated that they had persuaded clients or members of the public to make changes. The only participant who had created a new policy or guideline based on their new knowledge was from the video conference workshop and another participant from that workshop indicated in the text feedback that they would like to do the same. This is potentially the most permanent workplace change as the policy document or guideline will
remain in existence even if the member of staff leaves the workplace. This is an important consideration due to the high staff turnover which is normally experienced in the aged care sector.\textsuperscript{99}

\textit{Figure 35 - KT Survey section 3 – face-to-face workshop persuasive changes}
The next section of the knowledge translation survey regarded the frequency with which the participants have used the new knowledge or skills gained at the workshops. The responses from participants at the two workshops were similar.

**Figure 36 - KT Survey section 3 – video conference workshop persuasive changes**

The next section of the knowledge translation survey regarded the frequency with which the participants have used the new knowledge or skills gained at the workshops. The responses from participants at the two workshops were similar.
A final question on the knowledge translation survey asked the participants to suggest ways in which the HDS-R workshop could better assist them to apply the knowledge and/or skills in practice. There were only five responses in total, three of which indicated that the respondent had no suggestions. One participant from the video conference workshop reiterated the post-workshop feedback that they enjoyed the experience and were grateful for the opportunity to receive training via distance learning. A participant from the face-to-face workshop who worked in an acute hospital setting indicated that they would like a shorter version of the assessment that took less time to complete.

Other comparative factors
When organising education or training, cost is usually an important consideration. The costs, per participant, of providing the workshops were very similar and only slightly higher administrative input was needed to operate the face-to-face workshop. A full analysis of the comparative costs is shown in Appendix 9.

The results showed that face-to-face workshops are the preferred option for participants where this is available. But another factor to consider is the educator’s experience. In this study the educator/researcher found the video conference workshop more stressful and less enjoyable than the face-to-face workshop. Part of this may be due to inexperience using this form of delivery. A summary of the educator/researcher’s reflections on the experience are show at Appendix 10.

Summary of results
The study collected a wide range of quantitative and qualitative data from the two workshops which describes the participants, the different workshop experiences, the knowledge learnt and its subsequent influence on practice in the clinical environment. The
participants at the video conference workshop had far less knowledge and experience of the HDS-R assessment before they started. They also appeared to have a far poorer experience during the workshop due to technical difficulties, less interaction with the educator and no opportunity for interacting with participants from other locations. Despite this, the video conference participants indicated a greater degree of enthusiasm and gratitude for the training and they reported that the training had a greater influence on their practice. These outcomes will be discussed in the following chapter.
Chapter 5 – Discussion

This research study used case study methodology to compare two workshops teaching the same content but using different delivery formats i.e. face-to-face and video conference. This discussion will consider how the results have addressed the study aims and answered the research questions. It will also refer back to the literature to demonstrate where the research outcomes confirm or contradict findings from previous studies and will attempt to explain any differences.

The research questions will be addressed in the following order:

- Do the interactions and behaviours differ between training which is delivered face-to-face and that which is delivered via video conferencing?
- Does the method of delivery of training in cognitive assessment affect the knowledge translation outcomes?
- What are the factors which impact knowledge translation?

The discussion will then focus on how the lessons learnt from this study could be used to design a new style of distance education which would meet the needs of health professionals in rural and remote locations. It will also look at how face-to-face workshops for the HDS-R can be adapted to potentially generate higher levels of knowledge translation.

Differences in interactions and behaviours

It was expected at the outset that there would be differences between the interactions across the two workshops. In a face-to-face environment, communication happens spontaneously with body language and non-verbal cues, such as eye contact, assisting the interaction. In the case of the face-to-face workshop, when a participant wanted to speak they would raise their hand or make eye contact with the educator who would invite them to speak by the use of verbal and/or non-verbal communication. In a video conference environment it is not possible for the educator to selectively make eye contact with specific participants and cues that a participant wants to speak are easily missed due to the limitations of the screen displays. This has been observed in numerous previous studies and was confirmed in this study.

In selecting the video conferencing software for this study, the researcher was not aware that the Webex™ software was a half-duplex system. This means that although the system allows communication in both directions it only allows one person to speak at a time. The
participants were instructed to keep their microphones switched off unless they wanted to speak, as recommended in the literature. When a participant wanted to speak they had to first switch on their microphone, wait for a gap in the proceedings and then speak loudly enough for the system to pick up their audio. That person’s video image and audio then took over the system although there was a momentary pause before they could be both clearly heard and seen. This inhibited spontaneous conversation, which was a notable feature of session two of the face-to-face workshop. The limitations of the Webex™ recording mean that it is not possible to identify occasions where participants were wanting to speak but were unable to do so, either because they had not switched their microphones back on or because they were unable to “break in” to the conversation.

Because of the lack of ability to make eye contact and the small on-screen images of the non-speaking participants, once a participant was speaking they would have difficulty discerning any non-verbal feedback and encouragement from the educator or other participants. The educator could not provide verbal feedback to demonstrate active listening as this would have broken into the participant’s speech. This could account for the much shorter interactions from the video conference participants. The educator found the limitations of using the half-duplex system stressful, as described in Appendix 10 - The educator/researcher’s reflections on the workshops.

In Schullo’s study students reported different feelings about using half-duplex audio with some stating a preference for an “open floor” and others liking that only one person could speak at a time with little risk of interruption. Schullo and others have reported that the use of polls, quizzes and the use of hand-raising icons helps with interaction in the video conference setting and this would be a useful way of creating interaction and potentially increasing a sense of immediacy. It is not clear whether a fully duplexed system, where all participants can join in a conversation spontaneously, would have more immediacy than a half-duplex system with the use of the additional technological features. This could be investigated by repeating the study using a fully duplexed system and comparing the data of the interactions.

The data indicates that the video conference environment produced a didactic or authoritarian teaching environment which is generally considered to be a poor educational approach particularly for adult learners. However, feedback from the participants at the video conference workshop indicates that interaction was occurring between participants.
at the distance sites which was hidden from the educator/researcher. This was made possible by the ability of the participants to mute their microphones whilst still receiving audio and video input from the educator. One of the participants from the video conference workshop used the phrase “we’ve brain-stormed together”. This indicates that there was a considerable amount of cognitive presence occurring locally.25

It was hoped that the use of the community of inquiry indicators in the analysis of the workshops would produce some evidence of the levels of learning that occurred. Although the available recordings show that the community of inquiry indicators were similar across the two workshops there was perhaps more cognitive presence at the video conference sites. Further research is required to study the interactions which occur between participants at remote sites during video conference workshops. Some potential research questions would include: to what level do remote conversations “talk over” the educator?; what is the optimum number of students at a remote site; would a pre-recorded presentation which could be stopped and started be better than a live presentation? The phenomenon of separate discussions occurring between participants at distance sites of video conferenced training sessions has been noted by other researchers.61,99 In MacIntosh’s study one student commented that "we can learn as much from each other by discussing amongst ourselves".61 Diekelmann described student conversations as “Did you get this? Did you get that? Why is this? Why is that?”.99 Allen et al.’s study indicated that although participants interacted between sites there was little interaction between participants at the same site.50 This may have been due to a failure to capture that content which is also missing from the recordings of this study and was only made apparent through participant disclosure.

This data from this study does not enable the inter-participant interactions to be quantified, however it was sufficiently significant to prompt a participant to enquire how the “single” remote participant had coped. They also suggested that in future there should be an explicit recommendation of having at least two people at each remote site.

In traditional face-to-face teaching environments side conversations are prevented or discouraged to avoid distracting others, however the video conference environment facilitates them through the muting of microphones. The separate groups of distance learners are effectively partitioned: they can continue to receive the audio and video content from the educator whilst conducting their own discussions without disturbing participants at other sites. This allows them to discuss relevant or important points as they
occur rather than having to wait until there is a break in the proceedings. This fits well with adult learning theory in that they are being self-directed and focusing on what is important and relevant to themselves, having a safe environment to express themselves and a sense of control over their learning experience.\footnote{24}

Moore’s theory of transactional distance in distance education describes the psychological distance between the educator and learner when they are separated by space and/or time.\footnote{23} According to Moore, transactional distance is made up of the dialogue and structure within an educational program and these factors have an impact on learner autonomy and sense of self-direction which are major features of adult learning.

In the second session of the face-to-face workshop the dialogue between the educator and participants was very high. There was a to-and-fro flow of conversation as the participants asked questions or explained their thinking while the educator answered or clarified. This session was relatively unstructured in that the participants were working in groups looking at a few subscales of the assessment at each of the tables. They were given time to examine and investigate the materials between themselves before the educator approached each table to answer their questions. This provided an elevated level of learner autonomy.

By contrast, the second session of the video conference workshop appeared more structured. The educator explained each of the twenty subscales of the assessment one at a time then directed the participants to explore it further and ask any questions. The level of dialogue was much less with participants speaking on only seven occasions as opposed to 76 times during the equivalent section of the face-to-face workshop.

Moore’s theory states that there is an inverse relationship between dialogue, structure and learner autonomy in that an increase in one leads to decreases in the others.\footnote{23,100} Although the video conference workshop initially appeared to be didactic and highly structured, it is evident from the participant feedback that there was a very high level of learner autonomy. This appears to contradict Moore’s theory and also suggests that educator-participant dialogue and inter-participant dialogue need to be considered separately. The presentation of information by the educator was highly structured and there was far less dialogue between the educator and the participants than in the face-to-face workshop. Learner autonomy increased as the learners at each location were able to “partition” themselves, have separate conversations with their colleagues and only interact with the educator and

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others when they chose. Two-way dialogue between the educator and participants was reduced whilst inter-participant dialogue occurred at a local level. This created a greater “gap” in which misunderstandings could occur as the learners could not talk amongst themselves and listen to the educator simultaneously.

Falloon also had difficulty in applying Moore’s theory to a modern video conferenced teaching environment. A significant difference between this study and Falloon’s study is on the grouping of participants. The participants in Falloon’s were all located separately which prevented spontaneous dialogue from occurring between them. This resulted in a high degree of transactional distance between all the participants, similar to that experienced between participants at different sites in this study.

Moore’s theory of transactional distance does not appear to adequately describe the many different forms of distance learning that have developed and is probably more appropriate for asynchronous learning. This is not surprising as the development of Moore’s theory dates back to the 1970’s when distance learning was mainly via correspondence courses. The use of video conferencing creates a very different learning environment which is time-bound, separated by distance and technology yet appearing to be very immediate. This research study does not have the scope to propose an alternative to Moore’s theory to fit more recent modes of distance learning, but this is an area that would benefit from further investigation.

Although the benefits of learning with others was mentioned frequently in the participant feedback of this study, for the video conference participants this referred only to colleagues at the same site. There was only one instance of interaction between the remote sites when a participant enquired, via the educator, what the experience had been for the participant who was alone. As professional isolation is often cited as an issue for remote health workers, it is surprising that the video conference participants did not appear to take the opportunity for networking which was a significant feature of the face-to-face workshop. That said, any interaction between participants at separate sites would have been very public and could not have occurred over shared coffee or lunches as it did at the face-to-face workshop. The facilitation of interaction via the consensual sharing of email addresses on the first day may be an option to consider in the future.

The analysis of the interactions showed considerable differences in immediacy behaviours between the two workshops but much of this was a direct impact of the technology. For
example, the educator was able to move around in the face-to-face workshop and had a large area in which to do so. In the video conference workshop, the educator was required to remain seated in order to appear on screen. The educator was more able to use participants’ names in the video conference workshop as these appeared on the screen, but she had difficulty in reading the name badges of the participants in the face-to-face workshop.

The structured analysis of the interactions from the workshops appears to indicate that the teaching in the face-to-face workshop contained far more of the elements which the literature indicates constitute good quality teaching. Here the participants were interacting more with the educator and there was substantial two-way dialogue between the parties. In the video conference workshop the communication was mainly unidirectional and didactic with the appearance that the participants were not engaged. As has already been discussed, this is not a true picture of the interactions as it excludes the inter-participant dialogue at the local sites.

The next section of the discussion will consider how the differences in the interactions and behaviours affected the knowledge translation outcomes.

**Effect of delivery method on self-reported knowledge translation outcomes**

At the outset of this study, it was anticipated that, if any changes in self-reported knowledge translation were detected between participants from the two workshops, it would be the face-to-face participants who made more changes due to the higher levels of immediacy during the training and the ability of the educator to be more responsive to individual needs. However, the results indicate that the video conference participants made greater changes in their workplaces particularly in the areas of conceptual changes and persuasive changes i.e. they not only changed their own mindsets, but they worked to make changes in the practice and attitudes of those around them. These changes were not limited to their colleagues but also included their clients and members of the public.

It needs to be emphasised that the knowledge translation measure used was self-report which may be unreliable due to a tendency towards social desirability. However, both groups of participants were responding to the same survey, delivered in the same manner. Although the results may not have been entirely accurate, they can be used for comparative purposes in this study.
Some of the variations in knowledge translation outcomes can be attributed to the differences between the two groups of participants which was another unexpected finding in the data. It is likely that the differences were a factor of the different make-up of the rural and metropolitan workforces and the lack of previous workshops available to those outside the metropolitan areas. The video conference participants had less exposure to information about the HDS-R assessment prior to the workshop and also, as a consequence of their professional backgrounds, had less prior formal training in the assessment of cognition. This had a positive, rather than negative, effect on knowledge translation as those participants were able to make greater gains in terms of new learning and changes in practice. Those participants of the face-to-face workshop who were already using the HDS-R, or working with others who were using it, would already have made changes in their approach and service delivery prior to the training.

Although the post-workshop interviews only gathered data from two participants at each workshop, there appear to be different motivations for attending the training. Both of the interviewed participants from the face-to-face workshop were existing users of the assessment who wanted to refresh their knowledge and learn more about recent developments of the assessment i.e. they were attending for their own personal development. Neither of the interviewees from the video conference workshop was an existing user of the HDS-R and they both hoped to get agreement from their organisations to purchase the assessment. One of the video conference participants was motivated to attend the workshop because he wanted to find better ways of serving clients in his community. He was hoping to make instrumental changes which would have positive effects on a wide range of people. Although the driving force for change was a desire to further his career, his aim appeared to match CIHR’s definition of knowledge translation i.e. the “sound application of knowledge to improve the health of [the population], provide more effective health services and products and strengthen the health care system.”

There is a strong likelihood that if the video conference participants had attended the face-to-face workshop, they would have still have made substantial achievements in terms of knowledge translation due to their high levels of motivation to make instrumental and persuasive changes. The question which still needs to be answered is whether there was any additional effect on knowledge translation resulting directly from the format of the video conference workshop. There are two aspects which the feedback has indicated are
noteworthy features of the video conference workshop contributing to an enhanced level of knowledge translation.

Firstly, all but one of the participants was attending with at least one colleague. One participant was joined at the workshop by her Director of Nursing who was the decision-maker regarding the purchase the HDS-R. This would have circumvented the need for a written funding request from her staff member. Once she had approved the purchase and use of the assessment, she would then be a major persuasive force in changing the mindset of other staff members and arranging further training for others in the organisation.

Where two or more participants of similar seniority attended the video conference training together, they were able to present a united front in lobbying for changes in the workplace. They wouldn’t have been “lone voices” as would the participants from the face-to-face workshop. They would have been able to work together from the outset in making knowledge translation happen.

A second feature of the video conference workshop which appears to have enhanced the knowledge translation outcomes was the sense of “partitioning” which occurred. The interactions are illustrated diagrammatically in Figure 39 below. The educator was interacting from a transparent location with the audio and video being freely transmitted to the participants as indicated by the thick blue lines. The participants were segregated from other groups of participants and from the educator. Although their video images were always visible, they were able to choose whether or not their audio could be heard by controlling the microphone on/off function. This provided a safe area for them to talk between themselves simultaneously whilst the educator was speaking and to make maximum use of the pauses when the educator was inviting questions. They also had the option to disable their video camera if they so wished but did not do so. This type of simultaneous interaction between participants is actively discouraged during face-to-face teaching due to the disruption that it causes for others however the feedback from the participants indicates that it was this ability to communicate with their colleagues during the training which was most beneficial.
This feature of independent discussions occurring at remote video conference locations has been recognised in previous research but there do not appear to be any studies which consider how this affects teaching or training outcomes or how this can be used to maximum effect. Interaction and discussion in teaching are generally considered to be highly effective in helping students apply abstract ideas and think critically about what they are learning. This study raises the question of whether the interaction and discussion can be equally effective when it is solely between peers and does not involve an educator, even in small groups of two or three motivated participants. As the video conference participants appear to have made substantial gains in their learning with minimal interaction with the educator, there may be potential for the training to be delivered in a pre-recorded format for use by small groups at remote sites who have access to the HDS-R assessment kit. This would reduce the likelihood of technical issues interfering with the learning experience and would enable participants to select the most suitable time for their group. This option may also be useful for metropolitan-based health professionals whose work responsibilities prevent them from being able to attend full day training.

All but one of the video conference participants in this study had the benefit of receiving their training with their colleagues and the benefit of discussing, problem-solving and making plans as the workshop progressed. The face-to-face participants were prevented from attending with colleagues and in session two were grouped with people they did not previously know. This inadvertently reduced the benefits for knowledge transfer.
Another feature of the video conference workshop was that most participants were undertaking the training in a room or office within their workplace. This enabled them to discuss the learning with other colleagues immediately afterwards. Colleagues may also have been made aware of the training that was occurring by signs placed on office doors requesting no interruption thereby achieving the first step in the knowledge translation framework for DTSC: awareness.79 By contrast, the face-to-face participants were off-site and out of sight for their training and would not have been able to discuss anything with colleagues until the following day.

**Factors impacting knowledge translation**

The data from this study indicate that it is not the interactive quality of teaching per se that affects knowledge translation outcomes. The video conference workshop appeared to have a much poorer standard of teaching in terms of using a didactic, instructional approach with little interaction and engagement between the participants and the educator. Many previous studies have also demonstrated that reduced quality of teaching or less interaction with an educator when using online learning, does not affect the outcomes.17,32,37,43,51,52,54,55,60,70,103,104 It is also noted that the video conference participants had much less previous experience and knowledge of the subject matter but had increased levels of motivation as indicated by responses on the post-workshop evaluation survey. The following scatter graph demonstrates the relative backgrounds, experiences and outcomes for participants at the two workshops.
In this small study the factors which appear to have had the greatest impact on knowledge translation are:

- Elevated levels of motivation and a desire to change one’s organisation or community rather than personal professional development only
- Participants learning with colleagues from the same organisation or facility
- Participants having the opportunity to discuss, problem-solve and plan during the learning process.

It is also evident that there is greater potential for knowledge translation amongst participants who have not previously been exposed to the knowledge.

Phillipson et al. proposed six principles for the successful knowledge translation of dementia education for health professionals. Their suggestions which are based on a literature review, are:

1. Match the education strategy to the KT goal and learner preferences
2. Use integrated multimodal learning with opportunities for multiple learning exposures and feedback
3. Build relationships to bridge the research-practice gap
4. Use a simple compelling message with formats and technology relevant to the audience
5. Provide incentives to achieve KT goals
6. Plan to change the workplace, not just the individual health professional.

In addition, Goodenough et al. asserted that health professionals who receive training in knowledge translation at the same time as raising their knowledge of research evidence are more likely to report instrumental outcomes although the findings of the study are not statistically significant.\(^7\)

This study contradicts most of these suggestions. For example, most of the participants would have chosen face-to-face delivery if given a simple choice however greater knowledge translation came from the video conference delivery. The use of “multimodal delivery” e.g. viewing of a video between the first and second days of the video conference workshop caused technical difficulties for some whilst others reported that it was insufficiently cognitively challenging. None of the participants of either workshop took up the offer of further assistance via email or phone. There was no simple message and no incentive to achieve knowledge translation. Knowledge translation was not planned or explicitly taught by the educator during the workshops therefore it cannot be ascertained whether this would have enhanced the KT outcomes. Further analysis of the knowledge translation outcomes could be achieved by the inclusion of examples in the survey, however this would be more onerous for participants to complete and might reduce the response rate.

The next two sections of this discussion will consider how the information learnt about the factors impacting knowledge translation in HDS-R workshops can be used to modify the future delivery of training.

**Generalisability**

In 2016 Phillipson et al. stated that a decade previously teleconferences were the least preferred option for physicians and nurses relative to face-to-face education.\(^8\) Feedback from the post-workshop interviews indicates that there is still a strong preference for attending face-to-face training rather than using an online alternative. It is therefore unlikely that participants based in the metropolitan area, who normally have access to face-to-face workshops, would be sufficiently motivated to attend an online workshop unless this was the only option available to them. Motivation appears to be a strong factor
for achieving knowledge translation outcomes therefore it is important that face-to-face training is made available when it is possible and cost-effective.

Interaction and discussion in teaching are generally considered to be highly effective in helping students apply abstract ideas and think critically about what they are learning. This study raises the question of whether the interaction and discussion can be equally effective when it is solely between peers and does not involve an educator, even in small groups of two or three motivated participants. As the video conference participants appear to have made substantial gains in their learning with minimal interaction with the educator, there may be potential for the training to be delivered in a pre-recorded format for use by small groups at remote sites who have access to the HDS-R assessment kit. This would reduce the likelihood of technical issues interfering with the learning experience and would enable participants to select the most suitable time for their group. This option may also be useful for metropolitan-based health professionals whose work responsibilities prevent them from being able to attend full day training.

This study was unusual in that the intervention was over a short period of time, the learning was very focused, and the distance learning structure involved clusters of two or three students at each location. Previous studies have suggested that regular educator-participant interaction is important for successful learning. This study has shown that, where students are grouped, interaction with the educator appears less important as the students create their own supportive learning environments in which they are able to problem-solve and plan. This has the potential of achieving higher levels of knowledge translation as the learners are able to learn and plan simultaneously. The notion of transactional distance between the educator and learners becomes less relevant where the students are clustered as they become less reliant on the educator to solve their problems.

**Suggestions for modifying future delivery for distance learners**

The notable features of the video conference workshop were:

- the low level of interaction between the educator and the video conference participants
- the reported high level of interaction between participants at the remote sites
- the high levels of knowledge translation achieved.

Recognition of these factors provides an opportunity for making significant changes to future training in the HDS-R for distance learners.
There was minimal spontaneous interaction from the participants, most was the result of direct questions or requests for feedback from the educator. Reduced immediacy does not appear to have had any detrimental effect on the participants’ appreciation of the learning experience or on the outcomes. The opportunity for interaction between participants at the remote sites was valued by the participants and this appears to have contributed to the knowledge translation outcomes.

Instead of continuing to use the effective face-to-face workshop format to meet the needs of distance learners, a new training package could be created which does not attempt to rely on interaction between the participants and educator. A recorded presentation could be created which distant learners could watch in small groups at their workplace. They would be able to pause the recording at any point in order to discuss the content, problem-solve more difficult concepts and plan how to incorporate the learning into their workplace. This would retain the level of immediacy experienced by the distance learners in this study and would suit a variety of learning styles as it would include audio, vision of the presenter and graphics/slides, and practical experience with the assessment tools. The added advantages would be the ability to undertake the training at a time to suit the participants and to pause or rewind the recording at will. Participants would still require access to an assessment kit and the opportunity to ask questions albeit on an asynchronous basis.

Currently most online learning appears to be developed for individual delivery with the user interacting synchronously with the computer/technology to acquire knowledge and asynchronously with other learners to problem-solve. This research suggests that a reversal of this method of delivery may be more effective. Training should be developed specifically for groups of learners, not individuals. The knowledge would be delivered by the educator asynchronously and the problem-solving would occur synchronously in a face-to-face environment with colleagues.

**Suggestions for modifying face-to-face workshops**

Although the video conference workshop format appeared to be more successful in terms of knowledge translation, it is important to continue to run face-to-face workshops as this is the preferred delivery method. There would be a danger that health professionals may not take up training if it is not in their preferred format and if there is no obvious incentive for using a less interactive method of training.
In order to maximise knowledge translation outcomes for future face-to-face workshops, it is necessary to make changes to the way the registration process is handled. Registrations from more than one participant in an organisation or facility should be encouraged and supported rather than prevented. During session two of the workshop, rather than splitting people into groups of participants who do not know each other, those from the same organisation or facility should stay together. Others should be placed in groups of participants with similar backgrounds or working in similar organisations.

The format of the workshop should also be modified to create specific opportunities to discuss plans for knowledge translation. This could also be done in small groups and should be led by the participants rather than the educator.

**Methodological implications**

The selected methodology for this research was comparative case study. This enabled the use of both quantitative and qualitative methods to compare the workshop experiences as well as the outcomes. It also enabled a degree of flexibility such as the incorporation of the unplanned discussion of participants at the end of the video conference workshop.

An alternative approach, using only quantitative methods, would have focussed entirely on the outcomes without analysing the differences between the workshops. This would have resulted in data confirming that the two types of workshop were equally effective but would have failed to identify the differences in the workshop experiences for the two groups of participants and the importance of motivation and learning with peers.

A purely qualitative study using in-depth interviews and focus groups to analyse the users’ experiences may have concluded that the use of video conferencing is less effective or desirable. It would likely have given undue weight to the technological difficulties and reduced interactions as being significant barriers to learning.

The choice of a comparative case study has enabled the researcher to look at many aspects of these workshops and to select a range of methods, each of them appropriate to the separate phenomenon in question. This has given a multi-faceted description of what was happening during the workshops and has helped to explain the unexpected results.

**Summary**

This discussion has linked the study results to the research questions. It has demonstrated that, despite initial appearances, the video conference workshop had high levels of
interaction and this will have generated high levels of cognitive presence. As a result, the participants achieved extensive knowledge translation outcomes. Future training could take advantage of the low reliance on participant-educator interaction whilst facilitating more inter-participant education and giving more control of the educational experience to the distance learners. The lessons learnt can also be used to make changes to future face-to-face workshops in order to maximise the knowledge translation outcomes.
Chapter 6 – Conclusion

This study used a comparative case study approach to conclude that video conferences can be used successfully to teach the skills required for carrying out cognitive assessments. This is a subject which normally requires a significant amount of guidance and interaction from an educator.\textsuperscript{53,66,67}

Face-to-face workshops provide opportunities for the participants to interact with an educator in lively discussions. In video conference workshops the participants have the option to limit their interaction with the educator and use the opportunity to discuss and problem-solve with their colleagues. Video conference technology influences participants’ behaviour by reducing spontaneity in interaction with the educator whilst providing a partitioned environment in which they can communicate freely with their colleagues at the same site, without affecting other participants or the educator.

A wide range of factors can influence the outcome of continuing professional development workshops for health professionals.\textsuperscript{87} This study suggests that two factors which contribute to successful knowledge translation outcomes in video conference workshops are participant motivation and learning with peers. Interaction or dialogue with an educator may be helpful in building understanding but it is not essential when groups of health professionals are able to problem-solve between themselves within a guided framework.

Further research into how small groups of learners at remote sites interact during video conference training would help to guide the development of educational courses for health professionals in rural and remote settings. A tailored learning environment needs to be created which has a suitable balance of dialogue and structure in order to enhance learner autonomy and subsequent knowledge translation outcomes.\textsuperscript{23,59} Input from an educator is needed to create a framework and impart knowledge, theory and guidance but it appears that this can be done asynchronously. In this study, motivated distance learners, working in small supportive groups, did not rely on synchronous interaction with the educator to achieve their learning and knowledge translation outcomes.

The lessons learnt about video conference workshop in this study can also be applied to face-to-face workshops. Opportunities for staff from the same work setting or organisation to attend training together will assist in the knowledge translation process as they are able to discuss potential barriers and methods to achieve implementation during the learning
process. They are then able to work as a team to implement conceptual, instrumental and persuasive changes in the workplace.\textsuperscript{79}

Case study methodology has often been criticised for a lack of generalisability in its findings.\textsuperscript{84-86} The researcher sees no reason to believe that these findings cannot be applied to other areas of continuing education for health professionals.
Chapter 7 – Recommendations for future training in HDS-R

The following recommendations, related to the delivery of training for health professionals in the use of the HDS-R, are made as a result of the findings of this study.

1. Continue to provide face-to-face training in metropolitan areas where a cohort of around twenty health professionals can attend. This is the most preferred method of training and has the added benefit of providing networking opportunities.

2. Create a tailored, pre-recorded training program which can be used by small groups of health professionals working in rural and remote locations. The provision of support via email or video conference to answer queries which cannot be solved within the group would also be required.

3. Prior to running any further video conference workshops, ensure that the software used is fully duplexed and that feedback icons are used to facilitate two-way interactions.

4. Provide training and practice in the use of the software for participants prior to the workshop.
References


42. Nicholas AS, Day S, Pirkis J, Harvey CA. Mental health professional online development (MHPOD): pilot testing of an online training package for Australian mental health services. Focus on Health Professional Education. 2016;17(2):4-19.


83. Vollmar HC, Butzlaff ME, Lefering R, Rieger MA. Knowledge translation on dementia: a cluster randomized trial to compare a blended learning approach with a "classical" advanced training in GP quality circles. BMC Health Serv Res. 2007 Jun 22;7:92.


### Appendix 1 – Educational studies referred to in the literature review

<table>
<thead>
<tr>
<th>Study</th>
<th>Educational context</th>
<th>Media</th>
<th>Methodology</th>
<th>Outcome measures</th>
<th>Findings</th>
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</thead>
<tbody>
<tr>
<td>Akyol &amp; Garrison, 2011</td>
<td>Graduate course on blended learning most students enrolled in Masters of Education program</td>
<td>Online v blended</td>
<td>Mixed method comparative case study</td>
<td>Analysis of online discussions, student “CoI” survey, assessment scores, interviews with students and educator</td>
<td>Blended course students had higher perceptions of learning, satisfaction, cognitive, teaching and social presence. No difference in actual learning outcomes.</td>
</tr>
<tr>
<td>Allen et al 2003</td>
<td>US physicians CME in various topics</td>
<td>VC to three sites with multiple learners</td>
<td>Multiple case study</td>
<td>Questionnaires including intended practice change, amount and type of discussions, enabling and hindering factors, focus group by VC, interview of facilitator, practice change after 3 months</td>
<td>Initially interaction between learners and facilitator only but increased to include learners at other sites. Little interaction between learners at the same site. Knowledge gain occurred and participants reported changes in practice</td>
</tr>
<tr>
<td>Barden et al 2000</td>
<td>Hand assessment skills for physiotherapists</td>
<td>Self-study, F2F and VC</td>
<td>Comparative case study</td>
<td>Assessed knowledge and observed performance of skills</td>
<td>No statistically significant difference between F2F and VC. Both significantly better than self-study</td>
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<tr>
<td>Study</td>
<td>Educational context</td>
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<tr>
<td>Bednar et al, 2007&lt;sup&gt;103&lt;/sup&gt;</td>
<td>Orthodontics CPD</td>
<td>Interactive VC, webinar (no interaction until after presentation), watch recording then discuss with own faculty. All single sites.</td>
<td>Mixed method</td>
<td>Pre and post knowledge test and participant evaluation</td>
<td>Improvements reportedly similar to that with direct instruction. Live participation preferred but learning outcomes reportedly similar.</td>
</tr>
<tr>
<td>DeBourgh, 2003&lt;sup&gt;15&lt;/sup&gt;</td>
<td>First semester of graduate nursing program</td>
<td>VC and internet</td>
<td>Correlational research design</td>
<td>Student satisfaction</td>
<td>Once accustomed it is the quality and effectiveness of instructor and instruction, not the technology, that is associated with satisfaction.</td>
</tr>
<tr>
<td>Dennis, 2003&lt;sup&gt;37&lt;/sup&gt;</td>
<td>Problem based learning in physio</td>
<td>Synchronous online chat (text) v F2F tutorial</td>
<td>Post-test only control group design</td>
<td>Learning outcomes</td>
<td>No difference in learning outcomes</td>
</tr>
<tr>
<td>Ellis, 2003&lt;sup&gt;87&lt;/sup&gt;</td>
<td>CPD in nursing, short course on caring for older people</td>
<td>Not defined. Assumed to be F2F</td>
<td>Illuminative case study</td>
<td>Observation, interviews and documentary evidence</td>
<td>Selection to attend, motivation and support from management affects performance</td>
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<td>Study</td>
<td>Educational context</td>
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<tr>
<td>Evans, Ward &amp; Reeves, 2017</td>
<td>IPE (seven professions) elements of collaborative practice</td>
<td>Online asynchronous discussions</td>
<td>Exploratory case study</td>
<td>Transcripts of facilitators online contributions mapped to CoI indicators of teaching presence</td>
<td>Not all indicators of teaching presence from the CoI model fitted the data. Researchers created three additional indicators.</td>
</tr>
<tr>
<td>Falloon, 2011</td>
<td>Postgrad teacher education</td>
<td>Adobe Connect Pro virtual classroom</td>
<td>Interpretive case study - qualitative</td>
<td>Group interviews at beginning and end of course, analysis of seminar recordings, data from online forums</td>
<td>7/13 did not think video images were as important as audio. Effectiveness of video was limited by small image and head and shoulders view</td>
</tr>
<tr>
<td>Flannery &amp; Land, 2001</td>
<td>Teaching cognitive function assessment to acute care nurses</td>
<td>Self-directed manual, teaching video and classroom presentation</td>
<td>Comparative study</td>
<td>Accuracy of assessment of video vignettes and participant evaluation of learning</td>
<td>Classroom presentation participants were less accurate than other two groups</td>
</tr>
<tr>
<td>Fordis et al, 2005</td>
<td>US physicians CME in cholesterol management</td>
<td>Small F2F workshops v online learning with VC follow-up</td>
<td>Comparative case study</td>
<td>Knowledge pre, post and 12 weeks later. KT changes in screening patients and prescribing medication</td>
<td>Similar knowledge gains in both groups. Online group showed significant increase in treatment of high-risk patients according to pharmacotherapeutic guidelines.</td>
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<td>Study</td>
<td>Educational context</td>
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<tr>
<td>Goodenough et al, 2017</td>
<td>KT workshops for health professionals working with people with dementia</td>
<td>F2F</td>
<td>Survey</td>
<td>Self-reported KT outcomes 6 months post intervention</td>
<td>KT workshop participants more likely to report instrumental changes</td>
</tr>
<tr>
<td>Hackman &amp; Walker, 1990</td>
<td>Various, learners at industrial sites</td>
<td>Instructional television (ITV) - one way video, 2 way audio</td>
<td>Mixed</td>
<td>System design factors, teacher immediacy and perceived student learning and satisfaction</td>
<td>System design and teacher immediacy has strong impact on learning. Interactivity and clear audio and video positively influence student perceived learning and satisfaction</td>
</tr>
<tr>
<td>Hobbs et al., 1998</td>
<td>Rural based emergency medicine technicians</td>
<td>Traditional classroom, two-way audio/graphic computer network, satellite-based audio/video network</td>
<td>Prospective, non-randomised comparison of three instructional methods</td>
<td>Knowledge assessment</td>
<td>No significant difference between groups in test results or attrition rates</td>
</tr>
<tr>
<td>Hrastinski, 2008</td>
<td>Masters level knowledge management</td>
<td>Synchronous chat v asynchronous discussion board</td>
<td>Comparative study</td>
<td>Student interviews</td>
<td>Synchronous better for less complex learning, more task planning. Asynchronous better for complex learning</td>
</tr>
<tr>
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<tr>
<td>Hubble &amp; Richards, 2006&lt;sup&gt;104&lt;/sup&gt;</td>
<td>Research methods for undergraduate paramedic students</td>
<td>F2F classroom presentation v online viewing of presentation slides with audio and video</td>
<td>Comparative study</td>
<td>Academic performance, learning styles and course satisfaction</td>
<td>Learning styles differed, academic performance was similar</td>
</tr>
<tr>
<td>Jacobsen, 2006&lt;sup&gt;28&lt;/sup&gt;</td>
<td>First year undergraduate nursing</td>
<td>Asynchronous online forums and synchronous online chat v normal F2F group discussions</td>
<td>Quasi-experimental pre-test, post-test design with a control group</td>
<td>Pre and post-test questionnaires</td>
<td>Little difference in opinions of the usefulness of discussions and ease of expression. Online participants had interacted with group members outside of scheduled discussions less than F2F participants.</td>
</tr>
<tr>
<td>Jedlicka et al., 2002&lt;sup&gt;60&lt;/sup&gt;</td>
<td>Occupational therapy students’ mental health programming course</td>
<td>Two-way interactive video and audio (WebCT), chat rooms and independent learning</td>
<td>Comparative study</td>
<td>Examination scores, pre and post course surveys</td>
<td>No statistically significant difference in performance. 77% of students preferred VC due to higher level of interaction, more immediate feedback and similarity to classroom interaction.</td>
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<td>Study</td>
<td>Educational context</td>
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<tr>
<td>Kear et al., 2012&lt;sup&gt;45&lt;/sup&gt;</td>
<td>UK Open University undergraduates studying information and communication technology</td>
<td>Elluminate Live. Maximum of 3 students per session.</td>
<td>Mixed methods exploratory study, mostly qualitative</td>
<td>Forum postings, tutor focus groups, recordings of tutorials, student survey</td>
<td>Tutors experienced challenges in creating social presence and managing cognitive load.</td>
</tr>
<tr>
<td>Kerns et al., 2006&lt;sup&gt;54&lt;/sup&gt;</td>
<td>Graduate students in anaesthesiology nursing</td>
<td>Simultaneous on-campus classes v classes transmitted via VC</td>
<td>Quantitative comparative study</td>
<td>Self evaluation examination (SEE)</td>
<td>No statistically significant differences in mean SEE scores</td>
</tr>
<tr>
<td>Kobak, Engelhardt &amp; Lipsitz, 2006&lt;sup&gt;53&lt;/sup&gt;</td>
<td>Training of raters for pharmaceutical drug trials using Hamilton depression scale.</td>
<td>Traditional training (viewing and rating video-taped interviews and role plays) v enriched training (web-based online tutorial plus observation of interviews via VC or teleconference)</td>
<td>Mixed methods comparative study</td>
<td>Knowledge test, evaluation of interviewing skills, evaluation of training methodology by trainees.</td>
<td>Significant difference in knowledge and significant improvement in clinical skills for enriched training</td>
</tr>
<tr>
<td>Koder &amp; Klahr, 2010&lt;sup&gt;66&lt;/sup&gt;</td>
<td>Training nurses to use MMSE</td>
<td>One hour F2F training including rationale for use and common errors</td>
<td>Mixed methods pre/post intervention study</td>
<td>Pre-test survey of previous training, knowledge and confidence, post-test survey of knowledge and confidence</td>
<td>Statistically significant improvement in knowledge but training had no effect on confidence scores.</td>
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<td>Study</td>
<td>Educational context</td>
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<tr>
<td>Lashley, 2005(^{58})</td>
<td>Nurse training in health assessment</td>
<td>Online learning including audio and video. Instructional video with voice and graphics</td>
<td>Single case study</td>
<td>Evaluation survey</td>
<td>Online learning was more flexible. Instructional video was particularly useful</td>
</tr>
<tr>
<td>MacIntosh, 2001(^{61})</td>
<td>RN students studying for baccalaureate degrees via distance education</td>
<td>Interactive video conferencing</td>
<td>Phenomenological study</td>
<td>Survey and interview</td>
<td>VC can foster learning by using strategies which fit the technology, increase student satisfaction and engage students.</td>
</tr>
<tr>
<td>Maltinsky et al., 2013(^{55})</td>
<td>Diabetes education of to healthcare professionals</td>
<td>VC (single site) and F2F</td>
<td>Mixed method comparative study</td>
<td>Knowledge assessments and questionnaires</td>
<td>No difference in student performance but VC reduces the interactive nature of the learning and teaching experience. Students would have preferred F2F.</td>
</tr>
<tr>
<td>Markova, Roth &amp; Monsur, 2005(^{52})</td>
<td>Didactic conferences in family medicine residency program (17 sessions/topics).</td>
<td>F2F lecture simultaneously transmitted to distance site via internet transmission of slides and audio via telephone line</td>
<td>Comparative study</td>
<td>Pre and post-test of knowledge and learner evaluation survey</td>
<td>No significant difference in satisfaction or knowledge gain.</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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</tr>
<tr>
<td>Martin, Parker &amp; Deale, 2012</td>
<td>Graduate students in an instructional technology program</td>
<td>Virtual classroom (Wimba)</td>
<td>Single case study</td>
<td>Survey of students, interview with instructor, observation using Schullo’s schema</td>
<td>Features such as chat and webcam facilitated interactions, instructor’s teaching style and visual presence were instrumental in engaging students with content.</td>
</tr>
<tr>
<td>McBrien, Jones &amp; Cheng, 2009</td>
<td>Graduate and undergraduate mandatory courses in college of education - special education and psychology/social foundations</td>
<td>Virtual classroom (Elluminate Live!) without webcams</td>
<td>Qualitative study</td>
<td>Post-intervention open-ended survey (4 open questions)</td>
<td>Students rated convenience, technical issues and pedagogical preferences as important elements in their learning experiences.</td>
</tr>
<tr>
<td>McCarthy, 2005</td>
<td>Library and information science distance learning course</td>
<td>Simultaneous onsite and distance class via synchronous interactive video teleconferencing</td>
<td>Mixed methods comparative study</td>
<td>Questionnaire and focus group</td>
<td>Learning was enhanced by class discussions with more diverse perspectives, familiarity with technology and class interactions.</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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</tr>
<tr>
<td>Miller K et al., 2007</td>
<td>Distance education in orthodontic residencies and continuing education</td>
<td>Video of interactive seminar followed by discussion via VC, discussion via audio only or discussion via internet chat. Some students had VC discussion via an interpreter.</td>
<td>Comparative study</td>
<td>Post-intervention survey evaluation</td>
<td>VC was preferred method with audio a close second, internet chat was distant third</td>
</tr>
<tr>
<td>Miller P et al, 2008</td>
<td>Full day workshop to teach Chedoke-McMaster Stroke Assessment to physios and OTs</td>
<td>Simultaneous F2F and VC to five remote sites (Ontario Telemedicine Network)</td>
<td>Comparative study</td>
<td>Pre and post-test scoring competency and feedback questionnaire</td>
<td>No significant differences in scoring competency</td>
</tr>
<tr>
<td>Molnar &amp; Kearney, 2017</td>
<td>Students of dental hygiene online course</td>
<td>Asynchronous discussion board v synchronous video web-conference</td>
<td>Comparative study</td>
<td>Analysis of number of messages and Col indicators of cognitive presence</td>
<td>VC had significantly more messages and higher level of cognitive presence than asynchronous discussions</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nicholas et al., 2016</td>
<td>Multidisciplinary, self-directed, online learning related to mental health standards in Australia</td>
<td>Asynchronous online learning modules</td>
<td>Case study</td>
<td>Pre, post and follow-up surveys of participants</td>
<td>Increases in self-rated knowledge, skills and confidence. Barriers included lack of organisational support, no time release and technological difficulties.</td>
</tr>
<tr>
<td>O’Flaherty &amp; Laws, 2014</td>
<td>First year bachelor of nursing &quot;external&quot; students in a human bioscience course</td>
<td>Web-based virtual classroom (Adobe Connect)</td>
<td>Mixed methods</td>
<td>Web-based survey in first week and at end of course. Comparison of exam results with previous year’s cohort</td>
<td>Exam results improved from 55% lower than &quot;internal&quot; students to 33% higher.</td>
</tr>
<tr>
<td>Palumbo &amp; Bennett, 2015</td>
<td>Interprofessional students from 8 disciplines learning care of rural elders with multiple chronic conditions.</td>
<td>12 video conferences related to case studies over a two week period using Readytalk™ platform. 8-12 students engaged in each VC with others observing. Audio via phone.</td>
<td>Mixed methods survey</td>
<td>Post VC evaluation surveys</td>
<td>No significant differences between disciplines. Activity was valued by students but also conveyed a desire for more in-person IPE.</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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</tr>
<tr>
<td>Peacock et al., 2012</td>
<td>Performing arts dissertation supervision, pastoral support and performance feedback.</td>
<td>Wimba Classroom</td>
<td>Mixed methods collective case study</td>
<td>Questionnaires, video diaries and semi-structured interviews</td>
<td>Benefits included convenience, immediacy of communication and empowerment of learners. Technical limitations impacted on learning.</td>
</tr>
<tr>
<td>Saeki et al., 2006</td>
<td>CPD for rural health centre staff (public health nurses, nutritionists and dental assistants) in Hokkaido, Japan</td>
<td>Video conferencing between university and rural health centre</td>
<td>Case study</td>
<td>Session records and observation documents, participant questionnaire</td>
<td>Increased self-rated knowledge of community health care planning and evaluation. Significant increases in comfort using technology</td>
</tr>
<tr>
<td>Schullo, 2005</td>
<td>University graduate courses in nursing, education, engineering (x2) and library and information science for distance learners</td>
<td>Elluminate Live!</td>
<td>Multiple qualitative case study</td>
<td>Observation, instructor and learner feedback</td>
<td>Educators used a wide variety of pedagogical strategies.</td>
</tr>
<tr>
<td>Swarm, Vincent &amp; Gordon, 2013</td>
<td>Information literacy for adult education distance learners</td>
<td>Adobe Connect and Business Skype</td>
<td>Report of pilot project</td>
<td>Student feedback</td>
<td>Increased sense of community amongst students. Students preferred F2F or blended over online (asynchronous)</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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</tr>
<tr>
<td>Taylor, 2011</td>
<td>Support for healthcare students on clinical placement</td>
<td>Video conference and face-to-face</td>
<td>Mixed methods</td>
<td>Transcripts of recorded interviews (frequency of interruptions, short and long</td>
<td>Concerns over use of VC for emotionally based dialogue. Problems with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(simulated dialogue)</td>
<td>(evaluative phase of an action</td>
<td>pauses) and online participant questionnaires and focus group</td>
<td>eye contact, interpretation of non-verbal cues and two-dimensional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>research study)</td>
<td></td>
<td>nature of VC.</td>
</tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Teng et al., 2012</td>
<td>16-week research seminar on e-learning for doctoral students across Canada, Italy,</td>
<td>Online synchronous learning environment.</td>
<td>Mixed methods</td>
<td>Analysis of text messages and survey of learner experiences</td>
<td>Format of seminars did not allow for effective Community of Inquiry. A</td>
</tr>
<tr>
<td></td>
<td>New Zealand and Taiwan</td>
<td>Presentation followed by Q&amp;A using both</td>
<td></td>
<td></td>
<td>combination of synchronous and asynchronous content would be preferred.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>audio and text.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vollmar et al, 2010</td>
<td>CPD for GP’s on the management of dementia</td>
<td>Blended (online learning then face-to-</td>
<td>Cluster-randomised trial</td>
<td>Pre and post knowledge tests plus 6 months later.</td>
<td>No significant difference in knowledge gain between the groups</td>
</tr>
<tr>
<td></td>
<td></td>
<td>face discussion) v F2F only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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</tr>
<tr>
<td>Wade et al., 1999⁵¹</td>
<td>Advanced pharmacokinetics in Doctor of Pharmacy program over 3 separate year groups.</td>
<td>Classroom learning v interactive video conferencing</td>
<td>Mixed methods study</td>
<td>Student examination scores and student evaluation of teaching</td>
<td>Some differences in separate exam results but no significant difference in overall grades. Interactive VC did not appear to affect student performance or their assessment of faculty teaching.</td>
</tr>
<tr>
<td>Wang et al., 2017⁷⁸</td>
<td>Nurse-led dementia education for health professionals in primary care in China</td>
<td>Face-to-face train-the-trainer model</td>
<td>Cluster-randomised controlled trial</td>
<td>Knowledge assessment (Alzheimers Disease Knowledge Scale - ADKS), attitudes (Dementia Care Attitude Scale - DCAS) and care approach (Advanced Dementia Care Questionnaire - ADCQ) at baseline, completion and 3-month follow-up. Participant satisfaction survey and focus groups</td>
<td>Significant changes in knowledge, attitudes and care approach. Participants reported positive impact on their work practices and team collaboration. Person-centred approach was reduced at follow-up</td>
</tr>
<tr>
<td>Study</td>
<td>Educational context</td>
<td>Media</td>
<td>Methodology</td>
<td>Outcome measures</td>
<td>Findings</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Zournazis &amp; Marlow, 2014</td>
<td>Support for preceptors of student nurses undergoing rural placements in Tasmania</td>
<td>Monthly VC sessions</td>
<td>Pilot project - case study</td>
<td>Participant survey</td>
<td>Attendance at VC sessions was dependent on workload pressures. Networking opportunities were valued</td>
</tr>
</tbody>
</table>
Appendix 2 - Selected tips for presenting via video conference

- Participants should be involved early in a session rather than sitting and watching.\textsuperscript{106}
- Presenter should look directly into the camera when speaking.\textsuperscript{15}
- Speak in a normal tone and voice level.\textsuperscript{15}
- Allow for a slight time lag and pace speech to accommodate this.\textsuperscript{15,98}
- Schedule pauses at regular intervals to allow for questions or clarification.\textsuperscript{15}
- Use students’ names.\textsuperscript{15}
- Avoid content that uses large files e.g. animation and video.\textsuperscript{15}
- Mute microphones when they are not in use.\textsuperscript{98}
- Record online presentations for future use or archival purposes.\textsuperscript{98}
- Distribute educational material such as handouts in advance of the session.\textsuperscript{12}
- Use a modular structure to break sessions into discrete segments.\textsuperscript{12}
- Apply adult learning principles, taking account of participants’ prior knowledge and experience.\textsuperscript{12}
- Facilitate “elaboration”. Allow participants to examine new knowledge and actively discuss ideas.\textsuperscript{12}
- Encourage learners at other sites to answer questions raised by participants.\textsuperscript{12}
- Speak for no more than 10-15 minutes at a time before breaking to ask for comments or questions.\textsuperscript{106}
- Avoid parallel use of multiple media to avoid cognitive overload.\textsuperscript{45}
### Appendix 3 - Matrix for analysis of interactions in workshops

<table>
<thead>
<tr>
<th>Time</th>
<th>Direction of Interaction</th>
<th>Type of Interaction</th>
<th>Subject</th>
<th>Tone</th>
<th>Cognitive presence</th>
<th>Social presence</th>
<th>Teaching presence</th>
<th>Verbal behaviours</th>
<th>Non-verbal behaviours</th>
<th>Instructor behaviour</th>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:05</td>
<td>Educator</td>
<td>All students</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10:05</td>
<td>Educator</td>
<td>All students</td>
<td>General question, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10:23</td>
<td>Educator</td>
<td>All students</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10:54</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Personal and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20:00</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Personal and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20:33</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20:10</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20:15</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20:40</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21:00</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21:15</td>
<td>Single student</td>
<td>Audience</td>
<td>Provide information, Course and</td>
<td>Straightforward</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: The table contains data for various interactions and their corresponding characteristics. Each row represents a specific interaction with details on the type of interaction, subject, tone, and various behavioral aspects.
Appendix 4 - Workshop flyer (video conference version)

Hierarchic Dementia Scale–Revised (HDS-R) workshop via Video Conference

Presented by
Terrie Simpson, Occupational Therapist and Project Officer with
WA Dementia Training Study Centre (WADTSC)

The WA Dementia Training Study Centre will be holding a training workshop via video conferencing on the Hierarchic Dementia Scale–Revised (HDS-R) from 8.30am to 12pm on 4th and 8th April 2016.

Registrations for this workshop are invited from health professionals working in acute, residential or community settings, particularly those responsible for assessing and creating care plans for people living with dementia. Content is suitable for new users of the HDS-R.

Workshop objectives:

- Understand the underpinning theory of the HDS-R
- Demonstrate ability to assess people with dementia using the HDS-R
- Combine the results of HDS-R assessments with a Possibility Oriented Care approach to provide person-centred interventions.

The workshop will be using Webex™ video conferencing software which is accessible via the internet at no cost to yourselves. You will need a computer with an internet connection, webcam and microphone in order to participate. Please contact Lynda Durack (see details below) for more information on the technical requirements.

This training workshop is part of a study being conducted by University of Western Australia into the outcomes of different workshop delivery methods used for the teaching of cognitive assessment. The study requires part of the first video conferenced session to be filmed/recorded from the perspectives of both the presenter and the participants. We will need all participants to provide consent to being filmed and providing feedback at the end of the workshop and three months afterwards. Please read the attached Participant Information Form for more information.

If you are a health professional and would like to register for this training session, please follow the link to the Eventare website Link to website

If you have any questions, please do not hesitate to contact Lynda Durack on 9266 1831 or by email l.durack@curtin.edu.au

Funded by the Australian Government Department of Social Services. Visit www.dss.gov.au for more information
Appendix 5—Workshop evaluation form (hard copy)

Evaluation - Hierarchic Dementia Scale-Revised (HDS-R) Workshop Date

This questionnaire is being used to assist in evaluating this HDS-R training workshop. Participation is entirely voluntary and completion of the survey will be deemed to be your consent to participate. Information gathered is entirely anonymous; please do not include your name or other identifying information anywhere on the survey. Information provided will be used to guide further development of training workshops and may be used in publications or presentations related to the HDS-R.

Participant Demographic and Related Information

1. Which of the following best describes your current profession? (please tick one box only)
   - □ RN (Registered Nurse)
   - □ Psychiatrist
   - □ OT (Occupational Therapist)
   - □ EN (Enrolled Nurse)
   - □ Social Worker
   - □ Medical Specialist
   - □ DT (Diversional Therapist)
   - □ Psychologist
   - □ General Practitioner
   - □ Physiotherapist
   - □ EEN (Endorsed Enrolled Nurse)
   - □ Other (please specify below)

2. Which of the following best describes the setting in which you currently work? (Please tick one box only.)
   - □ Acute care (including sub-acute, outpatient or extended care settings)
   - □ Residential care (including hostel, low, high or dementia specific settings)
   - □ Primary/Community care
   - □ Transition care
   - □ Multiple care settings (eg community & residential care)
   - □ Tertiary education (educators only)
   - □ Not currently employed
   - □ Other (please specify):

3. Do you personally identify as being from any of the following backgrounds? (please tick all relevant boxes)
   - □ Person from Aboriginal and Torres Strait Islander (ATSI) background
   - □ Person from Culturally and Linguistically Diverse (CALD) background
   - □ Person living in a rural and/or remote geographical area

4. Are you currently studying? (please tick one box only)
   - □ No, I am not currently studying. (Please go directly to Question 7)
   - □ Yes, I am currently studying full time.
   - □ Yes, I am currently studying part-time.

5. If you are currently studying, what is your area of study:

6. If you are currently studying, at what educational level are you studying? (please tick one box only)
   - □ Individual subjects/modules
   - □ Certificate III or Certificate IV
   - □ Associate Diploma or Diploma
   - □ Undergraduate Degree
   - □ Postgraduate Certificate or Postgraduate Diploma
   - □ Masters Degree (by coursework)
   - □ Masters Degree (by research)
   - □ Doctoral Degree
### Participant Feedback About This Event

Please indicate your level of agreement with each of the following statements by placing a tick in the relevant box for each statement.

<table>
<thead>
<tr>
<th>Presentation Content and Delivery</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Topic was relevant to my work/study</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Information was presented at an appropriate educational level</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. Handouts, activities and/or demonstrations supported my learning</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. Presenter was an effective communicator</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. Presenter displayed a high level of expertise</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. Presenter was well prepared</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. Sufficient opportunity for active participation</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>14. Amount of time appropriate</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>15. The workshop increased my awareness of new research in the topic area.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>16. The workshop explored a key area of practice in the care of people with dementia.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17. The workshop increased my knowledge in the topic area.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>18. The workshop explored a practical application of the current research in the topic area.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19. I feel that my capacity to address this issue in my workplace has been enhanced by this workshop.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20. I intend to change my own practice on the basis of my attendance at the workshop.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>21. I intend to try and change the practice of my workplace on the basis of this workshop.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>22. I was satisfied with the workshop overall.</td>
<td>☐</td>
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</table>

### Event Registration and Organisation

<table>
<thead>
<tr>
<th>Event Registration and Organisation</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
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<tbody>
<tr>
<td>Registration for the event was effectively coordinated</td>
<td>☐</td>
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<tr>
<td>Catering for the event was effectively coordinated</td>
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<tr>
<td>Venue for the event was comfortable (given the number of participants attending the event)</td>
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<tr>
<td>Location for the event was relatively convenient (given the number and type of participants)</td>
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</table>

23. List the three most useful things that you have learned from this event.
   1. ________________________________________________________________
   2. ________________________________________________________________
   3. ________________________________________________________________

24. What elements of this learning activity worked well / could be improved?
   ________________________________________________________________
   ________________________________________________________________

25. Please list below any dementia-related topics that you would like to learn more about.
   ________________________________________________________________
   ________________________________________________________________

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About the HDS-R, Possibility Oriented Approach and Care Planning

Prior to this workshop, how would you rate your knowledge of the HDS or HDS-R?

- No knowledge at all
- I had heard people talk about it
- I had seen other people use it
- I had used it myself on a few occasions
- I use it regularly but have never had any training
- Other (please specify) ____________________________________________

Following this workshop, how confident are you about using the HDS-R?

- Not at all confident
- Somewhat confident
- Very confident

What barriers do you anticipate in being able to use the HDS-R in the next 3 to 6 months?

- Time
- Access to an assessment kit
- Support from team/management
- Other (please specify) ____________________________________________

How confident are you about teaching others to use the HDS-R?

- Not at all confident
- Somewhat confident
- Very confident

Prior to this workshop, what was your involvement in care planning for people with dementia?

- No involvement
- Minimal contributions when requested
- Significant contributions
- Full responsibility
- Other (please specify) ____________________________________________

Following this workshop do you expect to be more involved in care planning for pwd?

- Yes
- No
- Possibly

Do you anticipate combining the results of the HDS-R with the ‘Possibility Oriented Approach’ (POA) to create person-centred care plans?

- Yes
- No
- Possibly

What barriers do you anticipate in being able to use the HDS-R and POA to create care plans?

- Time
- Support from team/management
- Does not fit with current documentation format
- Other (please specify) ____________________________________________

How confident are you about teaching others to create care plans using POA?

- Not at all confident
- Somewhat confident
- Very confident
Please use the space below to provide any further comments about this training, the HDS-R, the Possibility Oriented Approach or person-centred care planning:

Thank you very much for your attendance and completing this evaluation. Your feedback is very important and will be taken into consideration in planning further training.

You will be contacted again for further feedback in a few months time. In the meantime please feel free to contact the presenter if you have any queries or would like any further information.
Appendix 6 – Schedule of questions for post-workshop interviews

1. What prompted you to attend the workshop?

2. Did the workshop meet, fail to meet or exceed your expectations?

3. What did you like about the workshop? What worked well?

4. What did you dislike about the workshop? What didn’t work well?

5. How do you think the workshop could be improved?

6. Do you think the outcome would be different if you had attended the alternative format of workshop?
Appendix 7 - HDS-R knowledge translation online survey

Email text

The Dementia Training Study Centres (DTSCs) develop resources for health professionals in dementia. We invite feedback from people who use our resources to learn about the value for your professional practice and suggestions for improvement.

You are receiving this email because you attended the HDS-R Workshop on (date) in Perth/via Video Conference. Your involvement is completely voluntary. You may withdraw from the survey at any time. The questionnaire will require approximately 10 minutes to complete.

This survey is part of a research project being conducted by University of Western Australia to investigate different delivery methods for training health professionals to carry out cognitive assessments. We are interested in whether this workshop has been helpful for your practice and professional development. Your responses will be anonymous and will not be used individually. This means that it will also not be possible to remove your responses from the database set collected should you wish to withdraw them later. Information collected may be reported in ways which will not identify you or your organisation.

Thank you for taking part in this survey. The following information outlines a research project being conducted by Terrie Simpson at the University of Western Australia. You have been selected to participate and your involvement is completely voluntary. You may withdraw from the survey at any time. If you agree to participate in the survey, please complete the questions that follow. Your responses will be anonymous and will not be used individually. This means that it will also not be possible to remove your responses from the database set collected should you wish to withdraw them later. If you have any questions, please feel free to contact me at the email address provided below.

terrie.simpson@curtin.edu.au.
**ABOUT YOUR FEEDBACK TO THIS SURVEY**

**How will my feedback be used?**

As a Government Funded initiative, the Dementia Training Study Centres (DTSCs) provide resources for health professionals in dementia. Feedback from people who use DTSC resources is routinely collected and collated to assess how helpful DTSC resources are, and to guide the development of future events and products. In addition the feedback from this survey is being used as part of a University of Western Australia research study to investigate different delivery methods for training health professionals to carry out cognitive assessments.

**Will my responses be identified?**

Your feedback is anonymous. No individual person or work organisation will be identifiable.

**Will reports based on the feedback be made public?**

Information collected by the DTSCs may be published in ways which do not identify you or your organisation. As part of a funding agreement, the DTSCs provide regular reports using grouped data to the Australian Government about the national client base accessing DTSC resources.

Feedback from this particular study by the University of Western Australia will be used to investigate the outcomes from different training delivery methods used to teach health professionals about cognitive assessments.

In the future, this feedback may also be collated for publicly available reports and peer-reviewed publication, e.g. journals and conference presentations. The use of participant feedback in these future ways will be subject to review of the Human Research Ethics Committee of the University of Wollongong (host site for the NSW/ACT DTSC, national co-ordinator of this feedback platform).

**Where is the consent form?**

You do not need to sign a consent form. Your participation in an anonymous feedback survey indicates your consent for your responses to be collected and used in the ways described above.

**If I participate and then change my mind - can you delete my feedback?**

As this is an anonymous feedback survey, it is not possible to track your responses and selectively delete them.
Who can I speak with?

For information about this research study please contact Terrie Simpson at terrie.simpson@curtin.edu.au.

For more information about DTSC resources, or to update your contact details email WA DTSC via l.durack@curtin.edu.au or telephone 08 9266 1831.
2. The following questions list different ways you may have changed your practice based on knowledge or skills gained from the HDS-R workshop. Please choose "yes" or "no" for each one, and if possible, share some brief details (e.g. what you tried - or why not). ☐

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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<tbody>
<tr>
<td>Have you changed an aspect of your own personal professional practice?</td>
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<tr>
<td>More details?</td>
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<tr>
<td>Have you changed a practice or routine on your “unit” or in your workplace?</td>
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<td>More details?</td>
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<tr>
<td>Have you tried a new procedure, technique, or other intervention?</td>
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<td>More details?</td>
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<tr>
<td>Have you changed a procedure, technique or other intervention?</td>
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<td>More details?</td>
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<tr>
<td>Have you changed your beliefs or thinking about a particular approach or procedure?</td>
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<td>More details?</td>
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</table>
3. The following questions list specific ways you may have used knowledge or skills gained from the HDS-R workshop to influence other people. Please choose "yes" or "no" for each one, and if possible, share some brief details (e.g. what you tried - or why not).

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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<tbody>
<tr>
<td>Have you educated or informed a resident, patient or client?</td>
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<tr>
<td>More details</td>
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<tr>
<td>Have you educated or informed another member of staff (same discipline as you)?</td>
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<td>More details</td>
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<tr>
<td>Have you educated or informed another member of staff (different discipline to you)?</td>
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<td>More details</td>
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<tr>
<td>Have you educated or informed a member of the public?</td>
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<td>More details</td>
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<tr>
<td>Have you supported / assisted another staff member (same discipline as you) to make a change to their own practice?</td>
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<tr>
<td>More details</td>
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<tr>
<td>Have you supported / assisted another staff member (different discipline to you) to make a change?</td>
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<td>More details</td>
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<tr>
<td>Have you persuaded / supported a patient or client or resident to make a change?</td>
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<tr>
<td>More details</td>
<td></td>
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</table>
4. How many cognitive assessments have you completed using the HDS-R since attending the workshop? 

- None
- 1 or 2
- 3 to 5
- 6 to 10
- More than 10

More details?
5. Overall, how often have you used the knowledge or skills gained from the HDS-R workshop in some aspect of your professional practice?

- Never
- Once or twice
- Half of the time
- Nearly all of the time
- Don’t know / unable to answer

More details?

6. Will you please suggest ways in which the HDS-R workshop could better assist you to apply or use your knowledge and/or skills in practice?
HDS-R Workshop KT Survey

About your feedback to this survey

How will my feedback be used?
As a Government Funded initiative, the Dementia Training Study Centres (DTSCs) provide resources for health professionals in dementia. Feedback from people who use DTSC resources is routinely collected and collated to assess how helpful DTSC resources are, and to guide the development of future events and products. In addition the feedback from this survey is being used as part of a University of Western Australia research study to investigate different delivery methods for training health professionals to carry out cognitive assessments.

Will my responses be identified?
Your feedback is anonymous. No individual person or work organisation will be identifiable.

Will reports based on the feedback be made public?
Information collected by the DTSCs may be published in ways which do not identify you or your organisation. As part of a funding agreement, the DTSCs provide regular reports using grouped data to the Australian Government about the national client base accessing DTSC resources.

Feedback from this particular study by the University of Western Australia will be used to investigate the outcomes from different training delivery methods used to train health professionals about cognitive assessment.

Where is the consent form?
You do not need to sign a consent form. Your participation in an anonymous feedback survey indicates your consent for your responses to be collected and used in the ways described above.

If I participate and then change my mind - can you delete my feedback?
As this is an anonymous feedback survey, it is not possible to track your responses and selectively delete them.

Who can I speak with?
For information about this research study please contact Terrie Simpson at terrie.simpson@uwa.edu.au.

Thank you for your assistance.

Kind regards

Terrie Simpson

Done
Appendix 8 – Post workshop evaluation responses

Useful things learnt: face-to-face workshop

To focus on the positive and ability of the individual

Conducting the HDS-R assessment

Possibility Orientated Approach Booklet

Care planning from HDS-R results

Practical application of HDS-R

Increased awareness of changes to HDS-R

Update on the newest form of the HDS. Availability, application and content

Analysing the results to create a care plan

Care plan

How to score the assessment

How to use the HDS-R tool appropriately in my practice

Going around the tables looking at each section of the HDS-R

The usefulness of the HDS-R

Application of Possibility Orientated Approach to strategies for client

More about Possibility Orientated Approach

Developing care plans from the HDS-R

Review of HDS and updated knowledge of HDS-R

New format of HDS-R

Ensure careplans are individualised but also understandable for carers

Compiling a care plan that is person-centred

Watching example videos
Putting HDS-R into practice

Understanding all levels of dementia sufferers can benefit

How to do the HDS-R

Info on current research into the assessment

How to practically use the HDS-R

Using HDS-R assessment

How to best administer the assessment

How to include results in care plan - practice feedback to carers

Going through the Possibility Orientated Approach

How to practically apply the HDS-R and the Possibility Orientated Approach

Group discussions in familiarising ourselves with the assessment

Interventions based on the person’s strengths

Greater knowledge of the HDS-R

Refreshed knowledge about HDS-R

Reviewing Possibility Orientated Approach - long time since first saw so have relied on experience; good to remind

Look at the person - promote their sense of well-being, contentment and happiness

Refresher on dementia

Putting together care plan

Can be utilised bit by bit

Revising the theory of HDS-R

Interactive

How to write individualised care plans

Gained confidence in the research / evidence behind the assessment
That my current practice is in line with the Possibility Orientated Approach and compatible with HDS-R

Background theory behind assessment - Piaget's.

Improved way to write care plans

Practical application

Sharing colleagues' knowledge / networking

Great power points and notes matched, Love colour coding of HDS-R

Useful things learnt: video conference workshop

Creation of care plans based on gathered knowledge from HDS-R

Benefits to Care Planning

Content of HDS-R

Learning/exploring the revised tool kit

How to use the HDS-R tool

Ability to investigate a person's abilities and limitations

It was interesting seeing the different 'losses' broken down into separate areas

Applying HDS-R to care plans, enabling more accurate, person-centred care plan to be implemented

To be able to identify/investigate the person's abilities and limitations

How to assess a client with dementia using strength-focused tool

Assessing tools & techniques

Understanding some aspects of Dementia in a clearer more precise manner

Benefits to client care outcomes
Benefits to diagnosis and mgt of client services specific to community services required.

Practical application of the HDS-R

Careplanning incorporating assessments from HDS-R

Level of seamlessness to aim for when carrying out the assessment

How to develop interventions and strategies from the assessment

How to transfer assessment result to a care plan

Learning of the existence of an assessment of a resident's contentment

To focus on a person's abilities when care planning

Looking into use as diagnostic tool

Care plan reinforced that current practices in the workplace are contemporary - although different terminology

How the results correlate to practical function

Using the subscales to make up the HDS-R

Using the graphs which will prompt me to determine the residents’ abilities and limitations when compiling the care plans.

To focus on client’s abilities when developing a Care Plan

In future -to be used as a diagnostic tool and compare between different types of dementia

How to complete appropriate, individualised care plans

Practical strategies to implement dementia-friendly practices
Comments / suggestions for improvement: face-to-face workshop

Tables - splitting us up to meet the group and discuss the HDS-R

Group discussion on creating care plan

It was great to see the videos of practitioners doing the assessment on people with dementia

I think the workshop was well planned and set out. Good mix of theory and practice. Video footage was good.

The videos worked well. Good visual approach.

More practical/activity based learning to maintain energy levels

More direction in the small group work activity around the HDS

May be the care planning to be completed by each group and then shared to have more group involvement

Well structured, useful handouts

More direction in each specific subscale of Ax

Writing/discussing the care plan as a group worked well

I would like to suggest that viewing the DVD and care-planning exercise occur in sequence as this would have further benefit

Comments / suggestions for improvement: video conference workshop

Thought it was excellent as is, just sorting IT which is learning process anyway

Just work on some technical issues beforehand to ensure no issues are encountered during first day.

The workshop was delivered in a flexible, contemporary way that facilitated learning in a regional setting. The facilitator was excellent and despite a few minor IT issues, the mode of delivery was excellent. Perhaps having some pre-session activities. Eg, watching Nora video prior to the education
Compatibility of technology - quite a few technical issues to access the workshop at the beginning. We use older technology was not able to access the seminar quiet as easily.

It was a great webinar only technology issues was the weakest part.

Care planning for more than 1 person with dementia. Looking at the different types of dementia and how it impacts a person's function and well-being

Tech issues will iron out with time and practice, so not an issue.

I feel the workshop was well-presented despite technological difficulties; the information given was interesting and I feel confident using it in my work place. It would have been impractical for me to attend the workshop had it been held in Perth, due to time away from work and cost, so the Webex was a positive all round

Develop a Care Plan for a number of people with different stages/types of dementia

Having all participants complete a pre-education seminar on Scopia technology to avoid issues that could delay the workshop

May have been useful for participants to complete a care plan for Nora using the headings shown BEFORE returning for session 2. This would have given increased retention of "Nora" and possibly enabled better brainstorming on Day 2. ie. some homework that required thinking, not just watching.
General feedback: face-to-face workshop

Great day. Highly recommended.

Great to see the videos of the assessment being completed - the best training tool. Thank you for the training materials.

Well delivered training using research / evidence. Hope to use the tool in goal-setting with clients

Good resources

Any further training and education on these topics is worthwhile and can promote forward thinking in the field of aged and dementia care

Thank you

General feedback: video conference workshop

I enjoyed the training & found the information to be adaptable & am hoping to implement ASAP

Training was very informative and delivered excellently

Thank you for the opportunity to be involved in this training via distributed learning. It enabled us to be able to complete this training in a cost and time efficient way. Further to this, having a second person to complete the training with was an advantage. It allowed us to work together throughout the exercises, to discuss residents/clients care during the training and will also enable us to continue to work and support each other with implementing the HDS-R into our care post the training.

I believe the HDS-R assessment with the possibility for careplaning is a more informative & holistic assessment tool than the current ACFI assessment tools. Time would not be an issue if I could use the HDS-R as the ACFI assessment and use the PAS/Cornell if I wanted to investigate further. In the future it would be good for RN's/TL to also use the HDS and careplaning can be an interdisciplinary effort rather than as separate as it is at the moment.

Terrie was very clear and easy to follow in her delivery. Very pleased I participated. The residents in my care will benefit.
Despite some technical difficulties, the webinar was an excellent, interactive way of receiving training, given that I live and work in the country. I would be very keen to participate in future web-based training sessions by DTSC and Curtin.
Appendix 9 - Comparative costs and organisational factors

In order to operate the two workshops, similar amounts of administration were required. An online registration system was used for potential participants to apply to attend then applicants were screened to check that they met the inclusion criteria i.e. they were tertiary qualified health professionals working regularly with people with dementia and were prepared to give consent to participate in the research study.

For the face-to-face workshop, a training room had to be booked and paid for, catering arranged and paid for and materials for the workshop had to be transported to the location. The cost of the room booking and catering was approximately $1,300. The administration assistant from the Dementia Training Study Centre was present at the beginning of the workshop to assist with set-up of the room and checking participants’ registrations on arrival, at morning tea and lunchtime to co-ordinate delivery of catering at the required time and at the end of the workshop to clear away and transport materials back to the offices.

The video conference workshop was conducted from a spare office within the building in which the educator was based. The Webex™ software was provided by Curtin University and was freely available for use by the Dementia Training Study Centre, as was training for the educator and on-site technical support to assist with the IT/communication problems at the commencement of the workshop. HDS-R assessment kits had to be sent to four of the participating sites (the participant in Brisbane had already purchased the kit). These were packed and sent by courier with prepaid return paperwork so that they could be sent back afterwards. When the kits arrived back they needed to be checked to ensure that all the contents were present and intact. The total cost of this was $130 per site and the total administration time was similar to that required for booking and organising the face-to-face workshop. There was no requirement for the administration assistant to be present at any point during the video conference workshop.

In most cases running a video conference workshop would work out cheaper than a catered face-to-face workshop. Distribution of the HDS-R kits to the video conference participants meant that costs per participant were very similar.

The cost of running a face-to-face workshop in a rural or remote location would vary depending on the destination but would include return transport and accommodation for the educator and payment for additional travel time. The hire of training facilities would
likely be less than in the metropolitan area or free-of-charge. Experience has shown that there are likely to be fewer attendees (<20) at such locations therefore increasing the cost per participant. The overall costs of a face-to-face workshop at a rural or remote location would be substantially higher than a video conference workshop for the same population.
Appendix 10 - The educator/researcher’s reflections on the workshops

The educator had presented the face-to-face version of the workshop more than twenty times prior to the study and was therefore very comfortable with the content, the format, the types of questions and feedback from participants. The only additional requirement for the educator in the study was to set-up and switch on the cameras (static and body-cam) at the start of each session and switch them off and pack them away at the end. The educator was not aware of feeling any additional stress apart from the normal slight nervousness which she experiences prior to any workshop or presentation.

Although the educator had not conducted a video conference workshop previously, she had presented webinars and frequently participated in video conference meetings and discussions. She had researched literature on the use of video conference for teaching purposes and compiled a list of tips. She also received training on the technology and tested the system set-up on the Friday before the Monday workshop. The educator only recalls feeling a slight nervousness before starting the workshop.

The technological difficulties which delayed the start of the workshop and caused one person to drop out and another to continue without audio for the first session, were entirely unexpected. However, the lack of interaction from the participants was more stressful and caused her to doubt her ability as a presenter and educator. When asking questions to either confirm understanding or instigate discussion she frequently received no response and it was not possible to determine whether the participants were listening or engaged. The educator recalls feeling particularly stressed at the end of the first half day and had difficulty in focussing on other activities later that day.

Research has shown that lecturers experience stress which can be detected by salivary markers of adrenal activation before, during and after giving lectures. Some studies of teaching via video conference have also reported increases in subjective stress levels on the part of educators. Due to the effects of stress both on a person’s health and job satisfaction, it would be worth carrying out an objective study of the stress experienced when teaching via video conferencing to determine whether this is an intrinsically more stressful activity that face-to-face teaching or whether the stress reduces over time as educators become more accustomed to the environment and the expectation.

On reflection, it would have been better to use the feedback icons available in the Webex™ software which enable participants to click a button to give instant feedback to the
presenter (yes, no, too fast, too slow, applause, laughter or raise hand). These types of features had been purposely disabled in an effort to create a learning environment which was as close as possible to the face-to-face workshop. The “raise hand” option may have made it easier for the participants to interact as the educator, on recognising that somebody wished to speak, would have responded to them by name then stopped speaking to enable them to take over as the current speaker. This would have avoided situations where participants may have been wanting to speak but could not “break in” or more than one participant attempting to speak at once.