

THE ZOOM SOLUTION

AN INTEGRATED ELEARNING PLATFORM

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This report documents the ZOOM trial undergone by the **VLN Primary School (VLNP)** in May 2016. It documents the scope of the trial's implementation and includes user experience and feedback, as well as highlighting key features. The report also puts forward the benefits for implementing ZOOM as the VLNP's preferred eTeaching and Learning Platform.

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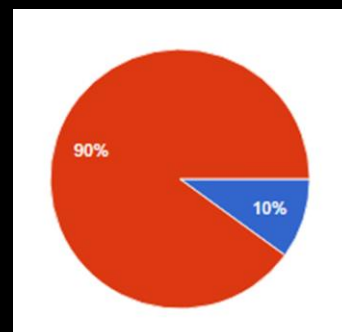
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“Easy and effective”

90% of users surveyed prefer ZOOM over the current combined solution of Skype and Adobe Connect Classroom for content delivery and user participation.



On SKYPE: “When it works it's fine ie Japanese but Spanish is not great and very frustrating to be continually told we need to upgrade when we have. Often not clear picture and sound can be muffled or echoing with a time lag.”

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BACKGROUND

VLN Primary School offers online classes in a range of subjects to Primary and Intermediate schools across the length and breadth of New Zealand. We are currently running 42 classes in Semester 1, and have 451 enrolments from 40 schools participating in these classes. We have one eLearning Facilitator on-hand full-time to support these classes and our 9 eTeachers.

OUR CURRENT ELEARNING PLATFORM

We use three communication tools for our classroom delivery platform:

- *Adobe Connect* Classroom donated and supported by MoE
- *Skype*
- MoE's Audio Bridge (audio backup)

In 2015 we phased in *Skype* as a replacement for the *Audio Bridge* as it appeared to offer a more flexible and reliable solution for the audio component of the classes. Schools were asked to install the *Skype* software onto a computer and extensive support was provided to enable the transition from *Audio Bridge* to *Skype* for most schools.

As almost all our participating schools have now had their Internet connectivity upgraded and are utilising the N4L's managed network, the need for *Audio Bridge* as a backup has significantly diminished and we now consider this to be legacy technology.

The synchronous platform that we use for our classroom learning is *Adobe Connect Classroom*. This platform supports audio and video with built in audio features. The audio quality is highly variable in comparison to *Skype* and so this feature serves as a backup in the eventuality that *Skype* connections with a school fails.

We have spent a significant amount of time troubleshooting and supporting our schools with these tools, including writing bespoke help guides and facilitating coaching sessions with all stakeholders. It is therefore very unfortunate for us to experience a marked reduction in the audio quality and connectivity features with these tools in 2016. It has been frustrating for all involved to consistently experience problems to the extent that the technology available to us is often a barrier to furthering emergent eTeacher pedagogy and learner digital literacies.

ELEARNING TOOLS

eTeachers use the following tools to facilitate and deliver their online classes. Our current eLearning model offers these tools, but not in a single software application;

- **File display** – eTeachers have traditionally produced a slideshow presentation as the main methodology for sharing learning content for their classes. This is primarily because the file types supported by *Adobe Connect* are limited to slideshows and pdf's. The process for displaying these presentations is onerous and involves downloading the slideshow (if produced in Google Slides), and then uploading this to the *Connect* classroom, then opening a *pod* and sharing that particular file. This process must be repeated each time a new file is used. It is

also especially difficult for us to archive the material uploaded to *Connect* as once it is in the system, it is almost impossible to download it for storage elsewhere and deletion is permanent.

- **Video display** – Both *Adobe Connect* and *Skype* support webcam views of all participants. However, in *Connect*, this feature must be enabled for all participants by the host. If learners have their video on in *Skype* this often means that learners do not appear in the Classroom as their devices will not support webcam views in more than one application at a time. Time spent managing these trivial conflicts can have a heavy impact on quality learning time.
- **Audio** – as mentioned prior, *Skype* is the tool we have depended upon for delivering quality audio. On the whole this aspect of the software has served us well. Unfortunately, most recently we have had issues with device and network compatibility and group calling using *Skype*. There could be many reasons for this, including the age and operating system of the devices our schools and eTeachers use. Many of these variables are outside of our control and we have had to spend a considerable amount of time at the start of this year troubleshooting and developing workarounds in order to maintain service.
- **Screen Share** – this is a little used feature with our eTeachers, however, it is useful as it offers the opportunity to model concepts and share videos with the learners in a more interactive way. There are incompatibility issues here as well; this time with the *Google Chrome* browser. *Adobe Connect* uses *Flash* plugins to support screen sharing. *Google Chrome* has stopped supporting these same plugins (NPAPI). Users are forced to use *Mozilla Firefox*, or an alternative web browser as a backup in the event that they wish to screen share. Again, this is not an effective way to manage eTeacher / user time.
- **Chat** – both *Skype* and *Adobe Connect* support chat with users. Hyperlinks can be pasted into the chat for users to click on. The chat in *Adobe Connect* can also be emailed to the host to keep a note of proceedings, or to follow up on inappropriate use. This feature is rarely used as part of the learning experience, but more often as a troubleshooting tool when audio is an issue.
- **Recording** – it is possible to record meetings in *Adobe Connect*, but is well-nigh impossible to download or replay without having administrator access to the back-end.
- **Administration** – *Adobe Connect* allows for one super-admin only. Much of the administration that is required on a day-to-day basis could be done with a lower permission, which the MoE have not made available to us, limiting access to useful tools.

THE ZOOM TRIAL OVERVIEW

ZOOM is a paid subscription video conferencing solution hosted by *ConnectNZ* in New Zealand. It offers the following features in commonality with our current mode of delivery, within an integrated platform:

- Video
- Audio
- Screen Share
- File Share
- Chat
- Recording

- User Administration

It was determined that we set up a trial account with ZOOM in order to explore these key features in order to evaluate a comparison with our current eLearning model. We embarked on the 30 day trial at the beginning of May 2016. Participants in the trial are as detailed in Table 1 below.

TABLE 1: ZOOM TRIAL PARTICIPANTS

CLASS	NUMBER OF PARTICIPATING SCHOOLS	NUMBER OF LEARNERS
Te reo Māori	6	11
Spanish Extension	4	10
Korean	5	19
CS & Programing	5	17
Japanese	3	6
Afrikaans	3	3
Tagalog	2	6
German	6	13
Rural Group	8	36
eTeacher / Admin Meetings	9 end points	

Support

Critical to the trial's success is the support available, both on-call and on-demand. This section covers the help system developed during the trial.

CONNECT NZ

Jack Olliver has been our key contact at *ConnectNZ* and has consistently been on hand throughout the trial thus far. We have had comprehensive meetings covering the main features of the platform, as well as ad-hoc troubleshooting sessions and walkthroughs at my request. The service so far has been second-to-none and we are building a good working relationship. Indeed, Jack has said that he has learnt a fair bit from us too during this trial as we adapt the tool to suit our particular brief.

I have no doubt that we can only build further on our working relationship to mutual benefit.

ZOOM WEBSITE

The comprehensive on-demand help is available here: <https://support.zoom.us>

The site remembers previous searches (sign in required):

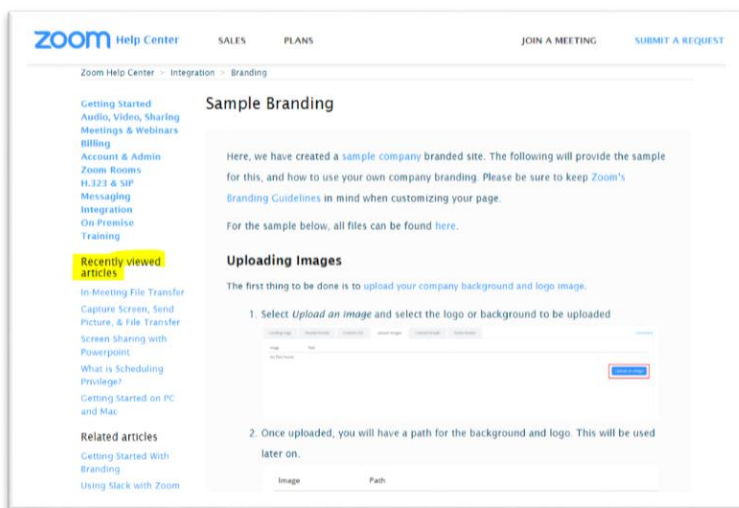


FIGURE 1: ZOOM ONLINE HELP

VLNP ZOOM RESOURCES

I have created a ZOOM resources folder on our shared Google Drive here:

https://drive.google.com/open?id=0B_GYbE6lr5vwbGI2TzhWVGv1V1k

Jack Olliver has developed two simple user guides for both students and eTeachers. These guides have been shared amongst our participating schools and eTeachers and are in the Drive folder.

These will be added to over time, as necessary. There will also be a link to these for both students and staff on WeLearn.

KEY FEATURES

This section explores the key features of the platform, as experienced during the trial. Some comparisons will be made with our current system.

USER ADMINISTRATION AND DASHBOARD

It is relatively straightforward to set up new users. It is important to note that users cannot be assigned meetings until they have accepted their invitation to sign up. It is also important to ensure that users use their VLNP GAFE login details to maintain consistency and to easily enable group setup and so forth. Accounts have been set up for all eTeachers. To date only the Tagalog eTeacher has not yet responded to his invitation to set up a Zoom account.

I have set up an eTeacher group with **Assigned Scheduling Privileges**¹ with myself as admin. This means that I am able to set up each meeting for each eTeacher from a single page. This is efficient and time saving. If a feature needs to be changed for the whole group, this can be done via **Group**

¹ These terms highlighted in bold are as named in the Zoom Dashboard.
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Management. Alternatively, individual **User Management** provides access to every feature available and can be enabled or disabled as appropriate.

USER MANAGEMENT

Each user is set up to host their own meetings. Early on in the trial I set up meetings for the Rural Group, Japanese and German using my own account². We recently discovered that the Japanese meeting was running at the same time as my own class and my Zoom profile took priority. This meant that although the eTeacher was able to open her meeting, she was unable to host and so the meeting was disrupted for that class. She has since signed up for her own account and I have scheduled her a new meeting ID. It is useful to know that you cannot have more than one host operating a meeting at any one time so we can take this into consideration when scheduling the Timetable.

Each account has been set up to allow the user to do the following in their meeting.:

- Share Screen
- Manage Participants:
 - Mute / Unmute All
- Chat:
 - Send File (file share)
 - Save Chat (automatic³)
 - Private and Everyone
- Record
- Breakout Room⁴
- Manage their own audio and video

These features are familiar to our eTeachers and have demonstrated ease of use during the trial.

MANAGING THE ZOOM INTERFACE

A focus for Zoom training for eTeachers and participating schools will be to consolidate effective use and management of the interface. The toolbars are not sticky (this allows for a distraction free meeting), however the 'end meeting' button is hidden if users do not have their Zoom interface maximised. This means that at the end of the meeting users are still 'hanging around'. ETeachers need to remember to leave the meeting so it ends for everyone.

² These will be deleted and new ones set up under the eTeacher's accounts as appropriate on rollover.

³ Automatic features include saving recordings and chat files to the Zoom folder created in the user's documents

⁴ This is an advanced feature where users can be assigned a room separate to the main meeting to work – Anna has requested this for Afrikaans and Stephanie is also interested in using this feature in German. This would be a good way to encourage learner collaboration between different participating schools.

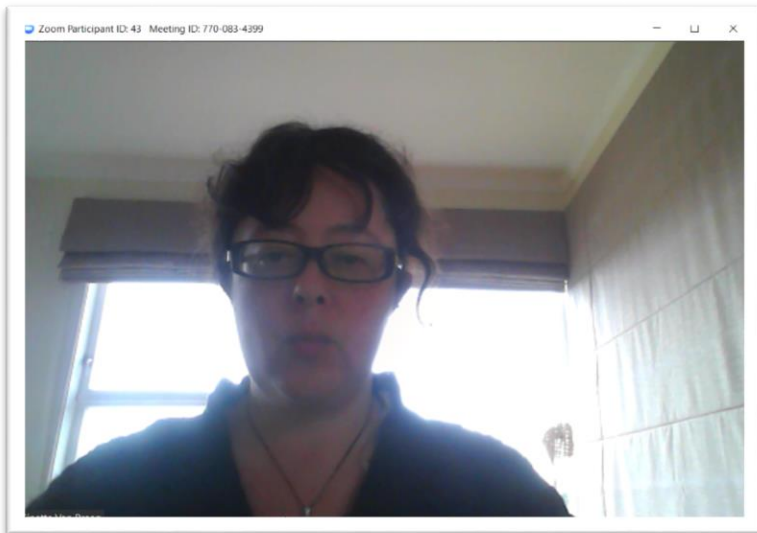


FIGURE 2: SINGLE WINDOW NO TOOLS ON STARTUP

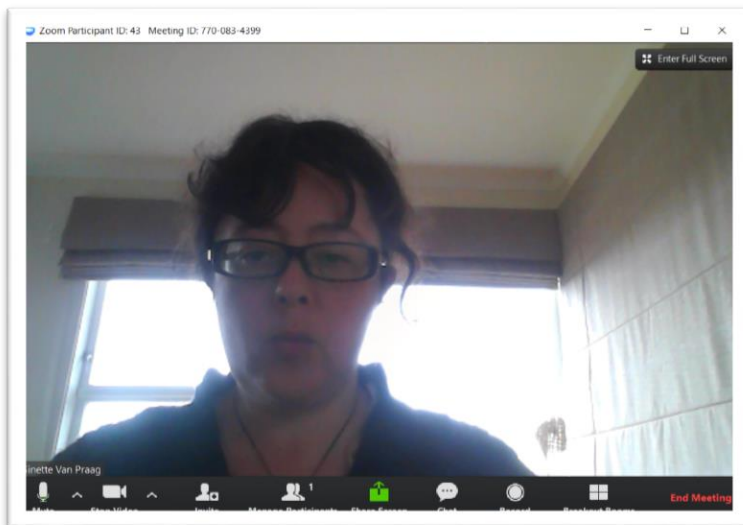


FIGURE 3: SINGLE WINDOW OPEN WITH TOOLBARS ON MOUSEOVER

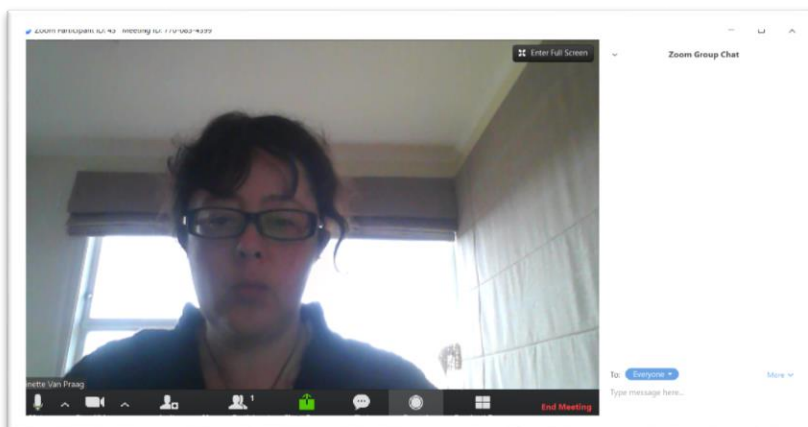


FIGURE 4: ACTIVE CHAT WINDOW
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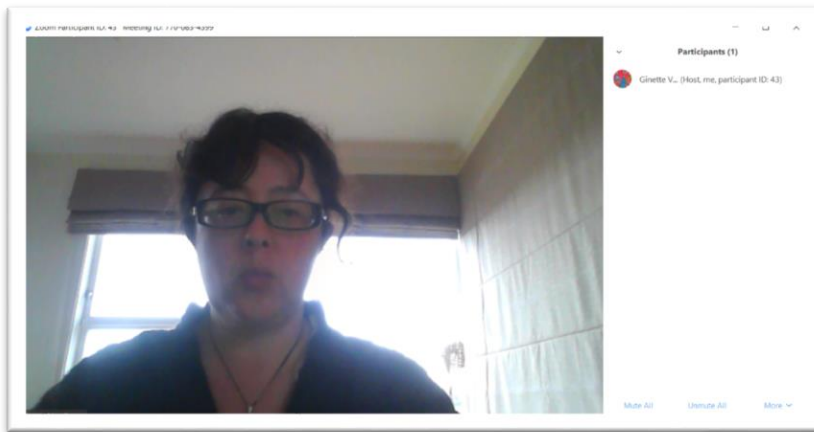


FIGURE 5: ACTIVE 'PARTICIPANTS' WINDOW

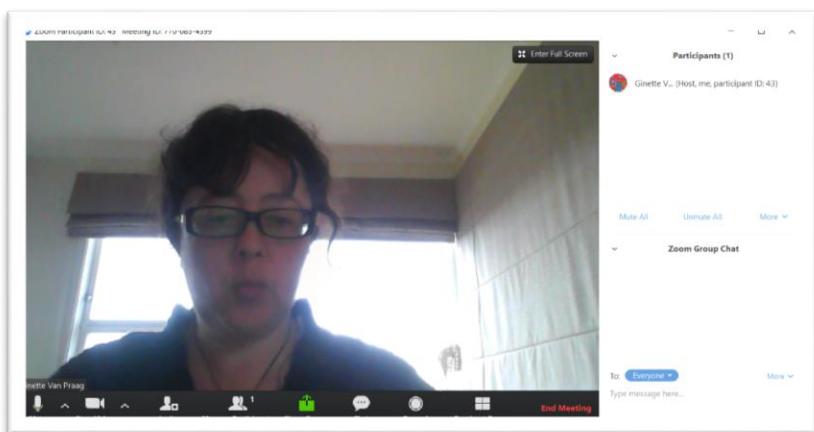


FIGURE 6: ACTIVE TOOLBAR, CHAT AND PARTICIPANTS

I would recommend that the ideal interface configuration for eTeachers is one that shows the toolbar, the chat window and participants as above. The drop down menus (in blue) offer further options in these areas.

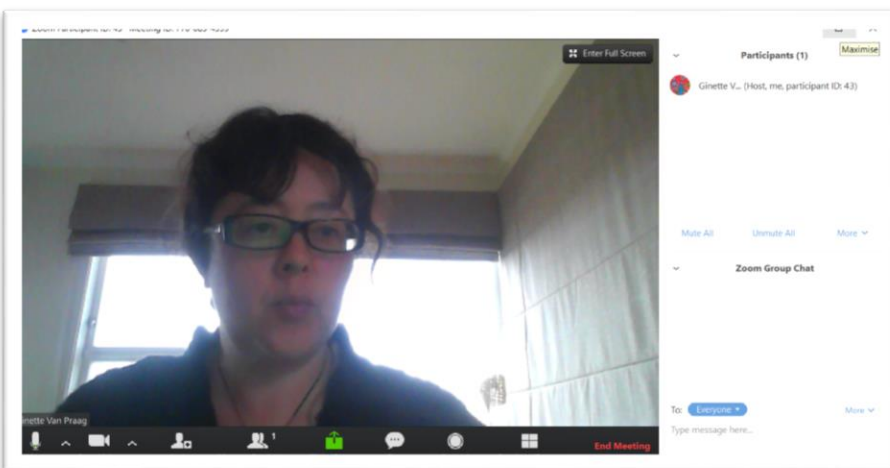


FIGURE 7: MAXIMISE WINDOW HIGHLIGHTED

Access these features again as pop out windows when the screen is maximised:

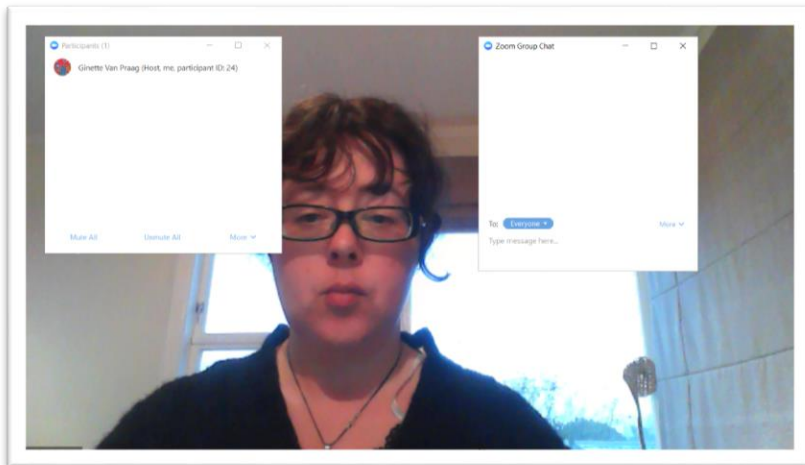


FIGURE 8: POP OUT WINDOWS FOR CHAT AND PARTICIPANTS DURING SCREEN MAXIMISE

Each eTeacher has been set up with a Pro account with these additional features:

- Chime on user connection
- Cloud and local recording enabled
- Synced eTeacher group contacts to their Zoom Client

INSTALLATION & STARTING ZOOM

Installation of Zoom is straightforward. eTeachers are invited to set up an account and to download the Zoom client to their desktops. Participating School Users are invited to install the Zoom client to their desktops. Users of mobile devices are provided with link direction to download the app suitable for their device.

Further PLD will be required to support eTeachers and schools to manage the features of their Zoom client. eTeachers should start their meeting from the client:

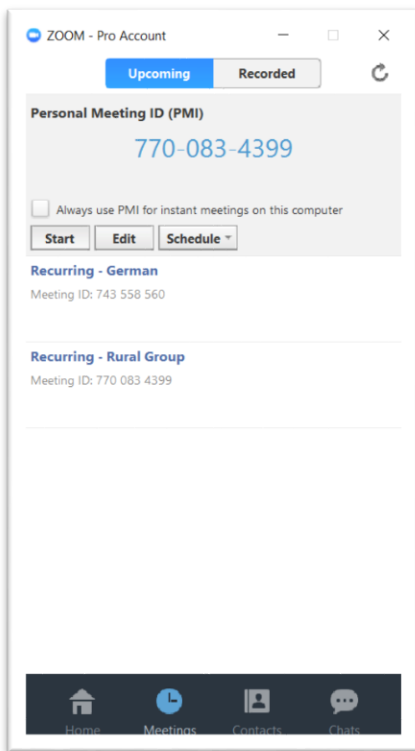


FIGURE 9: STARTING A MEETING FROM THE CLIENT

Participating schools can copy and paste the meeting URL into their browser, or paste the meeting ID here, using the join feature. I'm not sure which is more efficient for the users:

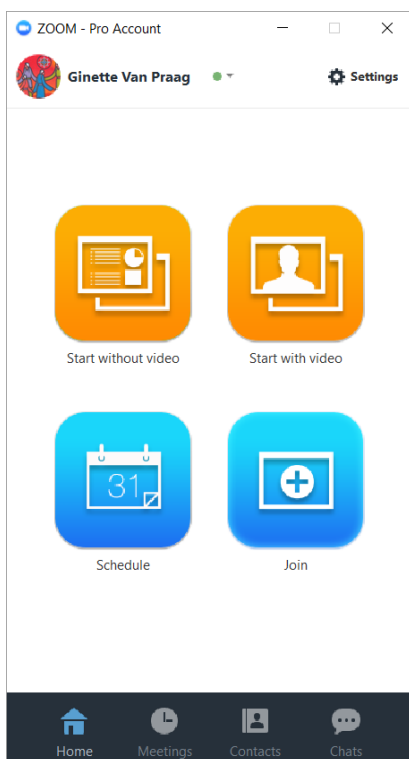


FIGURE 10: JOIN MEETING USING THE ZOOM CLIENT

SHARE SCREEN

It is essential that the eTeacher is able to share teaching and learning materials visually with participants. Traditionally this has been limited to slideshow presentations. If the eTeacher wants the learners to view videos they would be given a link to follow and would watch the videos locally. This is not ideal, given that the eTeacher may want to pause the video for class discussion and so forth.

The screen share feature in Zoom allows for the eTeacher to present **any file** from their desktop. Significantly, if they wish to share a video, they just need to select the 'share computer audio' for the participants to see and hear the video as desired.

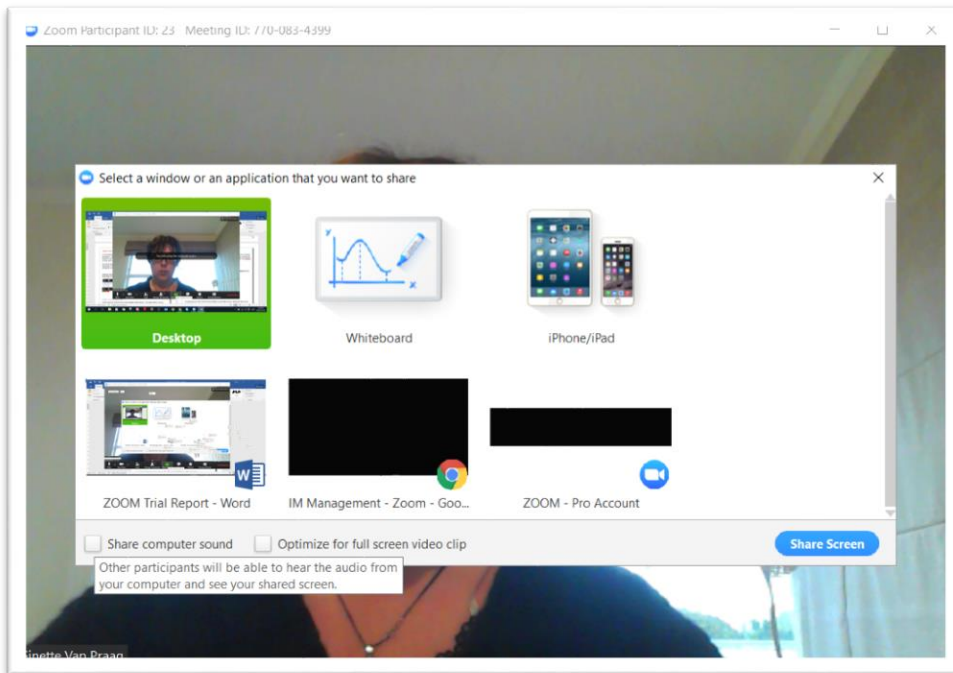


FIGURE 11: ENABLE COMPUTER SOUND

Slideshow presentations can be presented in presenter view and screen shared for all to see. Interactivity is also possible with annotations. This can also be disabled for participants:

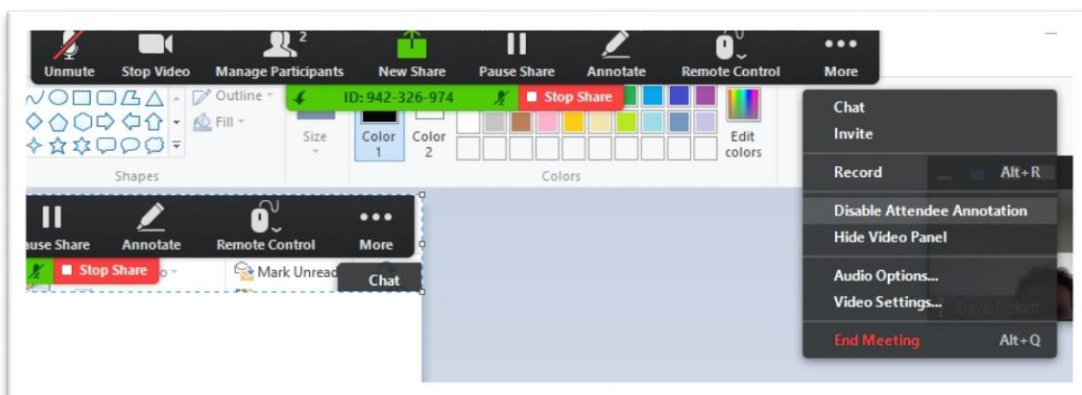


FIGURE 12: HOW TO DISABLE ANNOTATIONS

Screen share also includes the powerful **request control** feature. This feature allows a host (or participant) to take control of another participant's desktop. This is very useful for modelling and has great potential for developing much more collaborative opportunities for participants.

CHAT AND FILE SHARING

The chat feature is a very useful tool, especially when we have needed to troubleshoot connectivity problems, for example when learners have been unable to connect their audio via a Skype group call. In Adobe Connect the chat feature is generally used for greetings and troubleshooting.

In our eTeacher meetings we have also become used to posting hyperlinks in the Skype chat and this has proved very useful.

Zoom also offers this feature as well as the ability to send and receive files (this is also a new feature in Skype, as yet unused by the team) seamlessly. There are several eTeachers who would appreciate opportunities to use this feature. For example, our German teacher would like to share worksheets as starter activities for learners to complete whilst waiting for others to connect. The **send file** feature easily accommodates this.

File Send Scenario

1. The eTeacher sends a file to the participants using **send file**
2. Learners **download and open** the file and complete the activity (eg in Word)
3. They resend the file back to the eTeacher using **send file**
4. The eTeacher opens the files and can screen share them for everyone / review later etc.

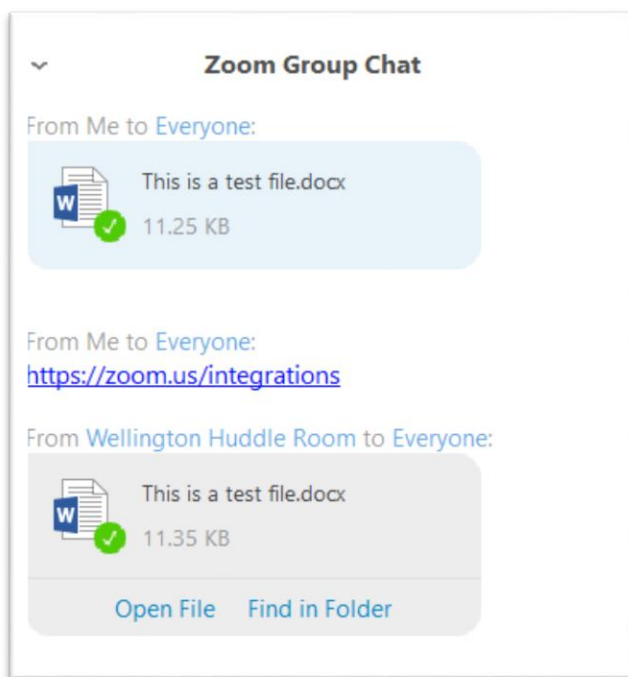


FIGURE 13: TRANSFERING FILES IN CHAT

MEETING RECORDING

To date I have only explored the recording of meetings that have saved to the local desktop. We have the ability to save our recordings to the cloud, however this has not yet been tested.

Recording is easy. The recording stops automatically on exit, if left to run and a video and an audio file are both generated and saved to the local Zoom folder.

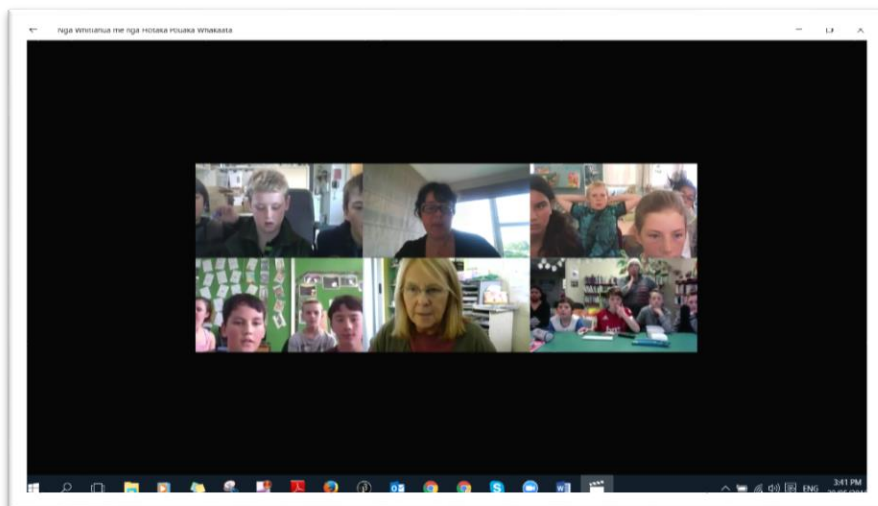


FIGURE 14: FIRST RURAL GROUP MEETING

I have recorded several meetings and classes and this will be very useful in developing a set of help / guide videos as well as collating evidence for PLD / Appraisal etc.

Some videos have been saved to the Zoom folder on Google Drive, but have not yet been edited. Edited versions will be made available for training purposes in due course.

USER DEVICES AND COMPATIBILITY

Users have connected using the following O/S and devices without issues:

- Windows
- Mac
- I-Pad
- I-Pad Mini
- Chromebook

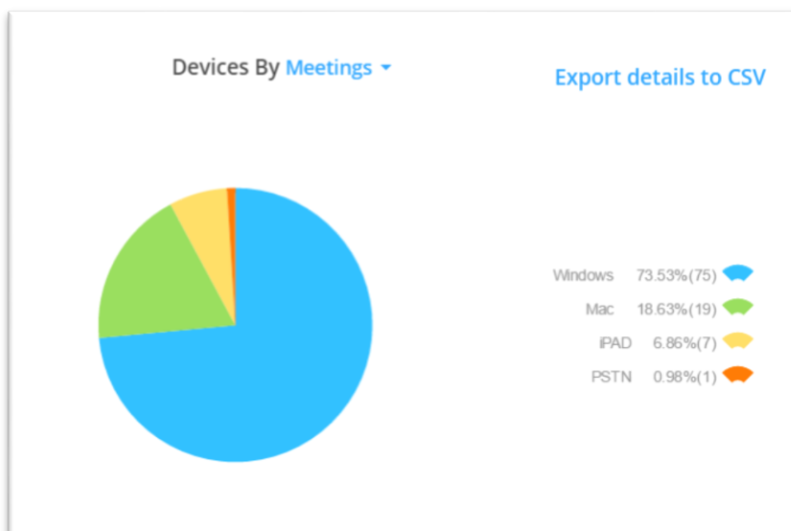


FIGURE 15: MEETING CONNECTIONS BY DEVICE TYPE

Other Features of Note

Both **Breakout Rooms** and **User Messaging and Chat** in the **ZOOM Client** deserve further exploration in terms of further developing connectivity and collaboration between participants, including eTeachers. It is evident that these tools could be of great benefit in supporting the digital literacy of our learners and our eTeaching Team.

Dashboard reporting is comprehensive and offers connectivity data which is very useful for troubleshooting.

Meeting ID	Host	Email	User Type	Start Time	End Time	Duration	Participants	PSTN	VoIP	3rd Party Audio	Video	Screen Sharing	Recording
907-410-5236	Eva Anton	eva.anton@vln.school.nz	Pro	May 26, 2016 09:03 AM	10:04 AM	1hr 2mins	10	-	-	-	-	-	-

Participant	Device	IP Address	Location	Join Time	Leave Time
Woodlands	iPAD	210.55.200.162	(NZ)	09:03 AM	10:04 AM
Eva Anton	Windows	47.72.166.90	Auckland (NZ)	09:07 AM	10:04 AM
Jenny mgs	iPAD	210.55.186.182	Auckland (NZ)	09:15 AM	09:16 AM
Rosera mgs	iPAD	210.55.186.182	Auckland (NZ)	09:16 AM	10:04 AM
Hydrex	iPAD	210.55.186.182	Auckland (NZ)	09:16 AM	10:04 AM
Jenny & mgs	iPAD	210.55.186.182	Auckland (NZ)	09:17 AM	10:04 AM
Johnny's & mgs	iPAD	210.55.186.182	Auckland (NZ)	09:24 AM	10:04 AM
makurichool	Mac	210.55.186.182	Auckland (NZ)	09:26 AM	10:04 AM
Keryl	Mac	210.55.186.184	Auckland (NZ)	09:32 AM	10:04 AM
Ginette Van Praag	Windows	118.92.40.58	Tauranga (NZ)	09:59 AM	10:04 AM

FIGURE 16: PARTICIPANTS IN SPANISH CLASS 26 MAY

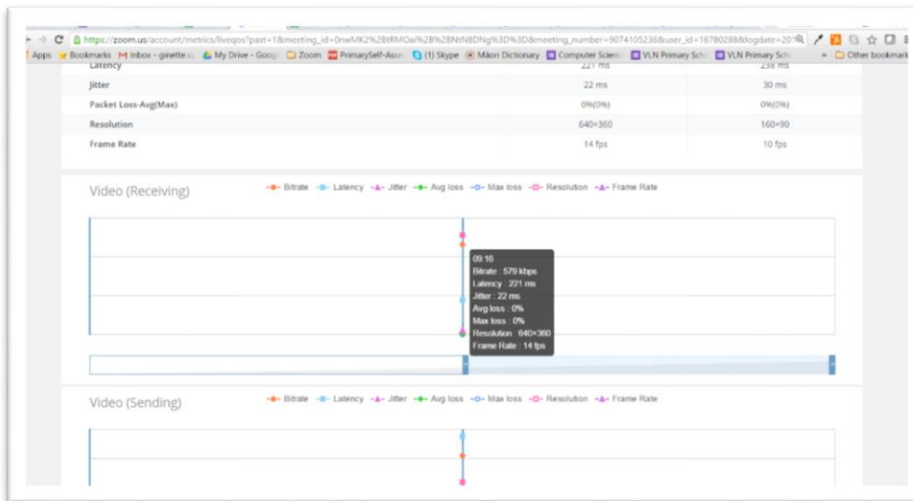


FIGURE 17: CONNECTIVITY REPORT SNAPSHOT

USER EXPERIENCE AND FEEDBACK

“I love ZOOM” has been the overall message from both participating schools and eTeachers thus far. This is the most recent data from our feedback survey. The responses speak for themselves :

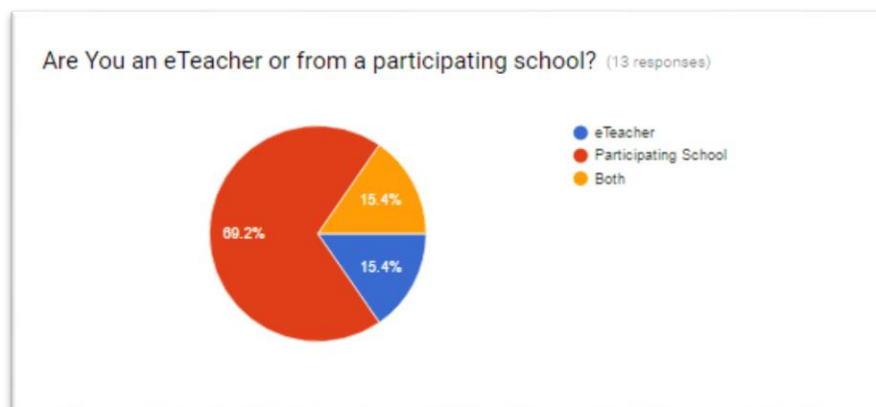
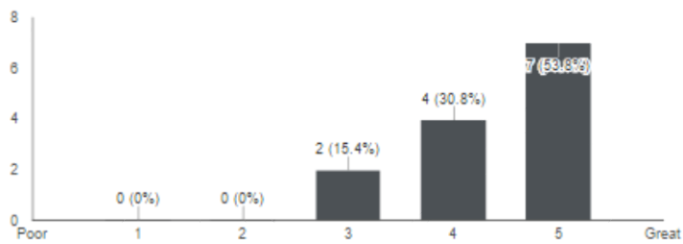


FIGURE 18: REPORTED RESPONSES SURVEYED PARTICIPANTS

User Experience: Zoom

On a scale of 1-10 how would you rate your overall experience with Zoom
(13 responses)



Please explain your answer (10 responses)

Easy to use - visual definition amazing almost like looking at someone through a window- sound was clear with good volume and no echoing or muffling.

The connection and audio is really good, the material is too small but combined with the Adobe classroom it works very well.

Simpler. All in one.

Simple and easy to use.

Zoom is straightforward and comfortable to navigate. The audio and video are quality are consistent and the ability to multitask (eg. chat, share screen, etc) are beneficial. The option to chat using multiple users is helpful too.

just one class so far. no glitches

Simple intuitive instructions which even I could use right from the beginning.

the sound quality isn't that good

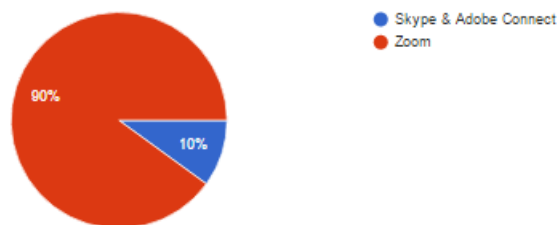
Not used this yet will next week

So great easy to use and to get on to and good features!!

FIGURE 19: USER FEEDBACK

Which of these would be your preferred platform for VLNP Classes?

(10 responses)



Please explain your answer (9 responses)

Easy and effective

If I combine it with Adobe we do not have interference.

Simple.

Much easier to use and no connection problems

Zoom is straightforward and comfortable to navigate. The audio and video are quality are consistent and the ability to multitask (eg. chat, share screen, etc) are beneficial. The option to chat using multiple users is helpful too.

as long as it works

Much easier to use and more forgiving when mistakes are made, eg: everything doesn't vanish if you push one wrong button. Works on the Chromebooks as well and seems to operate just with wifi without needing a cable, but early days for that.

better sound quality and it is easier to get onto

I need to have experience on Zoom yet to make the choice

FIGURE 20: USERS REASONS FOR PREFERRING ZOOM

IDENTIFIED ISSUES WITH ZOOM

The following issues with ZOOM has been identified as potentially having a detrimental effect on the quality of lessons. We have encountered this problem with Adobe Connect's audio feature and it is a recognised issue for this type of platform:

AUDIO FEEDBACK / ECHO

Many users have their own devices and this can affect the audio quality as devices in close proximity to each other can cause an echo. Users can be muted, however this does not mute speakers as well and so the echo can be heard in the background whenever a user is unmuted to speak. Chat can be useful as a backup, but cannot replace the efficacy of verbal communication in our classes.

The advice from ZOOM is for participants to have their audio off completely during the call. This is not ideal as we want learners to able to respond immediately to questions and to interact with each other. It also seems that the host cannot deactivate users' audio from their side – the users must do this themselves. There is, therefore a high risk that this will be time consuming and possibly unsuccessful for some to achieve immediately, ultimately disrupting the lesson.

A preferable option would be for learners to only have one device with speakers and audio active, whilst deactivating the computer audio on their own. Whichever option is decided as the most appropriate for our classes, this will require some careful facilitation between the eTeacher and their learners / schools. This is of course the type of technical troubleshooting scenario which we are seeking to avoid if we are to replace our current platform with something else.

Jack recommends:

Ideally in these situations, in the schools we'd recommend using one computer in these rooms and have a mic/audio system connected to it and that be the main audio. You would then use the devices for video only with audio disabled. When a user raises their hand, you can unmute that individual so you don't get the feedback from multiple users. To make this easier to use, I'd recommend the teacher not using full screen in the call and then they can see the participants down the side at all times and that would make it easier to mute and unmute, even lower hand?

Perhaps the best solution may be for learners to have headphones with mics if they are going to use their own devices...as of the date of this report, Jack is investigating this issue further.

For ZOOM's online advice on this issue see here: <https://support.zoom.us/hc/en-us/articles/202050538-Audio-Echo-In-A-Meeting>

[Please see here for our own Guidelines concerning this issue.](#)

RAM / CPU OVERLOADING

There is some evidence to suggest that there is a possibility of RAM / CPU overload with systems using <=4GB RAM, which would probably include most laptops our eTeachers use. The issue presents itself when trying to use Google Drive to upload a file. If this is done whilst ZOOM is open as well as SKYPE, it can bring the whole system to a grinding halt. It is therefore strongly recommended that eTeachers make sure Skype is shut down (not just closed) and all non-essential tabs are closed on browsers. It is also important to ensure that there are no background programmes running (ie Mac systems) for the 30 minutes of the meeting. This will be stressed at PLD sessions.

RECOMMENDATIONS

The following recommendations refer to suggestions for professional development and training with the Zoom platform:

- All participating schools set up their VLNP space with ONLY one device with speakers and audio active. **All remaining devices must have their computer audio muted** to avoid echo. If schools want users to use multiple devices, then **each user must use headphones with in-built mics** in order to avoid echo;
- To avoid RAM / CPU overloading it is essential eTeachers ensure that they **QUIT SKYPE** and any additional browsers or software during a meeting, and only have their classroom content available for screen sharing;
- The tools we currently use have been limited in supporting the development of eTeaching and eLearning pedagogies. Zoom's features such as screen control and annotations have the capacity to support the development of collaborative and interactive teaching and learning opportunities that we have never considered before because of these limitations. eTeachers have expressed their excitement at the possibilities these new tools may afford.
- All participating schools **must** attend a Zoom Workshop to ensure whole-organisation compliance;
- All eTeachers **must** attend a Zoom Workshop to ensure whole-organisation compliance;
- Supporting help materials to be made available via Google Drive;
- Schools can contact us or ZOOM for technical support;
- I would recommend that the ideal interface configuration for eTeachers is one that shows the toolbar, the chat window and participants as above. The drop down menus (in blue) offer further options in these areas.

IN SUMMARY

In conclusion I would propose that the VLN Primary School implement ZOOM as our preferred eTeaching and Learning platform. The platform is stable and offers all the best used features of Skype and Adobe Connect Classroom combined, in ONE simple and easy to implement system. The system is sophisticated enough that it will cater for the demands of our most efficient and digitally capable eTeachers, whilst affording an easy and flexible model for those not so confident with the technology.

Having used the system for a few weeks I am encouraged that this platform offers VLN Primary School a platform that will enable us to further develop the digital capabilities of our eTeaching team and our learners as the technology that we use for lesson delivery becomes an enabler and no longer a barrier.

As ever, true success comes from ensuring that we are very clear about its limitations (such as the risk of echo) and effectively work with schools to develop support in avoiding these issues. It is very encouraging to know that the *Connect NZ* team are behind us with this support.

A proposal for implementing the rollover will be presented in a separate document.

Thanks to our eTeachers and schools and Connect NZ for the opportunity to implement this trial.

