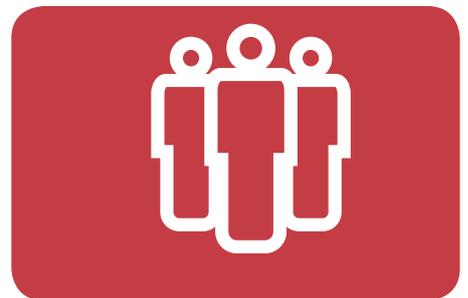
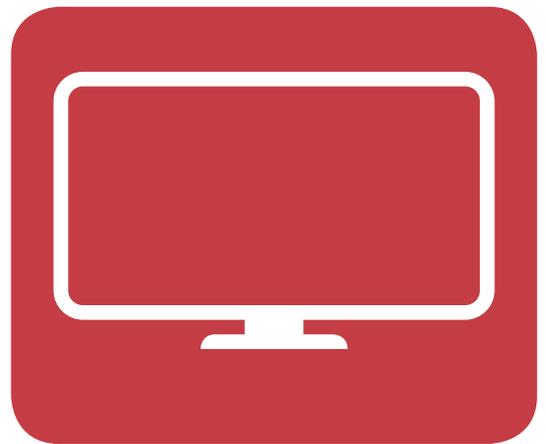


2013-15 Videoconnection Project





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▶ Introduction |

The Promise

Assistive technology has opened a new world for people with disabilities. In a world where everyone benefits from computer-related technology, we sometimes forget the conspicuous and momentous benefits that this technology has delivered for people with disabilities.

Here are some of the benefits:

- Writing
- Speaking
- Reading
- Learning
- Remembering
- Organising
- Working
- Creating
- Playing
- Sharing

CASE STUDY

LEIGH

Having a computer has changed Leigh's life. That's what he said when he bought his first computer in 1990. It's only gotten better in the 25 years since then. He uses his computer for photos, music, Facebook, email, checking weather, reading, diary, calendar, address book and much more! Leigh has cerebral palsy and uses a trackball in place of a standard mouse. He is unable to hold a pen to write or manipulate paper to read.

CASE STUDY

JOHN

John lives at home and uses technology to establish his independence. Although he has a spinal injury affecting his arms and legs, he can use an adapted telephone, operate a powered front door, change channels on his TV and turn lights on and off. He does this by activating a switch with head movement. He can't imagine his life without the independence this technology gives him.

Assistive technology helps people with disabilities to be more independent, more productive and more connected. It provides a pathway for people with disabilities to realise their potential and to be active members of their family, school, workplace and community.

This is great! Let's go for it!



The Problem

While some beneficial technology can be purchased off the shelf, in many cases it needs to be adapted and customised for people with disabilities.

Here are some examples:

- How do you use a computer or tablet if you can't see the screen or can't use your fingers?
- How can you see who is at the door and let them in, if you can't get out of bed?
- How do make a phone call if you can only move your head and use your voice?
- How can you remember your daily activities if you have a memory impairment?

There are experts (usually specialist occupational therapists) who can advise on these adaptations and also on how they can be fitted to your wheelchair or bed, if that is needed. They are highly skilled and try to keep abreast of all the new developments in technology that can benefit people with disabilities.

However, there are not many of these specialists around. And nearly all of them are based in the cities, where most of the people with disabilities live.

But what about people in rural and regional areas? How can they get access to this expertise? Sometimes they travel to the cities themselves, to see these experts. This can be very expensive and very inconvenient. Sometimes these experts visit country areas, but this can be costly for the organisations who employ these specialists. Staff have to spend a lot of time travelling and there are additional costs in terms of fares, accommodation and meals. So these trips are infrequent and usually brief.

So what happens now?

Some people do not take advantage of assistive technology at all. They miss out on the possible benefits (independence, connection, productivity) this technology can provide.



CASE STUDY

JIM

Jim would love to use computer technology but he doesn't know where to start. He reads about things and sees new inventions on television, but he lives in a remote area and there is no expertise available for him. He'd love to do more than watch TV every day. Jim has a spinal injury.

Others take a guess, from a friend, family member or local computer shop, and end up with something that provides partial or limited benefits. So they miss out a bit, maybe a lot, but not completely.

Others go it alone. They read about something on a web site and order it. But often it doesn't work the way they thought it would. Or they can't position it properly. They end up wasting their money or having to spend a lot more to get it to work properly. It can be a frustrating experience.



CASE STUDY

SALLY

Sally's family saw something on the internet they thought might be useful for her. It was a mind control device and they thought it would enable Sally to communicate and write emails. The family paid a lot of money for the device but when it came it was very difficult to set up and didn't work the way it had been presented on the internet. No local support was available. The expensive device now sits in a cupboard, unused.

Funding bodies are often reluctant to pay for travel and accommodation costs for assistive technology experts to visit people with disabilities in rural areas. They often delay approval, partially fund or sometimes simply reject services for people in rural and regional areas.

This is not a satisfactory situation. The benefits of assistive technology are significant, but people in rural and regional areas have limited access to them. Is there another way?



Videoconferencing technology has been around for quite a long time, at least since the 1980s. It uses telecommunication technology to link people in different locations together. Originally it was slow and expensive, so was primarily used for corporate communications.

But that has all changed now with the internet, Skype and small but powerful tablets and smartphones. Perhaps the terminology needs to change too, as people are “connecting” rather than “conferencing”. We prefer the term “videoconnection” and will use that throughout this handbook.

So now we can link specialists in the city with people with disabilities in rural and regional areas, quite easily and without huge cost. Services such as advice, assessment, training and technical support can, in theory, all be provided through videoconnection services. There are huge benefits possible for everyone:

For people with disabilities in rural and regional areas:

- Convenience - You don't have to pack up and travel long distances. You can cancel and re-schedule if you are unwell.
- You can have short or long sessions, as you require. You can have a number of short sessions if you prefer.
- If you are paying yourself, you do not have to pay for travel and accommodation. You just pay for the expertise you need.
- You stay in the comfort of your own home, with your familiar surroundings, family members, pet dog and everything else that make you feel “at home”.

Benefits for Funders:

- Funding bodies can now offer services for people in rural and regional areas at much lower cost. This could reduce delays in approval and enable more people to be funded within the same funding envelope.

Benefits for Therapists and Assistive Technology Services:

- Videoconnection can cut out travel costs and therefore enable more people to be provided with services.
- Also waiting lists can be reduced, as videoconnection enables people to be seen quicker.

This is all good. For a country like Australia, with so many people spread out in rural areas, videoconnection makes a lot of sense.



The Possibility

The big question is – how does videoconnection work in practice?

How effective is it? Is it really possible to offer quality assistive technology services this way?

Is it as good as an in-person service? If not, what is missed?

Do you need special equipment? Do you need high speed internet?

Does it cost a lot? Does it cost people at both ends? Who pays?

Do you need to be an IT expert to use this? What is required to set it up? Do you need another person to do this for you?

And so on. These and other similar questions can only be answered from experience, from those who have used videoconnection services. They are practical concerns.



The Project

This handbook aims to contribute practical insights regarding videoconnection services, based on our experience with the technology over the past two years. We hope it will encourage and guide others in the productive and appropriate use of videoconnection services.

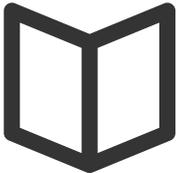
It is a “handbook” rather than a report or research paper, as its orientation is unashamedly practical.

But it is based on considerable research undertaken by Ability Technology.

- A mixture of in-person visits and videoconnection services for people in rural and regional areas.
- Documentation of case studies and responses.
- Interviews with participants
- Workshops and seminars addressing videoconnection issues.

It won't of course be the last word on this. Experience will produce new insights (and new challenges). But hopefully it will give various participants the courage to take their first steps.

The handbook and the research required to produce it, were generously funded by Perpetual.



Handbook |

Our experience has shown that many factors can affect the viability of videoconnection services.

These include:

1. Video technology used
2. Internet speed and reliability
3. Who is present with the client
4. The issue being addressed

Let's look at these in more detail.

MAJOR FACTORS

1. Video Connection Technology Used

We decided to use what most people have access to, so we have mostly used iPhones, iPods and iPads, at the user end, for the assessment services. At our end we use a desktop or laptop computer at our office.



CASE STUDY

MARY

Mary has a serious brain injury and relied on a carer who to provide support during the videoconnection assessment. Mary has an iPad and that was used at her end, by the carer. However the carer was constantly confused in positioning the iPad, forgetting that the camera is at one end of the device. She also found it hard to hold the iPad with one hand while setting up the equipment for Mary with the other hand. The carer became frustrated and we had to re-schedule the session.

We initially used iPads but quickly found that iPhones/iPods were easier to use and easier to position. Some people found iPads hard to position, as the camera is at one end of the (larger) device.

The same sized image is shown on the assessor's computer screen, regardless of the size of the device being used at the client end.

We posted an iPod Touch for clients to use as part of the service. This was easier than relying on unknown technology at the client's end.

For Facetime, there needs to be a Mac or iOS device at each end, but for Skype it can be any device (Mac, Windows, Android or iOS).

In most devices the front camera has a lower resolution than the main (rear) camera, but this didn't seem to be a big concern for us.

For tech support and some training, we use TeamViewer. It enables us to view a client's computer on our screen, as we talk with them. A security code is sent to the client's computer, to permit us to link to their computer this way.



CASE STUDY

PETER

Peter had a problem with Dragon speech recognition on his Windows computer. We were able to undertake some investigation remotely from our technician's computer. We could check things like RAM, hard drive space, what versions of software were being used, etc. Through this the problem was solved and Peter is now running at proper speed.



CASE STUDY

JAN

Jan lives in a remote area and had installed some special software that included word prediction and text-to-speech, to help her writing. We were able to customise this software for her and train her in its use, via Teamviewer.



LESSONS FROM OUR EXPERIENCE:

1. Smaller devices (like iPods) are easier for support staff on site to position.
2. It may be prudent to send a dedicated device to the client, so that the assessor knows exactly how the device is to be set up and operated.

2. Internet Speed, Reliability and Availability

We thought this would be a major factor, but it turned out not to be the case. Results were generally good, even when speed was limited to 3G.

We found that hospital internet had restrictions on downloads and access to web sites. It is important to send dedicated internet for the session.

We used a portable Telstra Pocket Wi-Fi, which we sent to the client (along with the iPod). This meant we paid for the internet connection, not the client. Note that otherwise the receiver as well as the caller pay for the video call. If we initiated the call, the receiver still has to pay as well, through their internet or phone data plan.

CASE STUDY

BOB

We arranged a videoconnection assessment with Bob. Susie, his occupational therapist, wanted to be there and offered to use her iPhone for the connection at their end. This would have enabled the assessment to be undertaken much quicker. But we explained that it would cost either her or the client's data (if she used their Wi-Fi), even if we initiated the call. She was not aware of this and agreed to wait for us to send out our Pocket Wi-Fi device.

At our office we have enhanced our upload capacity (doubled, to 2MB sec). Upload speeds are usually the limiting factor in videoconnection service speed, but all we have done is ensure that the client's view of what is being demonstrated at the assessor's end is of acceptable quality - it does not affect the client's upload speed.

LESSONS FROM OUR EXPERIENCE:

1. We suggest the assessor should be prepared to send down a pocket Wi-Fi device, as this can be pre-set to work with the iPod sent down.
2. If the client has access to high speed broadband internet, and is prepared to shoulder their cost for the videoconnection session, then this can also be used.
3. Ensure that the assessor has access to high speed broadband internet at their end.
4. Don't rely on hospital internet connections, which have restrictions.

CASE STUDY

DENISE

One of our clients was located in the NBN area of New England in NSW. We had many drops outs and voice call quality was so poor we had to mute Skype and use the landline phone to supplement the video image. Luckily they had a cordless phone otherwise we would have had to send them another mobile phone for phone calls.

3. Who is there?

The person with a disability will need to be present, at least for most of the sessions, although sometimes videoconnection links with a local therapist on his or her own can also be useful.

However we always needed another person there, as well as the client. If we are to observe the client's capabilities with technology, then we need another person who can hold the iPod and follow our instructions. If the client is unable to speak, then even greater reliance is placed on the support person. If this person is paid to be present, then this is an additional cost for a videoconnection service.

We found the role of the support person on site to be a crucial one in determining the success or otherwise of the videoconnection process. Best was a tech savvy therapist or carer (i.e., able to understand basic computer terms such as "USB", able to follow directions to settings folders, able to restart a device when requested). Support people who are uncomfortable with technology can make the whole process slow and disjointed.

Tasks that were commonly performed by the support person included:

- Making or receiving a Skype or Facetime call
- Positioning and moving the iPod, swapping between front and rear cameras
- Unpacking, turning on and charging equipment
- Connecting devices to WiFi
- Connecting assistive technology devices to other devices e.g. USB devices and switches
- Turning on a computer and starting Teamviewer software
- Positioning assistive technology devices for a person to use
- Giving feedback on a person's performance
- Packing equipment and arranging for return postage
- Assisting with communication with client, in some cases

LESSONS FROM OUR EXPERIENCE:

1. Virtually always there needs to be a support person present, to operate the camera device (such as an iPod) and thus enable the videoconnection process to proceed.
2. It is important that this person has some fluency with technology, sufficient to point the camera and to make adjustments to the client's technology, as requested by the assessor.
3. If the support person needs to be paid to attend, then this additional cost needs to be taken into account when calculating the comparative cost of in-person and videoconnection services.

4. The issue being addressed

Assistive technology goals can vary enormously. They can range from use of a keyboard, trackpad, stylus, trackball or joystick, to use of a head or mouth device, to use of software and apps, to use of voice commands and eye movements.

Some of these issues are relatively simple, both to set up and observe. But in many cases some setup and careful positioning is required. Even if the correct equipment is sent to client prior to the videoconnection assessment, it needs to be set up on-site by a support person or therapist. The preparation of instructions and the implementation of these instructions on site are both additional costs for videoconnection services.

For some devices clear images will be required to evaluate their suitability for a client. For example, if suitable switch sites are being investigated, and the client has very limited movements, then clear close-up images will be required.

Proper lighting can have an impact on the quality and clarity of images being transmitted to the assessor. This may need to be adjusted by the support person, by opening a curtain or switching on a lamp.

Evaluating speech recognition will require observation of the client's computer screen and audio from the person's voice.

Videoconnection is more difficult for observing software, especially as typically you will need to examine the client's interaction with the software as well as what is happening on the screen. Some nimble camera work will usually be required! Teamviewer software can assist with viewing a computer screen on your own computer. This is not available for viewing the screen of a mobile device e.g. iPad.

Sometimes the person will need to be assessed in more than one place, such as in their wheelchair and in bed. This will usually require separate sessions.

LESSONS FROM OUR EXPERIENCE:

1. The technology to be observed will determine how much preparation is needed, instructions supplied and the clarity of the images needed for videoconnection. This will often require additional costs, for the preparation and planning by the assessor.
2. Proper lighting needs to be available so that good quality images can be transferred during the videoconnection process.
3. Multiple videoconnection sessions may be required if the client is to be observed in locations such as bed.

ISSUES THAT AROSE

Apart from the major factors discussed above, there were many other issues that arose during our experience with videoconnection. Sometimes these are overlooked and they can affect the overall cost of videoconnection services, vis-à-vis in-person services.

1. The cycle can be lengthy – multiple sessions required

When an assessor visits a client in person, they bring with them a collection of relevant equipment and options appropriate to the task.

To achieve the same outcomes through videoconnection, a number of sessions will be required:

1. An initial session will need to be arranged, to “meet” the client and discuss their needs. It will need to cover all basic information required to decide what equipment is to be trialled. For example, observe movement and positioning, potential access sites/movements/abilities/strengths and weaknesses, sensory status – impact of vision, hearing difficulties on the assessment process (cognitive difficulties were more difficult to handle and to observe accurately in a video call, compared to in-person). The initial session may also identify technical needs and problems regarding the video linkage, including speed, interference and lighting.
2. Items will then need to be selected by the assessor and sent to the client. A session will be required to help the support person to set up, customise and position the devices/items sent.
3. A videoconnection session will be required to make an initial assessment of the person using the devices supplied. If that is positive, then a longer trial of the equipment will be commenced.
4. The client’s trial of the equipment may need to be supported by further sessions, through extra training and technical support.
5. A final session would review the client’s use of the equipment and draw conclusions from that (such as to seek funding or arrange purchase).
6. If the equipment is not suitable, then alternatives will need to be identified and the whole process repeated.

So although an initial videoconnection assessment can be commenced without delay, the whole process itself can be quite lengthy. Therefore although it may be quicker to initiate a videoconnection assessment, it may be quicker for an in-person assessment to complete the whole process.

2. Need to send equipment

Initially the iPod (or similar) device and the pocket Wi-Fi system will need to be sent to the client or their support person.

Obviously if the person is to be assessed using assistive technology items, these will need to be sent to them beforehand. These can include switches, mounting and access devices. If software was involved then we found it easier to send a laptop with the software already pre-loaded.

Now it is true that in-person assessments also involve the use of equipment. However that equipment is brought by the assessor and returns with him or her. When equipment is sent to a client, the assessment service can be without the equipment for lengthy periods, sometimes weeks. For example, we sent equipment to a client who then had to cancel a number of videoconnection booked sessions, due to illness. In another case, the support person who was the recipient of the assessment equipment went on holidays. This all means that an assessment service would have to expand its stock of assessment equipment, and this is an additional cost to these services.

Equipment will also need to be sent to the client for a trial and this presumes the availability of a loan pool, when this is a major omission in the current assistive technology landscape. Ability has built up its own loan pool of items for this project, but in normal circumstances there would be a cost to hire the equipment to be used for such a process.

Some suppliers do make equipment available for loan, but our experience is that substantial delays are involved. There is also the additional cost of trying to coordinate the delivery of various equipment in time for a booked session.

Software is often available for free trial. It is important to co-ordinate the timing of this, so that the software trial period does not expire before or during the assessment period. Software trials can usually only be used once per computer, so the trial software may need to be downloaded to the client's computer. This installation process can be facilitated through Teamviewer, however may need to be arranged before the assessment session as software downloading and installation can be a lengthy process.

There were many practical issues that arose in the delivery of equipment in this project. Our experience was that this was not always a simple process. Co-ordinating availability, packing, labelling, insuring and sending equipment can be a lengthy process.

There can be a danger of items going astray, but thankfully this did not occur during our project.

Equipment being sent needs clear labelling. It is important to ensure all peripherals e.g. chargers are labelled and available. It may be helpful to label parts of equipment that need to be connected to other parts e.g. using coloured or numbered labels, as it can be difficult to describe cables and other parts to a support person.

Usually during an in-person assessment the assessor would carry with them extra equipment and backup devices.

However this is not possible when items are being sent and great care is required to ensure that all required items are sent.

One problem we faced with loan equipment (for assessment or trial) is an incomplete set of devices being returned – most frequently with cables or power cords missing. This can require phone calls, searches by the client and follow-up. Delays result.

While we carefully packed items to send to clients or their support persons, frequently items were returned poorly packed. This exposes them to damage – this risk needs to be included as an additional cost for the assessment service and would be included in the true cost of a loan service.

As far as possible we tried to ensure the equipment was in a box that the client could use to return it. A return address label needs to be provided. There is a need to check that someone can arrange the return delivery, and clarify who bears this cost.

For couriers, we needed to check the areas covered, whether the parcel will be delivered to a house (at what times) or a depot, and how return delivery can be arranged. Courier costs are usually much higher than Australia Post unless an account is set up, at a cost. Return delivery may require a separate account from deliveries from the office.

Australia Post costs can be calculated on their website based on measurements and weight. The Australia Post [Click and Send](#) service allows for pre-paid postage label to be printed off; this is useful for return deliveries if the client is not paying themselves.

We noted that any additional size and weight of a parcel can significantly increase the cost of postage. Normally for an in-person assessment, we would bring additional equipment items that are not core to the assessment goals but we have a hunch may be needed, and are often glad we brought these extra items. When posting equipment, we were less able to send additional equipment 'just in case'. If a client needs equipment that we did not send originally, these items needed to be sent later and an additional session arranged, which lengthens the process.

3. Not all information available by videoconnection

In several cases we were able to compare in-person assessments with videoconnection assessments. This served to highlight the differences.

An in-person visit allows ancillary information to be gathered more easily e.g. brand of appliances to be controlled. This is particularly important for addressing needs such as mounting, where detailed and accurate information is required which may be difficult to obtain from a support person or image. Someone needs to take measurements accurately for you e.g., tube diameters, barriers under a desk that you may need to mount something on. Images of wheelchair parts were sometimes unclear when black tubes lay across each other. It enables rapport to be built and anecdotal information and observations to be noted and used for advantage in the assessment process. This may not be possible during videoconnection.

It may be the case therefore that an in-person assessment gives a better, more accurate assessment result, although in many cases this will not be decisive. It depends on the issue and client's needs.

Highly technical tasks or tasks that involve a level of risk or require special tools and expertise e.g., setting up a mount, may not be possible via videoconnection.

4. Videoconnection as a training avenue

We focussed much of our attention on assessments (via videoconnection) and technical support (using Teamviewer). However videoconnection can also be used for training.

Training was often a part of the processes described above, as some training would be needed for the client and support staff in the use of the assessment equipment supplied.

It was helpful to provide the client and/or support people with written instructions on how to use the various equipment used in the assessment or provided as part of a trial. The former is an extra cost that would not apply to an in-person assessment, as the assessor would incorporate some training as part of the assessment.

For software training, we found Teamviewer to be the most effective avenue.

However note that videoconnection is not a solution for training for iPhones, iPads, Android tablets and phones, dedicated communication devices and dedicated environmental control devices.

5. Videoconnection as a tech support avenue

We have used Teamviewer extensively and successfully for client technical support. It enables our staff to take control of a client's computer and undertake troubleshooting remotely.

It does require instructions at the client's end to approve and initiate the support session and we found it helpful to have someone on site able to do this properly.

Videoconnection is not a solution for tech support for iPhones, iPads, Android tablets and phones, dedicated communication devices and dedicated environmental control devices.



ACCEPTANCE OF VIDEOCONNECTION

We found the response to videoconnection varied among the participants. This is not surprising. We should not expect unanimity from groups who have different perspectives and priorities. These differences need to be acknowledged, accepted and even negotiated if videoconnection is to be usefully employed in the assistive technology sector in Australia.

1. Client Acceptance – Mostly Positive

- Acceptance by clients was usually quite high. This is not surprising.
- Client feedback suggested a number of factors involved they favoured:
 1. Session length and timing could be tailored to their needs.
 2. The client does not have to travel.
 3. Clients could have a quicker response to their needs, compared with being on a waiting list for in-person assessments. For some clients in remote areas, it is doubtful if we would have been able to book them in for in-person services anyway, or at least for an extended period (when we were in their vicinity for another (paid) service).
 4. If the client was funding the service themselves, there was a lower cost when compared with in-person assessments, due to the lack of travel costs. However this was under the structure of our project. If the true cost of videoconnection is calculated (see The Economics of Videoconnection below) then the gap may not be so wide.

2. Support Person Acceptance - High

- Acceptance by support people, usually a local therapist, was very high.
- For local therapists, who are not assistive technology experts, the videoconnection process enabled them to learn about assessment techniques and some of the latest equipment. This transfer of skill could benefit other clients.
- However such a transfer of skill can also apply if the local therapist chooses to be present at an in-person assessment.
- If the support person was a family member or carer, then they also relished the opportunity to have the client's needs met. This was especially the case when the client was in a remote area and/or had been waiting for in-person services for a considerable time.

3. Assessor Reaction – Generally Positive

- The assessors had a generally positive reaction to videoconnection, but they felt that in-person visits are more effective.
- Out of all the groups involved in this process, the assessing therapists were the ones who recognise the gap between what can be observed during an in-person visit compared with the more limited information available through videoconnection.
- Therapists also recognised the benefit of a single face-to-face visit compared with what turned out often to be an extended cycle of involvement, even though it starts sooner. Practical issues with equipment and reliance on strangers at the other end to be their eyes and hands could at times be frustrating.
- Observations and measurements take longer through videoconnection as the assessor has to direct the camera holder to every detail needed to be seen in the house.
- Assessors also noted that it took longer to develop rapport with the client through videoconnection. For example, it is not possible to observe non verbals if the camera is focused on the keyboard.
- Another issue was that these therapists realised that “down time” through travel provides them with some respite from their demanding and sometimes intense work with clients and others at the office. Greater use of videoconnection would keep them pinned to their desk more often, which may increase the need for breaks and other means of escape from the constancy of their demanding roles.

4. Service Provider Reaction – Generally Positive

- The assistive technology service provider in this project had a generally positive response to videoconnection services. There were several reasons for this:
 1. It enabled a better use of staff skills by reducing travel. From a management point of view, travel time is “dead time” and even if it is paid, the payment is usually partial (for travel time only without mileage, or for mileage without travel time, or fares without travel time).
 2. Videoconnection enables a prompt response to requests for assistance, which made the organisation “look better”. Annoying waiting periods were reduced.
 3. It means services can be extended to reach almost anywhere. By comparison, in-person assessments are limited in geographical scope by the cost of travel.
- However there were some costs. Some duplication of specialised equipment was needed, as it was away for weeks rather than being returned within hours or a day or two for in-person assessments. The administrative task of managing equipment allocation would be very significant if videoconnection services became more prominent.
- The service provider’s enthusiasm for videoconnection also waned a little when the proper costs were calculated.

5. Funder Acceptance - Cautious

- Funder reaction to videoconnection was not part of this project and we can only report anecdotal comments.
- Funders' main concern is that the assessment will not be completed properly and that money will be wasted. They do not want to trial an untested process.
- The exception is technical support, where funders are happy to fund prompt remote support options, as long as the outcome is satisfactory.
- More information about funder perceptions will emerge as their experience with these processes grows.



THE ECONOMICS OF VIDEOCONNECTION

Throughout this handbook we have suggested costs that would need to be included if a proper comparison of the costs of videoconnection could be made with the cost of in-person services.

For the sake of comparison, the NDIS rate for an occupational therapist (currently around \$168 ph) is used for professional services, and \$60 ph for administrative services. Travel is charged at the full hourly rate but no separate charge is made for kilometres or tolls. Fares are estimated for remote assessment. Report writing is the same for both services and is therefore not included. The cost of loan equipment for trial (as distinct from assessment) is also not included, as this would be the same for both services.

In-Person Assessment, Local (Sydney)

Professional service	2.0 hours	\$336.00
Travel, say	2.0 hours	\$336.00
TOTAL		\$672.00

In-Person Assessment, Remote

Professional service	2.0 hours	\$336.00
Travel, say	5.0 hours	\$840.00
Fares, car hire, taxis, say		\$625.00
TOTAL		\$1,801.00

Videoconnection Assessment – with local private therapist present

Professional service – initial	1.0 hour	\$168.00
Send iPod and WiFi, est	1.0 week	\$90.00
Other person present, OT	1.0 hour	\$168.00
Travel costs for local therapist	1.0 hour	\$168.00
Send assessment devices, est	1.0 week	\$150.00
Admin time for packing, posting	1.0 hour	\$60.00
Professional service – design instructions	1.0 hour	\$168.00
Professional service – observe client with devices	1.5 hours	\$252.00
Other person present, OT	1.5 hours	\$252.00
TOTAL		\$1,476.00

Videoconnection Assessment – with Family Member/Carer Present

Professional service – initial	1.0 hour	\$168.00
Send iPod and WiFi, est	1 week	\$90.00
Send assessment devices, est	1 week	\$150.00
Admin time for packing, posting	1.0 hour	\$60.00
Professional service – design instructions	1.0 hour	\$168.00
Professional service – observe client with devices	1.5 hours	\$252.00
TOTAL		\$880.00

It can be seen that the cheapest option for clients in the metropolitan area is for an in-person assessment. This is cheaper than a videoconnection service, even if a second private therapist is not present.

However in more remote areas, the cost difference will depend on the fares involved and if a local occupational therapist is present, the difference is likely to be small.

Videoconnection, from an economic perspective, becomes viable for remote area assessments only where another paid professional does not need to be present. From our experience this is not often the case.

CONCLUSIONS

Videoconnection provides an exciting opportunity in the area of assistive technology, especially for those in more remote areas. But our research suggests that realistic evaluation of its potential is required, and that is what we have sought to undertake in this project. Here then are some concluding thoughts.

1. Ideally a supplement or adjunct to an in-person assessment

- There need not be an either/or decision regarding videoconnection. We believe it can work very well as an adjunct to an in-person assessment. For example:
- It could give a very vivid insight into a client's situation (better than paper forms) prior to an in-person assessment. It would therefore serve to make the in-person assessment better prepared, more accurate and productive.
- It would be great for follow-up with a client. If a trial of equipment has been proposed as a result of an in-person assessment, then the outcome of that trial could be undertaken by videoconnection. This would be better than very general verbal feedback or the extra cost of a follow-up in-person visit.

2. Videoconnection is great for technical support and training

- There is no doubt that videoconnection is very useful for computer technical support (through services such as Teamviewer) and also for software training.

3. Quicker response but longer process

- The fact that a videoconnection assessment can be arranged quite quickly creates an image of speed that can be illusory. A whole process needs to unfold and this can take a long time.
- The time for videoconnection can balloon out if unexpected equipment faults develop. There are many things that need to work together for the assessment to happen – support people need to be on time, equipment needs to have been received and instructions understood, internet connections need to be active... problems at any of these key elements can result in aborted sessions and lots

of frustration. Our project has shown that these problems can occur more often than one would hope.

4. Limited scope

- While videoconnection works well with computers, it is far less useful for training and support involving iPhones, iPads, Android tablets and phones, dedicated communication devices and dedicated environmental control devices.

5. Great efficiencies but some extra costs

- As outlined earlier, it is not always the case that a videoconnection assessment costs less than a face-to-face assessment. It depends on how far (and at what cost) the face-to-face assessor has to travel, on the one hand, and whether a paid person such as a case manager needs to be present for a videoconnection assessment, on the other.

We hope you have found this handbook useful. It is not the last word on this topic – our collective experience will grow and our wisdom on this issue will develop. But here, at least, is a start. ■

Our special thanks go to Perpetual, who funded our research and the preparation of this handbook. We acknowledge funding from:

- Perpetual Foundation - Bridge Business College Gift Account
- Baxter Charitable Foundation
- Winifred & John Webster Charitable Trust Fund

