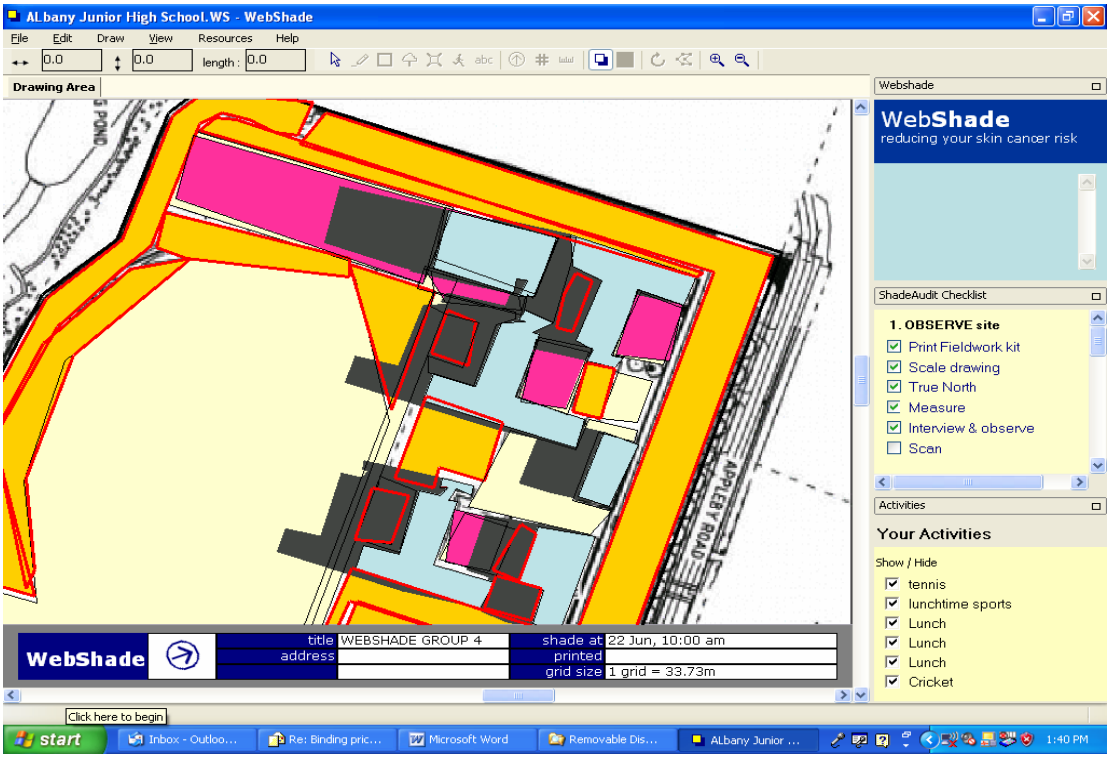
New Zealand WebShade Trial Evaluation

May 2006



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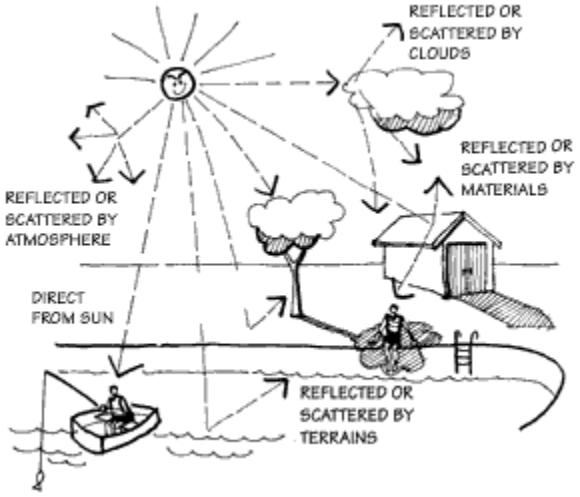


Executive Summary

WebShade has been designed to provide information about modifying outdoor spaces to reduce exposure to UV radiation. WebShade is an inter-active software programme focused on:

- providing people with the knowledge about how to prevent skin cancer
- giving ordinary people the capacity to make their outdoor environments safer.

This report presents the findings of the recent evaluation of the trial of the WebShade software which was undertaken to assess its usefulness and usability to end users. This evaluation involved five schools and three local councils who are all potential users of the software. The evaluation was formative in nature using documentation, surveys and in-depth interviews to collect data.

The principal aims of the evaluation were to determine:

1. If schools and councils could use the WebShade software.
2. If WebShade was helpful in determining effective shade outcomes.

The objectives were:

1. To identify and fix any usability problems.
2. To determine whether participants have a better understanding of shade issues and possible risks at their sites.
3. To assess the quality of the solutions generated by the process.

The trial has clearly shown that WebShade is a useful tool for assisting councils and schools to achieve effective shade outcomes. There were no significant issues identified with the usability and no major obstacles encountered with the software. One of the most interesting outcomes of the trial was the wide range of uses that schools and councils identified for WebShade. It was seen as far more than a tool for designing effective shade, with uses identified by councils included crime prevention and encouraging physical activity. Schools consistently identified WebShade as a very effective curriculum tool providing authentic learning opportunities for students.

Schools

WebShade encouraged thinking about sun protection and shade in the widest sense, by rescheduling or moving activities, making shady areas usable, using natural shade and using their site differently. Where there was a decision to build a shade structure WebShade was seen as a useful tool to get the design right. The applications of WebShade go far beyond that of determining effective shade outcomes. Schools continually emphasised its use as an authentic teaching tool that could be used across the whole school. Teachers commented:

It is exciting. This is really what we should be doing a lot more of, so children take some ownership and learn about their environment and how they can improve it.

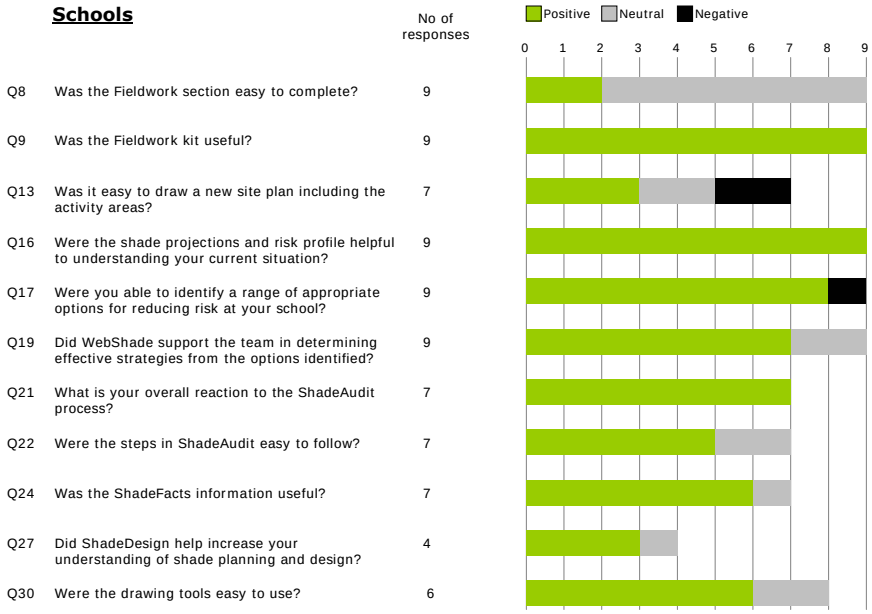
We wanted to make use of this process to see – well is this going to have an impact on how we develop these next classrooms, and how we think about it, and it has, it has made a difference. It has made a difference already, we are already starting to re-look at how we are planning the new classroom block.

I think the appeal of this is that it is authentic and I use that word in the strongest terms. Because so many educational experiences have the tendency to be classroom based. This is something that has been set up to get people out of the classroom and looking at the big picture – that is where the impact on the learning will happen – rather than being just another classroom activity.

We have clued up children and I see really exciting learning opportunities that come out of a project like this because this is authentic learning. It's solving real life problems and using smart technology. I'm very excited by it.

The children involved in the trial enjoyed using the software and found it easy to use. Some of their comments about WebShade are listed below:

Really good.
It was cool.
Yeah it was really fun.
Yeah it was quite easy.
It was enjoyable every Friday when we would come; sometimes we'd look forward to coming just to play with the software.



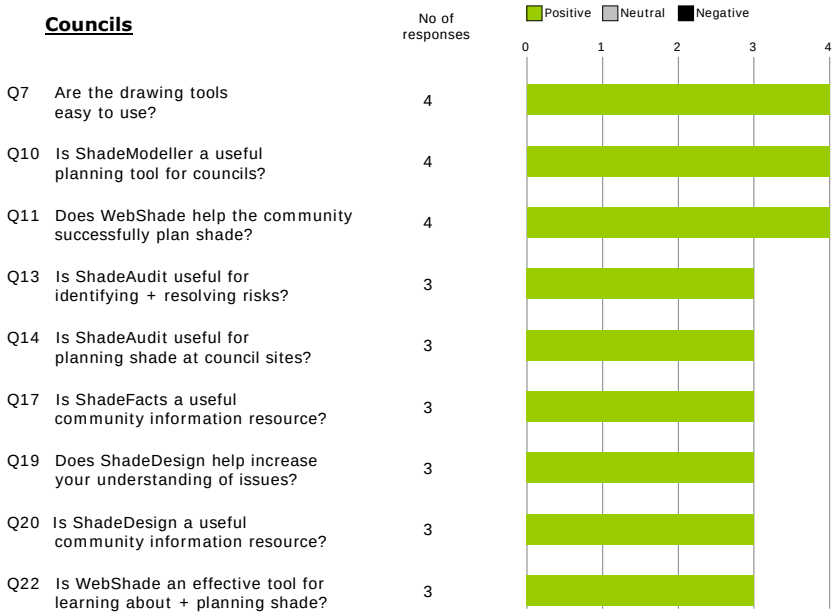
Councils

WebShade was identified as helpful for determining effective shade outcomes in many different ways by the three councils. There was a strong emphasis on its use to generate solutions to known problems and also to plan proactively in a strategic way. Participants in the council trial indicated on many occasions that using WebShade had given them a better understanding of the shade issues and risks at particular sites. Council comments included:

For me it would be, firstly the development of new reserves, because we are a growing district, so we are getting sub divisions and new parks coming all the time, so to have this in at the design stage somewhere, whether it's us or whether it's the designers, it's going to save a lot of grief down the track, it is going to save a lot of people getting skin cancer probably, especially kids.

If we know we are putting a playground in two, three or four years time it is so simple in terms of management to be planning ahead and putting trees in four or five years before the playground, so we've got shade – saving you $25000 to shade it later, after you have put it in. You're providing us with tools, which can help us to do that, but more than that you're providing us with the awareness to think about it.

I think the program itself is pretty simple and straightforward. I mean it was incredibly simple, like comparatively I still get lost with Excel and compared to Excel it is a walk in the park.



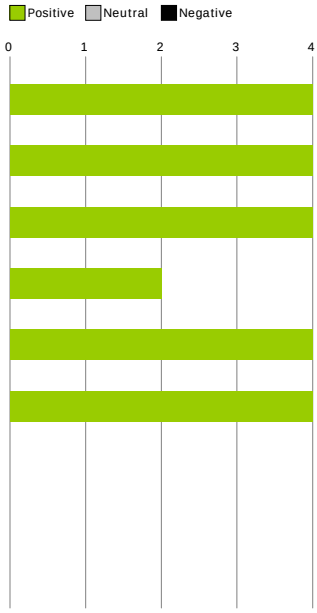
Cancer Society health promotion staff

The health promotion staff involved with the trial found the experience positive and were unanimously positive about the benefits to councils and schools of using WebShade as a tool.

I can't wait for it to be widely available. I see examples every week where I could be telling schools about the software, and situations where they are planning a significant spend on shade facilities but not really investigating whether it is the right shade in the right place.

Health Promotion Staff

		No of responses
Q1	Did you have a positive experience as a facilitator in the WebShade trial?	4
Q4	Do ShadeFacts and ShadeDesign provide relevant, useful information?	4
Q5	Are ShadeAudit and ShadeModeller useful tools for assessing and planning shade?	4
Q6	Is the software easy to use? (2 HPs did not use software themselves)	2
Q7	What is your overall reaction to WebShade?	4
Q8	Is useful is WebShade in your role as a health promoter?	4



Introduction

WebShade has been designed to provide information about modifying outdoor spaces to reduce exposure to UV radiation. WebShade is an inter-active software programme focused on:

- providing people with the knowledge about how to prevent skin cancer
- giving ordinary people the capacity to make their outdoor environments safer.

WebShade allows users to test various shade options and ensure they achieve effective shade for their site.

Promoting the use of shade has been a priority objective of the SunSmart Partnership for the past three years. While considerable progress has been made in this area the Partnership has struggled to provide sufficient guidance for people wanting to develop effective shade. It has been particularly difficult for schools where devolution of funding to individual schools via School Boards of Trustees has meant that each school must assess and decide on its own shade requirements. There is no central guidance from the Ministry of Education about how to plan effective shade or central resource for funding of shade.

One of the main difficulties has been the lack of experienced professionals able to undertake a shade audit and advise on the type of shade required. It is not uncommon in New Zealand to see shade structures in schools that do not provide effective shade.

This report presents the findings of the recent evaluation of the WebShade software which was undertaken to assess its usefulness and usability to end users. This evaluation involved schools and local councils who are all potential users of the software. The outcomes of the software trial will be used to fine tune the product prior to release and ensure that any potential difficulties are eliminated. It also enables the developers to add in any user-suggested features if relevant.

Methodology

The principal aims of the evaluation were to determine:

1. If schools and councils could use the WebShade software.
2. If WebShade was helpful in determining effective shade outcomes.

The objectives were:

1. To identify and fix any usability problems.
2. To determine whether participants have a better understanding of shade issues and possible risks at their sites.
3. To assess the quality of the solutions generated by the process.

Evaluation methods

This evaluation is formative in nature, seeking to understand and improve WebShade prior to its public launch.

Triangulation of evaluation methods was used to increase the internal validity of the evaluation. The evaluation methods are listed below. The evaluation used both quantitative and qualitative methods to investigate issues related to WebShade.

Method	Tools	Who	What
Documentation	Record sheet	Participants	Record any issues or queries as they arise.
Documentation	Record sheet	WebShade Help Desk	Record of any issues or queries logged with WebShade and actions initiated to resolve.
Survey	Questionnaire	Participants Health Promoters	Questions to identify issues related to implementation of each module of WebShade
In-depth Interview	Interview schedule	Participants	Investigation in depth of issues related to each module of WebShade.

Using different methods increases the internal validity of the evaluation. The information collected is both quantitative and qualitative and comes from several sources. By comparing and contrasting the results it is possible to evaluate WebShade from several perspectives.

Roles and responsibilities

Organisation	Role	Responsibilities
Cancer Society National Office	Overview of the trial	• Consult on the trial protocol. • Review the evaluation and user feedback.
Local Cancer Society Health Promoters	Liaison with participants and John Greenwood	• Participate in the initial briefing sessions. • Participate in final debriefing sessions. • Thank the groups for their involvement.
WebShade	Conducting the WebShade trial	• Conduct all the start up and familiarisation sessions. • Provide all technical support to participants.
Quigley and Watts Ltd	Evaluating the WebShade trial	• Compile all the evaluation and feedback.

Scope

The WebShade Trial pre-tested the following components of WebShade in schools and councils.

	Shade Facts	**Shade Design**	**Shade Maker**	**Shade Audit**	**Shade Modeller**
Schools	review &	comment		audit school	model & design
Councils	review &	comment			model & design

Sample size and participants

The sample was a convenience sample drawn initially from the pool of health promotion staff in Cancer Society Divisions and Centres. Those staff that expressed interest in being involved in the trial were asked to identify a council and a couple of schools in their area that they considered would be interested in and benefit from participating in the trial. Seven schools and four councils were identified to participate and five schools and three councils completed the trial. The two schools that did not complete the trial were unable for varying reasons, mainly related to time, to progress very far with the trial. The council that withdrew did so because of complications actually loading the software. This was not an issue with the software rather an internal policy about loading software onto the network. By the time the issue was resolved it was too late for the council to participate in the trial. All three non-participants, the two schools and council, expressed the intent to use WebShade even if not as part of the official trial. Written consent was obtained from all the trial participants.

Schools

The aim was to recruit schools from a range of deciles, urban and rural locations and differing site types. The two schools that did not complete the trial were decile 5 and 8. One of the schools was a small country school and the other was semi-urban. The loss of these two schools limited the range of characteristics of the schools, making the average decile rating higher and restricting the rural component.

Summary		
Region	Recruited	Completed
Auckland	2	2
Wanganui	1	0
Palmerston North	2	1
Wellington	2	2
Total	**7**	**5**

Auckland

School 1 (Decile 10) is the first 'middle' school in New Zealand, opened January 2005. A co-ed school that by 2006 will have close to 700 students (Year 7s and 8s). Sited on rural/urban fringe of North Shore City, surrounded by a rapidly expanding new urban subdivision. Ethnic mix of student population predominantly European.

School 2 (Decile 10) is an older established co-ed primary school (Years 1 – 6) with a school roll of about 380 students. Based in an urban environment in North Shore City. Ethnic mix of student population is predominantly European.

Manawatu

School 1 (Decile 6) is a full primary, co-ed school with some 220 students. Two campuses are being combined into one and the school is in a rebuilding phase. The school has a growing role and is located in a semi-rural suburb of Palmerston North.

Wellington

School 1 (Decile 10) is a co-ed school with some 760 students spread through Years 1-8. Located on a steep site, the school presents a significant challenge.

School 2 (Decile 1) is a large state primary contributing school, catering for Year 1 - 6 pupils (age range of 5 -11 years). Co-educational with approx 330 pupils with diverse ethnicity – 24% NZ European, 67% Maori and Pacific, 11% African, Asian + Middle Eastern. Flat site with some good mature shade trees.

Councils

Four councils were recruited and three completed the trial. The council is committed to a trial of the software and will do so, but not as part of the trial.

Council 1 has a population of about 52,000 people. The area is predominantly rural with three main centres. While the main industry of the area is primary, there is considerable light industry in the three main towns. Most of this services the rural sector but some supports the country's largest steel mill.

Council 2 situated on the banks of a river is a growing city of 78,100 that dates from 1866. The city has been able to maintain a complementary relationship between the modern conveniences and technology of big city life, and the quality and ease of small town lifestyle, offering visitors and residents alike 'the best of both worlds'.

Council 3 is situated in a region that has a population of over 30,000, many of whom choose to live here for the lifestyle alternative to urban living. Market gardening, horticulture and farming are the mainstays of the economy, with manufacturing, food processing, construction and service industries also being important contributors. The whole area is currently experiencing steady growth which is expected to continue over the next 10 years.

Analysis

Questionnaires were collated and results obtained for schools, councils and health promoters.

All interviews (except for one council interview) were recorded using an Olympus digital voice recorder. The recordings were fully transcribed by a secretarial company. Analysis of the interviews used a key themes approach. One of the council interviews unfortunately could not be undertaken face to face as the person was away sick. This interview was undertaken by phone and was recorded or fully transcribed. Notes were taken by the interviewer during the interview. All of the interviews were undertaken by the same interviewer.

In the results section quotes and verbatim answers to questions are given in italics. Where the interviewer has given a comment, this is not italicised.

Results

Schools Questionnaire

Five schools took part in the trial. Three of the schools included teachers and students in the trial. Nine questionnaires were completed across the five schools. Where questions were not answered this was because the activity in question had not been undertaken by the participant.

Question 1 - Role / Connection with the school

	√
Parent	
Administrator	
Teacher	
Management (Principal / DP)	**3**
Staff	
Student	**6**
Other	

Question 2 – Gender

	√
Male	**8**
Female	**1**

Question 3 – Age group

	√
under 9	**1**
10 – 19	**5**
20 – 29	
30 – 39	**2**
40 – 49	**1**
50+	

Question 4 – Computer experience

	√
Use daily/part of my work	**5**
Use regularly	**4**
Don't use at all	

Question 5 – Do you have any relevant experience?

	√
Have had some surveying, architecture or drafting experience	**3**
Do not have any surveying, architecture or drafting experience	**6**

Question 6 – Knowledge of the site

	√
I am very familiar with the site and site activities	**9**
I am not very familiar with the site and site activities	

Question 7 – Sun exposure on the site

	√
Have been concerned about sun exposure at the site	**9**
Have not been concerned about sun exposure at the site	

ShadeAudit Questions

Fieldwork – measuring objects + observing activities

Question 8 – How easy or difficult was it to complete the Fieldwork section?

Very easy/easy	2
Neither easy or difficult	7

Question 9 – How useful was the Fieldwork kit?

Very useful/useful	9

Question 10 – What did you find the most difficult part in gathering the information?

- *Asking the questions and doing the survey and adding it all up afterwards*
- *Doing the survey and asking the questions to the classes and then having to put that into the computer (that too a bit of time and effort)*
- *Ensuring validity and accuracy when the data is being collected by a variety of people – especially pupils*
- *Estimating measurements of trees, diameter/circumference*
- *Getting accurate scaled drawings of the whole site – had to measure boundary myself before I could put in trees and shade structures – it was not difficult, it was time consuming*
- *Remembering all the trees*
- *Measuring the buildings*

Question 11 – Did you require professional help in any part of the Fieldwork (eg, architect or arborist)?

	√
Yes	**3**
No	**6**

If yes, please elaborate.

- *Both architects and arborists were sources of accurate information*

Question 12 – Any comments or suggestions relating to this section of the task?

- *This section was a lot more involved – the kit seemed daunting but once completed we recognised the breadth of information we had collected with which we could base our exploration*
- *It got easier as we went along and when we found out more about the program*
- *It got easier as we got further into the project*

Drawing – drawing your plan, calculating your Risk Profile

Question 13 – How easy or difficult was it to draw a new site plan including the activity areas?

Very easy/easy	3
Neither easy or difficult	2
Very difficult/difficult	2
Not applicable	2

Question 14 – Please respond to the following statement:

"The information support was adequate for performing the various tasks in drawing the plan, projecting shade and generating a risk profile."

Strongly agree/agree	6
Disagree/strongly disagree	3

If you disagree, how could it be improved?

- *Struggled with activities and drawing some aspects – probably needed a manual*

Question 15 – Any comments or suggestions relating to this section of the task?

- *It was easy using the program setup*
- *The drawing of the buildings were hard, because if you accidentally made a mistake you couldn't undo it*
- *We lost our data a couple of times when the computer froze*
- *The use of the Webshade data input was laborious, would be easier if:*

- *Object data could be edited in group lists rather than individually (from the risk profile)*
- *Extremities of the site plan could be zoomed in on for editing* (this can be done and was demonstrated during the debrief)

Explore Options – developing solutions + recommendations

Question 16 – How would you rate the value of the shade projections and risk profile in understanding the current situation at your school?

Very valuable/valuable 9

Comments

- *It was very good knowing where the shade is at a particular time, so we can build some more shade where it is needed*
- *Our school has a very high risk of melanoma as it doesn't have very much shade*
- *The risk profile is valuable as it can tell you which activities are high risk and which activities are low risk*
- *It was good knowing where we needed the shade the most and how we can improve the shade*
- *Having a bird eye view of the shade projections developed an appreciation of the issue by all involved*
- *The risk profile was good – however the last column was difficult to understand and not all activities would be analysed*
- *Common sense tells us what the program shows – but it is confirmation*
- *Very thorough analysis – made the team think carefully about the current and future situation*

Question 17 – Do you feel that you were able to identify a range of appropriate options for reducing risk at your school?

	√
Yes	8
No	1

Question 18 – Did you find opportunities for improving your site without adding new shade?

	√
Yes	1
No	8

For questions 17 and 18 the no answers were for schools (or individuals) that had not used the risk profile or the shade modeller options.

If yes, how?

- *By utilising shady areas to a greater extent, eg, relocating eating areas*

Question 19 – Please respond to the following statement:

"WebShade supported our team in determining effective strategies from the range of options identified."

Strongly agree/agree	7

Question 20 – Any comments or suggestions relating to this section of the task?

- *Again it was good to know where we can improve*
- *The focus questions and example answers were good leads in group discussion and brainstorming*
- *Sometimes it helped in some places and sometimes it didn't*

After completion of ShadeAudit

Question 21 – Please rate your overall reaction to the ShadeAudit process

Very good/good	7
Neither good or bad	2

Question 22 – Please respond to the following statement

"The process steps in ShadeAudit were easy to follow."

Strongly agree/agree	5
Neither agree or disagree	2

If you disagree, what did you find difficult?

Question 23 – How helpful was the *Help* text?

Very helpful/helpful	4
Not helpful/definitely not helpful	1
N/A	2

One of the schools did not use the Help function.

If it was unhelpful, what problems did you find?
Couldn't seem to open it for me

ShadeFacts

Question 24 - How useful *to you* was the information in this section?

Very useful/useful	6
Neither useful or not useful	1

Question 25 – How useful do you think it would be as a *community information* resource?

Very useful/useful	5
Neither useful or not useful	2

Question 26 – Any comments or suggestions regarding ShadeFacts?

- *It was good to have the help column because you would just learn as you go along with the help of it*
- *Very interesting finding out about reflection, UVA, B and other stuff*
- *Discussed this aspect with the health nurse and she was very interested – has potential for many uses*

ShadeDesign

Question 27 – How valuable was ShadeDesign in increasing *your* understanding of the issues of shade planning and design?

Very valuable/valuable	3
Neither valuable or not valuable	1
Not answered	2

Which part was the most useful?

- *Section on creating shade*
- *Gave me flexibility to play around with different alternatives – would be helpful with future environmental planning*
- *Well, it is kind of helpful with our designs*

Question 28 – How useful to you think ShadeDesign would be as a *community information* resource?

Very useful/useful	4
Neither useful or not useful	1

The person who answered 'neither useful or not useful' commented *not sure as I could not access most elements of shade design*

Question 29 – Any comments or suggestions regarding ShadeDesign?

- *It helps you to tell what is needed most*
- *It tells you what dangers there can be*

ShadeModeller

Question 30 – How easy was it to use the drawing tools?

Very easy/easy	4
Neither easy or difficult	2

If it was difficult, what did you find difficult?

- *Accessing objects at the extremity of the plan (when zoomed in) was frustrating when zooming out accuracy no longer possible*

Question 31 - How helpful was the *Help* text?

Very helpful/helpful	3
Neither helpful or unhelpful	1

The person who answered neither helpful or unhelpful was the same person who was unable to open Help

If it was not helpful, what problems did you find?

Question 32 – Did any children at your school use ShadeModeller?

	√
Yes	**2**
No	**4**

If yes, how well did they understand and use the drawing tools?

Very well/well	2
Not applicable	2

Question 33 – Do you think WebShade would assist school children to understand and successfully plan shade?

	√
Yes	**6**
No	

Question 34 – Any comments or suggestion regarding ShadeModeller?

- *It takes a while to use and learn about it but it does help in the long run*
- *It was good to see what would happen if you put something there or somewhere to see if it gave more shade*
- *Proved simple but time consuming to use. Ability to edit was very good. Initially was confused about what role Shade Modeller played in the project – was not mentioned for any purpose only shade audit.*

Conclusion

Question 35 – Do you have any general comments or suggestions regarding WebShade

- *It helped me to understand a lot about shade and UVA, B, C. It told me about sun risk and how UV harms your skin. It helped the school a lot because it showed us what was wrong with the school and that shade shelters don't solve everything to do with the sun.*

- *It was very good. I learnt a lot about UV and where the shade is and where we need shade. I also learnt that building a big shade structure is not always the way to go but doing a lot of smaller ones. I also thought more about shade how dangerous the sun really is.*
- *Apart from the odd IT hitch we felt we were able to use the system successfully. The support was good from Australia but generally felt much more confident with an IT person sitting next to you.*
- *Really good support from Australia. Concept is great just more refinement. Thanks for the opportunity to give it a go.*

Schools Interview

General impressions

What are your general impressions of WebShade?

- ***Using the software***
- ***Following the Shade Audit process***

The process was easy to follow. There was a bit of confusion at one school about the purpose of requesting the site map from the council. The school thought that the map was to be used to trace into WebShade, rather than finding true north.

The field work notes were useful and easy to follow. One school would have liked more options for tree shapes – they ended up creating some shapes of their own. Measurements of buildings took time and students used estimates where they could not reach with the tape measure – which is what was expected.
We talked about estimating that extra height. If you've got two stories then you'd be doubling the area of the one below, you can double that, and they were very quick to take that on. (Principal explaining what the students had done)

Using the software to transfer the information from the audit into the computerised site map was not a problem for the students involved. A comment from one of the students, who was ten years old, illustrates this:
That was good, yeah. We drew most of the buildings and we put all the measurements in and that. That was good, yeah.

The principal at the school commented that the students were very quick to transfer the data onto the computer, it was the audit of the site that took time.
From my perspective that (transferring the data from the audit to the computer) *seemed to be pretty quick. I mean it seemed to be very straightforward and they seemed to enjoy doing that because I came back and it was just done, whereas the actual measuring and going around the place looking at trees and things was more time consuming.*

Participants

Did you have difficulties getting people together to work on the trial?

Schools had different experiences involving people in the trial. Three of the schools involved teachers and students in the trial. In one of these schools the Principal ended up working with two students, who were very capable, but said he would have like to work with a bigger team.

In two of the schools students were not involved. In both these cases the Principal lead the project, one involved the groundsman and the other used the health team at the school (which included teachers and a Board of Trustees representative).

Any problems getting people involved in the trial?

Not at all – the only challenge in doing that was just trying to let people know what it was going to involve – without having a really clear picture myself. And once we started getting a clear picture of what was involved we had the key personnel and they said yeah, we'll get right into it and they did.

Within schools, who do you think is most likely to understand the importance of creating a sunsafe environment?

Teachers, students and parents were all listed as having a good understanding of the need to create a sunsafe environment.

We are reasonably aware anyway, because we have compulsory hats for terms 1, 2 and 4. I think there's a reasonably good awareness.

I would like to think that the people that are running the school, the teachers and the Board of Trustees, and I mean the kids do.

Given your experience with the program, who do you think would be the best people to participate in a WebShade project for a school?

Schools identified the importance of including staff, students and boards of trustees. Others identified included caretakers, proprietors and groundsmen. Most schools acknowledged the importance of having the support of the Principal but several went on to say that the Principal did not necessarily need to lead the project.

I think all three (students, teachers and parents) *of those would have value looking at that. I mean that is the thing with New Zealand schools, is that the triangulation between staff, students and parents and the fact that parents are represented by their Boards of Trustees and the Boards of Trustees have a governance role in the school. Those things are really important, and students are more than capable of making sensible decisions. Part of that too is that if they're involved in the process then their ownership of the ideas and of the outcomes is stronger. Therefore they're more likely to be positive in their taking up on them, so I think that's, particularly in our schools, it's really important that all three are involved*

Well I think this sits very well as a senior school Year 5 or 6 project. I think it would work very well as a theme study that a group of classes take on board or one class. I mean one of the strengths of it is that I think it can be run just by a small group that could come back to bounce the ideas off a large group. I think there'd be more learning for more children if you had a team or syndicate take this on and there would be plenty fall into it. That's what I'd like to see happen, but I can see there's going to be real gain just with a small group.

It is exciting. This is really what we should be doing a lot more of, so children take some ownership and learn about their environment and how they can improve it.

I mean to be honest the obvious person around our school would be the caretaker, and the groundsman.

I don't think it really matters as long as the team are committed for it.

I think the nature of it the content, the idea that we are looking at this project for is an effect on the health and safety of our school and that health and safety has implications on every part of the life of the school and that is why you do need to have someone who is right in there from the whole big picture perspective and of course your principal is the key person. Maybe a DP could drive it, an AP and it would be good to have one or two other teachers involved.

Schools had a mixed response to involving parents. One school thought a community approach led by parents would work well. Some believed that involving parents was a good idea however one school expressed concern about losing control of the project.

At times you do get a few zealots and try and hijack the whole process and we've certainly here been on the receiving end of a few very strong views that aren't the view of the majority

I think parents are the main instigators of these things, because we as the teachers have so many other things to do.

Overall benefits of WebShade

What was the best or most valuable payoff for you in using WebShade?

<u>As a tool for implementing health promotion in the school and the community</u>

WebShade was identified as a tool that would be useful for health promotion – both in the school and also the wider community. A couple of schools were keen to use WebShade initially within the school to identify the requirements for shade and then for the students to use WebShade in the community to estimate risk and work with council.

You know it's in the charter for health promotion ….the Board are really supportive and the teachers that are really committed because if they can overcome some of those barriers and make it a better place for the community.

Perhaps you could also identify ….. that the school has been involved in the trial and then we could link with them (the council) and do some public work in and around… social studies are very, very keen to get the children involved in the wider community.

I reckon for ending skin cancer it is really good.

It's actually quite a useful tool for us when we are problem solving about how we manage our environment

<u>Estimating risk of activities in the school.</u>

Using the risk calculator was illuminating to understand where and when the high risk activities were taking place. In several instances solutions, which did not involve creating new shade, were used to move or reschedule activities, and hence reduce the risk of the activities.

Yeah, we looked at the risk – we were surprised to see how much was in the extreme part.
We looked at what activities we do in the wrong areas, so the program actually brought it all together and allowed you to sit back and work out where the worst parts are and what time of the day, and how we can change them. We may find our glass buildings are a risk so we could say well, okay you all don't sit outside in the courtyard. Or sit on the other side.

Learning about shade from shade facts on WebShade.
We found out some interesting stuff like how UV can go straight through stuff and UVA, B and C yeah.

Tool for strategic (long term) planning of facilities

Schools identified WebShade as a useful planning tool, which could be incorporated into their school strategic plan and building plan long term.

Reinforcement of knowing where shade is in the school and quantifying risks of current activities were identifies as useful aspects of WebShade. As schools made decisions about the future design of the school they could also factor in shade planning.

Well it did really reinforce our, well my perceptions of our school, that we don't have a lot of really good shady areas……The areas we do have are not the best places to play. For example, we have this fantastic lot of trees and stuff on a bank but we don't want the kids on the bank, because it's not a great area for them to play on.

It is going to be a significant thing for us because now we approach it with a different mind set – we are looking at planning eating areas for instance, we don't need to plan it so that it is just under a tree or that it is facing the sun – because everything was planned to be facing the sun – to let in the light. We can set up our lunch areas in natural shade behind buildings as is illustrated in the project.

We wanted to make use of this process to see – well is this going to have an impact on how we develop these next classrooms, and how we think about it, and it has, it has made a difference. It has made a difference we are already, we are already starting to relook at how we are planning the patio area in front of this new classroom block, because it is again facing the sun. At 3PM it is not even any use sitting under the verandah because of the angle of the sun, it is going to get straight underneath it. Midday is not so bad it is coming straight down – we are looking at what we can do that is going to create not only sun shade but also wind breaks. A grass area with coloured patio – not just straight concrete. What are we doing to reduce reflection as well as direct impact? So yeah, it has been a good process for the proprietor as well.

In one school that was newly built in 2005 and consisted of school houses that were glass fronted with an atrium the teacher identified the opportunity to do things differently when the second half of the school was built.
We're getting ready to build the second half of the school, and we can use this program to alter how we build that. And we could choose to turn the atriums around and have the

courtyards facing south. You know we can make all those decisions, so it was having the program to put it all together, but before we make expensive decisions.

Identifying shade solutions for existing areas

In most schools there were existing areas that the school new needed shading. WebShade, particularly Shade Modeler was seen as an excellent way to develop the best shade solution.

Well it's highly relevant for us, because with the new building that we have and an area between the double storied building and the single storied view we do have at the moment seats but no shade, none at all, so it's a very real problem that we will use this software to help us solve.

Our school has got huge needs in the way of shade and we felt that this was going to be an excellent tool. Two things:

In a way it has confirmed everything we knew – it wasn't going to be hard to guess that we had huge shade needs and we had huge risks to exposure to sun radiation and we Our management were enforcing hat wear and sunscreen during the summer months – it was temporary but all we could do at the time.

The second though going through the project, it has assisted us thinking a little more outside the box. OK we don't just need to build big shade structures or we don't need to just plant trees. There are a few other things, and even our junior kids had ideas, and that just blew us away. Like mobile sunshades and mobile trees.

And the school is planning an arbour day activity, where they are wanting to plant plain trees, because they offer a lot of shade. And what we've found out is they wanted to plant them to screen the road, which offers no shade at all, because it points east. So we now want them to plant down near a plant that goes alongside our fields. We want them to plant alongside the park, which gives the North and the West. Yeah, we'll use the Web Shade program to simulate the amount of shade and we'll show the teacher who is charge of that project. You don't really want to plant them on the eastern boundary, because you're not getting any useful shade –

We would use it in an educational way to extend and enrich children's input. Once we have used it for its original purpose, which is finding shade solutions, we would be using it for that.

Curriculum

All schools highlighted WebShade as an ideal educational tool to use with children because of its authentic learning context. WebShade was seen as a useful tool for teaching the key competencies. It taught not only curriculum subjects such as maths, science and social studies but also skills such as team work, perseverance, problem solving and communication.

I think the appeal of this is that it is authentic and I use that word in the strongest terms. Because so many educational experiences have the tendency to be classroom based. This is something that has been set up to get people out of the classroom and looking at the big picture – that is where the impact on the learning will happen – rather than being just another classroom activity.

We are looking at being a SunSmart School from our point of view it is something significant because it affects our children particularly. We feel that in amongst the whole broad scheme of the NZ national curriculum we have got to pick and choose, because there is no hope of covering everything. When it comes to our health curriculum SunSmart factors up quite highly because it affects us – we are not going to look at river studies for science because we are not close to a river. We are smack in the middle of farm land – we are in a very fast growing residential area. ….This is what affects us as a school – this is what affects our children and that's why we are going to choose it. These are the key learning contexts because they are authentic and relevant to the children now.

That will heighten the knowledge and awareness of the risk right across the board to anybody who is part of this process, even if they just find out what we have found out when that's reported, about providing a safe environment for everyone that's in the school. That's significant. But from my perspective I mean it's the learning, the authentic learning that takes place as a part of the process, that's what I find exciting.

We have clued up children and I see really exciting learning opportunities that come out of a project like this because this is authentic learning. This is so closely related to what children, where we are, and they can see the link to how the school needs to find funds to do these things. It's solving real life problems and using smart technology. I'm very excited by it.

Well we're always looking for authentic context to work with the kids, particularly in IT, so when they're not just making posters for the Olympics, you know, who wants to do that year after year, so finding a context where they can actually go out with laptops and plotting and start projecting and they come back and communicate what they've found and report back would be awesome.

WebShade was identified as a great tool for teaching key competencies such as team work and communication.

We used to have things called essential skills, which were literacy, numeracy, cooperation, physical movement, there were nine of them. And those are moving to key competencies. And they are more things like self management, thinking, problem solving is one of them, and this would easily fit into those key competencies. And I think there's self-management, but there's also working together. And I don't think children should do this program on their own because I think that working together component is really important and I actually assigned a leader to each group.

These guys have learnt skills like if I don't fulfil my part then the next part can't happen. A lot of groups forgot to get all the trees, so then they sat down to load and it is like well did you get the trees? Oh no I forgot to do all the ones out there, so they found out about letting each other down.

For WebShade to be of maximum benefit as a learning tool it needs to be planned into teaching activities in advance. Teachers and students like this idea of planning WebShade into the curriculum and many thought that it would make a good term project for a class or classes.
Yeah. I see it as quite a neat sort of tool that kids could use. , I would see kids having roughly a term to work on, a couple of times a week sort of thing.

I don't think there would be any issues whatsoever in fitting it in to classroom practice.

We are a Christian School and last term our theme was looking loyalty – and to do that we had to understand who we need to be loyal to. What is so amazing about this god we have to be loyal to – what is it that God has made, what has he done that makes him so fantastic? So a lot of our themes last term were focused on nature, looking at science and the environment. It would have fitted perfectly we would have seen the whole set up – the way that we are, that we are in an imperfect world and sun radiation does exist and our response to that - well

This term our theme is stewardship – looking at how that we make use of the things that we have - how we take care of the things that we have, as well as making use. It would have fit perfectly even in a 6 month period – it would have fitted perfectly into the first 2 terms.

One of the schools suggested that a planned approach with a small initial demonstration would allay fears that some teachers might have about using technology.
Yes, they would have the skills but the unknown is a very big thing here. With new software, most of our people are skilled and growing in their skills sense, but there aren't many that are confident and as soon as they see that it's kind of a pile of things, software, their immediate thought is that it could take a long time, there could be technical problems, I really don't need that at the moment, I've got a lot of work to do. I'm sure that's the thinking, and I'm sure we can understand that.

The students undertaking the project in groups at one of the schools commented on how WebShade incorporated several different school subjects into one project.
it is sort of a whole thing rolled into one, like maths, you've got to do maths to get trees and stuff, and science because of the north south east west, and finding north and stuff. And it, yeah it was actually really, really good.

Using the software

Are there any changes that you would recommend to make WebShade a more useful tool for schools?

The students and teachers who used the software did not experience any significant problems. There were two instances where because of IT issues within the school a file had been saved and then could not be re-accessed. Students who used the software enjoyed using it. Their comments below confirm this:
Really good.
It was cool.
Yeah it was really fun.
Yeah it was quite easy.

It was enjoyable every Friday when we would come; sometimes we'd look forward to coming just to play with the software.

The HelpDesk was able to offer timely and effective advice if problems were experienced.

I've thought that on the whole the drawing tools were reasonably straightforward in using, although I did manage to have a few glitches with obviously the perimeter. I don't know what happened there, but your guys were really good in supporting that and um they got that done within 24 hours for me.

There were quite a few admissions of not having read the instructions or referred to the Help text. The participants acknowledged that they were keen to jump straight in and use the software and while it might have been better to read the instructions they found the programme quite intuitive.
Well I mean, as I said I thought it was relatively straight forward. The only thing that I perhaps would, I should have read the notes more.

The students at one school found it frustrating that if you made a mistake drawing an object you had to complete drawing the object and close it before you could delete it. They also mentioned that it was annoying to have to save after every drawing step was completed, otherwise the computer froze. They also wanted to be able to fix lines that were 'a bit wonky' after drawing.
Yeah and it would be cool if they sort out, when you've made like a building or something there might be a line that's a bit wonky, it would make you like grab it and drag it out, make the lines a bit more accurate and stuff like that.

John showed them how to fix the lines – they had not had a chance to investigate all the Help functions.

At one of the schools where the students worked in groups to undertake the shade audit the data for each group was loaded onto one computer. They suggested either putting it on the school network or being able to email the data between computers would have been useful.
It could have been cool if you could email that data. I don't know if you could have, but if you could email that data, so people could save it on to their Web Shade, so if they are away sick or something we have got no way to contact them.

Do you have any other comments you would like to make?

Maybe put some FAQ's on the computer, under help and stuff just in case someone gets confused.

The one thing that I would hate to see, and this is a general sort of thing, is that it becomes a compliance thing for schools. You know we're getting a lot of compliance stuff that we've gotta do, gotta do, and you know, if you're talking about people that authentically want into it then they will choose to do it. I mean we're just overwhelmed with compliance stuff from the Ministry.

Just I actually felt really well supported (by the HelpDesk)*…… I got I felt, you know, a really prompt response……. I mean you guys knew what I was talking about straight away. It was great.*

Performing the shade audit

Approximately how long did it take to complete the shade audit?

It took the Deputy Principal, working alone, at one school approximately 20 hours to complete the audit and transfer the information into the software. A second Principal working alone took 'a couple of days' to complete the process. One of the schools used WebShade as an extension class project and had six groups of four students undertaking the whole process from shade audit through to shade modeler. The other two schools used a combination of teachers, students and proprietors/groundspeople to undertake the project.

Well my guess it took a couple of days really, of course it's going back and measuring, involving that, walk about around that thing there, getting co-ordinates in, so probably longer than I expected. Once you're on a roll it's probably walking back, plotting, making sure you're right and checking against other little knowns and then going back out and starting the next trot. There are 50 odd trees and, you know, two shade structures, a playground and to get it all matched so it's in a pretty good perspective and scale as accurately as we can get took longer than I thought.

Estimating the heights and diameters of things, particularly trees was challenging for some of the schools.

That (the shade audit) was fine. I mean, I think I've written in the questionnaire the biggest problem we had was trying to estimate the diameter or circumference of the various trees.

They were quite tall because it was quite easy to make the buildings because we have got those panels on our buildings, so imagine that, but then with the trees it was really hard to reach up, so we had to estimate, and some of our estimations probably weren't that accurate.

In one of the schools the students undertook a survey to establish where children liked to play in the school.

We asked them where is your favourite spot. Can you find shade when you need it? Do you think there's enough shade? And there was another one – like can't get to shade because it is out of bounds or someone was working there.

Students in schools had no problem working with the audit process and fieldwork notes or the software itself. In many cases the students were ahead of the teachers!

…… but they did a really good job, and I think that indicated that the guide they had was good, because from my perspective we talked about measurement and we went along and measured the building up here, and I was able to let them do it. (Principal talking about the students)

More what I liked about it was the support that came with it. The what did you call it, the explore kit, and the words down, all those things were awesome. You know I mean having that down the side, even if I'd read all that, I'm referring back to that heaps when I

was out there moving myself round, you know like, even though. Those things are really good, the explore kit, the little check list down the side.

The fieldwork notes were a useful guide for collecting the data during the shade audit process.
Yes, it was really good that we had a table that we could organise all our stuff, it was much easier, yeah.

One school suggested that it would be good to have a guide about how trees would grow so that you could estimate their shade in later years.
Right, what would be good to know would be to know what each tree will grow up to be one day, because you could then have another table that says well this, fat one day will be eight metres high, and so you can put in fats future final size and see how much shade you'll have one day. As well as how much shade you'll have now.

Do you think people in schools would be able to use the software?

The students were all very confident about other kids being able to use the software. When asked about the ability of adults (other than teachers) they were slightly less confident.

Teachers thought that senior primary school students and older students could use the programme with little assistance. Children younger than eight years would require assistance, but could certainly do parts of the process.

Oh yes. I mean there is some really really talented IT people out there, and I think it's got a pretty good user friendly level.

I think there's enough capability, or there should be, and I'm just assuming from our side, but where its all clear or a number of, you know, half a dozen others could work through that. They've got the IT capability. It's not er. That's not the factor. It's getting time is more of a factor, and making sure that you grab that time to go into it, not the actual mechanics of it.

The students thought that WebShade would be able to be easily used by other senior primary students or younger primary students with assistance. When asked whether other kids their own age could use the programme they replied:
Yes. It was fairly easy for me to use it. I could clearly see the buttons and what to use and the instructions on the side.
It got easy as you figured out what all the stuff was and what it did and then it got easy and then it was pretty easy to figure out.
Yep, they could.
It's really simple to use.

One school pointed out that the best way to break down barriers about people thinking they would not be able to use it would be to have examples of how schools had successfully used WebShade.

I guess as a result of the pilot, if you've got comments from teachers and children saying that the technical side of it, computer side of it, was straight forward, was easy, that is perhaps going to break down a barrier.

Do you think WebShade would be helpful in determining effective shade outcomes?

This question was answered positively by all participants. WebShade was seen as an effective tool for determining shade needs. Several schools also commented on the benefit of developing shade in an interactive and inclusive manner. Support from staff, students and parents was much more likely if people had been involved in the process.

Certainly

Yeah. I can't wait to see what our plan looks like
Yeah, really, really helpful.

Yeah I think so. To be honest, I mean a lot of schools have a pretty reasonable idea. I mean it's you know, not hard to figure out, but more than anything it, as I've said, it affirms everything technically and it gives schools the opportunity to plan proactively their environment, which I think is the value of it, because you can't do anything, I mean you've got what you've got so you can only look forward and improve it.

Yes, it has forced us to do some thinking – it has made us look at some things we might not have looked at if we had just done it the normal way, you know, as we go. It has helped us put a framework in place of what we should be considering before we contemplate developing this sort of structure or area or purpose to cater for this type of activity.

It has put a greater degree of awareness to each of the factors involved, the buildings, the areas, the activities, the shade structures, the trees what role are they playing? Are they just there for decoration or is there another role that they should be used in that way or developed differently?

It is potentially a very interactive learning experience – it is a whole school development. It has huge potential but it needs to be approached correctly it can't be approached in a superficial way. The programme it has the potential to be a whole of school thing.

Do you think it would be useful for schools to have free access to WebShade?

All of the schools thought that it would be useful for schools to have free access to WebShade. Schools felt that if a school was already thinking about sun safety that WebShade would be useful immediately. Two schools qualified this by saying that if a school was not already thinking about sun safety examples or exemplars for use would be helpful as sometimes when things are free people don't make immediate use of them.

Oh hell yes (laughter). Yeah, yeah definitely

We would all like to have that. Again, you know it would come back to the thing that schools are limited in the money that they have, and state schools are, and it's just another thing to budget for and it becomes an add on and possibly an instead of, and

you're getting into those circumstances, but I realise it's the way of the world that there are costs involved, but if any way they could be offset or funded differently then I'm sure that would help some schools.

Absolutely, yes it would. Schools when they spend money they need to be really convinced and of course if it's new it's very hard to convince people. At the same time if it's free then they can undervalue the use and think well if there's no commitment to this, then they'll have it and not use it, so there are chances both ways.

If you give a school webshade they won't go through this process. They won't go through the thinking process – it is almost as if they have to be led. Given the concept, given the path – it is really important to go through this path – you don't know. People will say – oh, its free I will get it now – and use it later.

Councils Questionnaire

3 Councils participated in the Trial with a total of 4 questionnaires completed.
One of the questionnaires was only partially completed as the person did not have time to fully trial all aspects of the software.

Question 1 - Role / Connection with the Council

2 X Parks Managers
1 Parks Officer
1 Facilities Assistant – Parks and Properties

Question 2 – Gender

	√
Male	**2**
Female	**2**

Question 3 – Age group

	√
under 9	
10 – 19	
20 – 29	**1**
30 – 39	**2**
40 – 49	**1**
50+	

Question 4 – Computer experience

	√
Use daily/part of my work	**4**
Use regularly	
Don't use at all	

Question 5 – Do you have any relevant experience?

	√
Have had some surveying, architecture or drafting experience	**2**
Do not have any surveying, architecture or drafting experience	**2**

Question 6 – Software Experience

	√
Have used drafting or graphics software	**2**
Have not used drafting or graphics software	**2**

ShadeModeller

Question 7 – How easy was it to use the drawing tools?

Very easy/easy 4

Question 8 - How helpful was the *Help* text?

Very helpful/helpful 3
Not helpful 1

Comment *On the light side of information.* This person elaborated in the interview that they were not very familiar with computer functions and would have preferred a paper document.

Question 9 – How useful do you think ShadeModeller would be in your job? (if relevant)

Very useful/useful 4

Question 10 – How useful do you think ShadeModeller would be as a planning tool for Council?

Very useful/useful 4

Question 11 – Do you think WebShade would assist the community to successfully plan shade?

	√
Yes	**4**
No	

Question 12 – Any comments or suggestion regarding ShadeModeller?

- *Need to keep saving as add elements, had some losses because I didn't save. Keen to use it when planning all parks, fixtures, facilities etc. and their placement. Would be good to be able to create something other than building or useable space eg, show seat or play equipment.*
- *Had 'problems' with differing shade different times of the day, would be good to be able to project the whole day. Useful to be able to show area not protected.*
- *Being able to import photos from our GIS system or from discs (aerial photos) would be very helpful. Potential to import tif and CAD files would be good.*
- *Help guides could be better with a problem shooting area and how to use tracing tool and the type of files you can trace off.*

ShadeAudit

Another important WebShade module is ShadeAudit – during the trial we will send you an example of a Shade Audit for a school. Please look at the module and the school example and answer the following questions.

Only 3 of the participants undertook this part of the trial.

Question 13 – How useful to you think the ShadeAudit module would be in helping users to identify sun exposure risks at their sites and to resolve them?

Very useful/useful 3

Question 14 – Do you think if would be a useful tool for planning shade at some Council sites?

	√
Yes	**3**
No	

Question 15 – Any comments or suggestions regarding ShadeAudit?

- *Valuable tool for managers working from desktop – liaising with facilities users.*
- *A report or similar function would be useful incorporating hours of the day and shade proportions.*
- *We need more time to measure effectiveness – but it appears to be very good.*

ShadeFacts

Question 16 - How useful *to you* was the information in the ShadeFacts section?

Very useful/useful 2
Neither useful or not useful 1

Question 17 – How useful do you think it would be as a *community information* resource?

Very useful/useful 3

Question 18 – Any comments or suggestion regarding ShadeFacts?

- *Would be good to share this information in one of the first stages of planning a facility.*
- *The only issue would be ensuring this information was in a format suitable for the community.*

ShadeDesign

Question 19 – How valuable was ShadeDesign in increasing *your* understanding of the issues of shade planning and design?

Very valuable/valuable 3

Which part was the most valuable?

- *Actually being able to project shade onto your design.*
- *The shade planning design checklist will be very valuable when working with community groups to plan projects. Also the creating shade section.*

Question 20 – How useful to you think ShadeDesign would be as a *community information* resource?

Very useful/useful 3

Question 21 – Any comments or suggestions regarding ShadeDesign?

- Offers another opportunity to involve a community group – have them track some of the usage of the site etc.
- Valuable to users of reserves when planning facilities or events, eg, where they are positioned.

Conclusion

Question 22 – Please respond to the following statement:

"We found WebShade an effective tool for learning about and planning shade."

Strongly agree/agree 3

Question 23 – Do you have any general comments or suggestions regarding WebShade?

- *I see this becoming a stage in any project planning brief. If shade audit could be done as part of our reserve management plan writing and recommendations.*
- *It would be a very useful tool for all councils to have.*
- *It would assist councils in helping schools, community groups etc plan for community development.*

Councils Interview

Three Councils participated in the WebShade Trial. Five people from the three councils participated in the interview.

Participants

Given your experience with the program, what people in a council do you think would gain the most benefit from using WebShade?

A team approach was recommended for using WebShade. Parks Managers and Planners were most frequently identified as those who would benefit from using WebShade. Planners were identified as the group that would benefit from use of the shade audit both in the planning phase but also as a retrospective regulatory tool. Engineers and Asset Managers were also identified as people who would benefit from using WebShade as a tool.

We had a little bit of a working group, I guess you'd call it to start with, it sort of involved the other parks officer and recreation planner and our asset planner to sort of talk about how they could sort of see it fitting into different things……

Several examples were given of how WebShade could be used by teams working on cross council issues, for example the Crime Prevention Through Environmental Design (CPTED) project and projects to increase physical activity. One council talked about using WebShade as a tool to design a new walking track in a park to increase physical activity. They recognised the importance of providing safe shaded places for people to sit and rest along the walking track.

But a big part of crime reduction is encouraging people to use an area so even a passive surveillance type thing, so I see the walking track…. having an avenue of well lit trees and that sort of thing, so part of it will be providing good shade to make it more comfortable for users.

General impressions and overall benefits of WebShade

What are your general impressions of WebShade?

What was the best or most valuable payoff for you in using WebShade?

<u>Working with community groups to plan shade for community areas</u>

Councils identified WebShade as a useful tool for working with community groups to plan shade in community areas, such as playgrounds. They suggested taking the laptop out to the site with the community and modeling shade options together.

I was thinking, in using it I was probably thinking about some of the projects I have got coming up. Essentially playground ones, which always have a high community involvement and the thing that I liked about WebShade is I see it probably as a bit of a planning tool for those community groups.

Use of WebShade as a tool in Crime Prevention Through Environmental Design (CPTED)[1]

One Council had received a grant from the Ministry of Justice to undertake a CPTED project. They identified WebShade as a useful tool in the design process when thinking about shade and crime prevention.

I thought in a playground development there's another part of the planning stage and you can see how the two of them (CPTED and WebShade) *can tie in really well. And that is where the shade modelling was really good, because that Park is the classic example, you could stick it* (the playground) *in amongst those trees and it wouldn't be safe for the kids in terms of stranger danger and that kind of thing. But look at where that, you know they are beautiful and mature Totara trees and that's quite a shadow that they are casting, so you could bring it out into a safe open area of the reserve and still get still shade.*

Incorporating shade at a policy and planning level

Councils identified WebShade as a useful tool to include in the council planning process. For planning of future capital works projects, planning and policy around reserves, parks and facilities. The emphasis here is on WebShade as a tool that assists a proactive, rather than reactive approach to planning shade. This was seen as advantageous and cost-effective.

One council was interested in using WebShade in conjunction with transport planning. They talked about developing some standard shade solutions for seating that was used for public transport.

For me it would be, firstly the development of new reserves, because we are a growing district, so we are getting sub divisions and new parks coming all the time, so to have this in at the design stage somewhere, whether it's us or whether it's the designers, it's going to save a lot of grief down the track, it is going to save a lot of people getting skin cancer probably, especially kids.

I sort of based it on what our capital works project will be next year, and which of those, you know, the seating , the playgrounds, the carparks, the whatever, how they sort of fitted and how we would use it as a tool for each of them.

Yes definitely. I see it fitting into some of our sort of planning and policy type of things as well. The obvious one is our reserve management planning …..we just got a broad statement in our reserve management plans now about the need for shade and that sort of thing. But I could see this sort of going a little bit further and dropping it into each reserve plan, each plan has a list of goals and sort of things it we would be working to. So you know a new field for the soccer club or something like that. But I could also see that some of those goals that would be shade based that the first goal is to provide a field for the soccer club, the second goal is to provide a, some kind of shade

[1] The Crime Prevention Unit of the Ministry of Justice has written the CPTED Guidelines primarily for planners and designers within local authorities. However, they will also be useful to Police, groups working in crime prevention (such as Safer Community Trusts), architects, urban designers, engineers, planners and building managers involved in planning, designing and managing publicly-accessible places.

Another council recognised that if WebShade was used in a long term planning process, which all councils are required to undertake, then it could actually save money in the longer term. By thinking about shade at the beginning of the plan trees could be planted and grown before a facility was built and then shade would be already there when the facility went in.

If we know we are putting a playground in two, three or four years time it is so simple in terms of management to be planning ahead and putting trees in four or five years before the playground, so we've got shade – saving you $25000 to shade it later, after you have put it in. You're providing us with tools, which can help us to do that, but more than that you're providing us with the awareness to think about it.

Planning shade for proposed new developments

Councils identified WebShade as a useful tool in the development of new areas. WebShade offers an electronic planning tool to design effective shade that otherwise is very tedious and difficult

Really all up it is just putting up a model shade, apart from getting out the old book and finding your longitudinal and your lateral distances and the arc of the sun and, it just makes that process so much easier, it wipes that whole worry out of it. So – if that is all it did it would be brilliant. I don't see anything else; I reckon everything else is a bonus really.

One council mentioned a new garden bar that was planned.

The sponsor wants to put a garden bar in, which is fine, that's part and parcel of sports events and entertainment now days. So people are going to be sitting around, then a requirement would be to once again, to be able to model the shade requirements.

One of the councils thought that in the future it was possible that councils may require a shade component to the building consent process. They identified WebShade as a useful tool for those wishing to make sure that they met this requirement. The shade modeller component was identified as being especially relevant to parks and facilities planning. One of the councils said that they were very aware of some areas that were lacking in shade so they would want to get straight into the planning of shade using shade modeller.

Upgrading or reviewing existing council facilities

Reviewing the use of shade in existing facilities was highlighted. One of the councils used WebShade to show colleagues managing an Olympic-sized outdoor pool complex why they opposed trees being removed from the site. Another example was given of using WebShade as a tool in the upgrade of the town centre to ensure shade was considered.

I had a bit of a talk to them a bit about the need for some more, you know the seating and grandstand, what is basically and Olympic sized pool and all the seating is out in the open. The pool is, as always with those outdoor pools is completely exposed ……. so I used that as a bit of a tool to show the property managers why I opposed a lot of tree removal and that sort of thing on that site.

A recent second stage of the town centre upgrade they provided some shelters over some of the walkways and that was our opportunity, as well as keeping the rain of people, it also has a shade barrier as well.

WebShade was identified as useful when considering upgrading current facilities such as playgrounds and reserves. One council used WebShade to audit a beach reserve and found that there was a lot of good shade available from mature trees, but the children's playground had been placed in an area with no shade.

But what it did was made us look at the site a little bit better and say well here's three twenty foot tall Macrocarpa trees that cast a shadow over this entire part of the reserve, why don't you just think about where you are going to put the playground rather than your playground equipment versus shade equipment sort of thing. Yeah, so that was really good.

We were talking after the session and saying it was just bizarre that the playground was in front of this row of beautiful big trees that shaded everything on the other side, it shaded the road in fact. And it was crazy the way it had been sited, if it had been put on completely the opposite side of the park.

Use of current council facilities

Councils also identified WebShade's use as a tool for assessing the use of council facilities. This did not always involve the creation of new shade, but required thought about where to run activities so that they made use of existing shade. WebShade was seen as an educational tool for users and organisers of council activities. For example holiday activity programmes or facilities used to encourage physical activity.

Our recreational planners are working on an active communities submission to SPARC at the moment. We're looking at some activity hubs throughout our region….. there will be a number of programs operating out of them. Now there is a classic opportunity, one to push the self responsibility message with shade protection, but also whoever is running the holiday program, or whatever it is, let's look at that nice shady place on the Park to do those fun sports or whatever it is, rather than sticking them out in the middle of the cricket outfield.

Addressing community health and safety concerns

Councils identified the use of WebShade as a tool to address community concerns about health and safety. Councils have traditionally been focused more on facilities and infrastructure however under the new Local Government Act councils now have a role in supporting community outcomes.

This council, particularly for the first time, are starting to look at health issues and more social issues... They have always had an infrastructure focus, and you know, here's an opportunity that we can…..start thinking about some of the community outcomes…….so we have got a tool that can start to work towards some of those community identified goals.

Using the software

Are there any changes that you would recommend to make WebShade a more useful tool for councils?

The following suggestions were made by councils:

- It would be useful to be able to upload aerial photos – there were issues because of the type of file they were stored as.
- One of the councils identified a problem closing diagrams using the drawing tool. If the diagram was not closed properly is caused the system to crash.
- It would be useful to have different options for drawing in a site, for example, playground equipment that is not a solid structure like a climbing frame.
- It would be useful to be able to project shade for the 'at risk period' 11AM-4PM in one hit as well as at identified times.
- It would be great if the software could predict the growth of trees and project shade in future years.
- A report function would be great so that you could print of a report about the adequacy of shade after an audit.

All of these issues have been referred back to WebShade for consideration.

Do you think people in councils would be able to use the software?

All three councils agreed that people in councils would be able use the software.
Most definitely yeah.

It was interesting, we actually muddled through before we found the help
[General laughter] we got our first aerial and we just wanted to start playing, and it was funny that we, I mean we made a few attempts at that first one, but we did a basic sort of model and then oh look there's the help tag and that would've been good to know. But without that we did it our first one and then of course the ones after sort of reading through that we got a lot better and did more I guess. But yeah it was basic enough that we could work out how to do that with our basics.

In terms of an actual program its certainly easy to use…yeah I mean in that respect it was reasonably easy.

I think the program itself is pretty simple and straightforward. I mean it was incredibly simple, like comparatively I still get lost with Excel and compared to Excel it is a walk in the park.

Do you think WebShade would be helpful in determining effective shade outcomes?

Councils identified many different ways WebShade could be used in determining effective shade outcomes. In their own planning shade modeler would be useful for planning shade in areas that they knew required shade. Councils also talked about the benefits of using WebShade Shade Audit as a proactive planning tool to ensure shade was incorporated in the planning phases. Shade audit was identified as a useful tool to help community groups asses the need for shade on their sites.

Oh definitely.

Yes definitely. I see it fitting into some of our sort of planning and policy type of things as well. The obvious one is our reserve management planning. When Greg, the other parks officer, and I did the first cancer society seminar we came back and we just got a broad statement in our reserve management plans now about the need for shade and that sort of thing. But I could see sort of going a little bit further and dropping it into each reserve has a plan, each plan has a list of goals and sort of things it would be working to. So you know a new field for the soccer club or something like that.

All of the councils mentioned WebShade being a useful tool for community groups to have access to.

One of the councils wanted to use WebShade as part of a playground safety audit process to assess if the playground had adequate shade.

Do you have any other comments you would like to make?

- One of the councils suggested running a training session on WebShade would be useful. They envisaged this as a hands on half day workshop, where the participants would go and do a shade audit and then use shade modeler to come up with different solutions.
- Involving NZRA in the promotion as this organisation has many members that are local government employees.
- You could introduce WebShade as a tool for some of the community funding groups like Pub Charities. They often get requests for funding of community and school playgrounds and WebShade could be required as a quality check that shade has been considered. Often these charities have a plaque saying they have sponsored a facility and it is not a very good look if there is no shade.

Health Promoters Questionnaire

Four health promotion staff took part in the WebShade Trial and all four completed the questionnaire.

Question 1 – Overall, how have you found the experience of taking part in the WebShade trial as a facilitator?

Good/very good 4

Please comment

- *No hassle, very interesting, at first was concerned at amount of work involved and then was pleased that it wasn't any work at all!! Neither of the schools contacted me at all during the trial.*
- *John made the process very easy and smooth. I already had good relationships with the two schools recruited so that was a breeze, and the councils attended a workshop where John briefed them about the trial and follow-up was simple.*
- *I have really enjoyed the experience-it has been an opportunity to discuss with schools and councils the need to be sunsmart, raise awareness of how important the environment is in skin cancer prevention, and be part of an experience that allows schools and councils to have some control over their environment in their search for sunsmart shade solutions.*
- *I have really enjoyed the opportunity to be involved in Webshade, but I found the issues with the Council disappointing, and I probably under estimated the level of commitment needed by a small rural school that didn't have the human resources. In hindsight, I would definitely choose a bigger more resourced school.*

WebShade Software

Question 2 – Did you have a chance to look at the WebShade software at all?

	√
Yes	**4**
No	

If YES, please answer questions 3 – 6; if NO, proceed to question 7

Question 3 – Computer experience

	√
Use daily/part of my work	**3**
Use regularly	**1**

Question 4 - Did you find the information provided in ShadeFacts and ShadeDesign relevant and useful?

Very useful/useful 4

Any comments?

- *Haven't really used them or had a look to be honest but I'm sure that I will find it useful when I get a chance to have a look or have a query to answer about shade.*
- *It is fantastic to have all that information freely available on a website. I've already been telling schools about it.*
- *ShadeFacts –very useful, clear, easily understood information about UVR and skin cancer. Also how to protect against UVR –shade is a vital part in this. Pictures were a good illustration. It would be good to have a link to www.sunsmartschools.co.nz on the links page. ShadeDesign -more illustrations would be helpful.*

Question 5 - How useful do you think the ShadeAudit and ShadeModeller tools are for assessing and planning shade?

Very useful/useful 4

Any comments?

- *Haven't yet tried them out so I'm guessing that they would be useful. They certainly seem useful.*
- *They are easy to use and practical. In a school or council environment the software also provides valuable ammunition to argue for budget spend in this area.*
- *This was very effective in assessing the risks of skin cancer corresponding to the different activities being conducted and the existing levels of shade. Projecting how this risk can decrease with the appropriate level of shade was a compelling demonstration of how useful webshade can be to a community.*

Question 6 – How easy or difficult did you find the software to use?

Very easy/easy 2

Two of the health promoters did not actually use the software themselves.

Any comments?

- *Didn't spend very much time on it, and used ShadeModeller more than ShadeAudit, but saw what others were able to do with it and am very impressed.*
- *I was impressed with how easy the school found the software to use. However the quantity of time needed seemed to present a barrier to WebShade being used to its fullest potential. For me personally, I did not have as much time as I would have liked to have a play with it.*

Question 7 – Please rate your overall reaction to the WebShade software

Very good/good 4

Any comments?

- *Can't wait till it gets released!! Still need official confirmation from National Office on our endorsement of it.*
- *I can't wait for it to be widely available. I see examples every week where I could be telling schools about the software, and situations where they are planning significant spend on shade facilities but not really investigating whether it is the right shade in the right place.*

Question 8 – How useful a resource do you think WebShade could be in your role as a health promoter?

Very useful/useful 4

- *Well done!*
- *Very useful. However I need to first know where the Cancer Society stands in endorsing products I realise that its an important product and it fits nicely with SunSmart however I think before I can officially recommend it I need confirmation from national office.*
- *It is another tool in the toolbox and the bigger the toolbox the better!!!*
- *Very useful in work with local government, educating them about their role in sunsmart policy development, creating supportive environments, their responsibility to protect the health and safety of all who use council facilities and those who are employed by councils. Gives a useful tool to help schools and councils make their environments safer, not only giving people the knowledge, the "why" but also the "how" to address the need for shade.*

Conclusion

Question 9 – Do you have any general comments or suggestions regarding WebShade?

- *I think it is really important to have the desk top assistance with a product like Webshade and was pleased to see that it was available.*
- *I wish John the best of luck with his product and am really grateful for John's initiative in creating this product its going to be an essential tool for anyone interested in shade.*
- *It has been a pleasure being involved – I have learnt a lot from John and it has been a great opportunity to learn more about solar protection from an environmental perspective and develop stronger relationships with the councils and schools that have taken part.*

WebShade Helpdesk Record Sheets

There were three calls logged with the Helpdesk during the trial, all from schools. They were recorded as follows by staff at WebShade:

- One school had some trouble opening files, I believe it was his PC, I think he started using a different computer - resolved 6/04/2006

- Computer was crashing while running activities, possible not enough memory - switched to another laptop and everything seemed fine - resolved 30/04/2006

- Problems with re-opening saved file. He is investigating further with his own IT person and will call back if ongoing problem.

Discussion

The aims of the evaluation were to find out:

- If schools and councils could use the WebShade software.
- If WebShade was helpful in determining effective shade outcomes.

The objectives were:

- To identify and fix any usability problems.
- To determine whether participants have a better understanding of shade issues and possible risks at their sites.
- To assess the quality of the solutions generated by the process.

Schools

The five schools that participated in the WebShade trial were identified by the health promoter in their area as interested in sun safety and able to benefit from the trial. The range of characteristics of the schools participating was limited by the two schools unable to complete the trial. It would have been ideal to have a greater number of lower decile schools and also a greater representation of rural schools. Schools were not recruited from the South Island mainly because of the logistics of covering the whole country in a trial and also because the health promoters who expressed interest were all based in the North Island.

Schools used a range of strategies for involving people in the trial. Three of the schools involved teachers and students in the trial. In the other two schools the trial was led by the Principal with the assistance of the groundsman in one school and the health team (teachers and a Board of Trustees representative) at the other school. The schools all recognised the benefit of using a team approach involving students, teachers and parents when using WebShade. Most of the schools thought involving parents was a good idea. One school expressed some reservations about losing control of the process if parents took it over completely.

All of the schools recognised the benefit of WebShade as a tool in the teaching curriculum however with the limited time frame of the trial it was not necessarily possible to use WebShade as a classroom activity, particularly in primary schools. Overall

schools were enthusiastic about being involved in the WebShade Trial and about its future benefit to schools.

One of the aims of the trial was to assess whether schools could use the software. The results show that there were no major problems with the software itself, although two of the schools in the trial experienced problems saving and re-accessing files. Both of these issues were related to school systems or networks.

The students involved in the study thought that other kids their age would be able to use the software, although they were less hopeful about some adults! The students and teachers agreed that senior primary school students and older students would be able to use the software easily and that younger students may need some assistance, but would certainly be able to take participate in parts of the process.

Principals believed that there would be no issue locating people within a school environment that could use the software comfortably. One of the Principals commented that some teachers are naturally fearful of software if they are not comfortable using computer technology, although this is becoming less common. He suggested using examples of schools that had successfully used the software to break down any potential barriers of people thinking they couldn't use it.

Both children and adults involved in the trial generally enjoyed the process of using WebShade. The students particularly commented on how much fun it was.

The second aim of the evaluation was to ascertain whether WebShade was helpful in determining effective shade outcomes. Schools were very positive about their experience of using WebShade, both to solve immediate shade issues and also for longer term strategic planning in the school. All of the schools involved in the trial thought that WebShade had been helpful in determining effective shade outcomes. Schools felt that WebShade gave then a much better appreciation of risk and helped them to investigate options in a planned and systematic way.

Our school has got huge needs in the way of shade and we felt that this was going to be an excellent tool…… It has assisted us thinking a little more outside the box. OK we don't just need to build big shade structures or we don't need to just plant trees. There are a few other things, and even our junior kids had ideas, and that just blew us away. Like mobile sunshades and mobile trees.

There were many other positive benefits identified through the use of WebShade especially related to the curriculum and learning. This point was made very strongly by all the teachers and Principals in the interviews. WebShade was seen as an excellent example of authentic learning. It related to what was important to the school and gave the students the opportunity to use real life examples to learn about Maths, Science, and Social Studies.

I think the appeal of this is that it is authentic and I use that word in the strongest terms. Because so many educational experiences have the tendency to be classroom based. This is something that has been set up to get people out of the classroom and looking at the big picture – that is where the impact on the learning will happen – rather than being just another classroom activity.

We would use it in an educational way to extend and enrich children's input. Once we have used it for its original purpose, which is finding shade solutions, we would be using it for that.

Other benefits identified included the potential for schools to use WebShade as a health promotion tool to influence community developments. WebShade was identified as sitting very well within the Health Promoting Schools philosophy.

Along side the principle aims of the evaluation were three objectives. The first objective was to identify and fix any usability problems. There was some useful feedback on the process of using the WebShade software and some good suggestions to improve its usability. These suggestions have been sent back to the WebShade technical team for consideration. The suggestions (listed in the 'Using the Software' section of the results) tended to be refining issues rather than problems that had significantly interfered with use. There were two major problems related to the saving and re-accessing of files. This was not related to the WebShade software but to the schools network or computer facilities. In both these schools the audit and transfer of data into the computer had already occurred. Both schools acknowledged that they needed to sort out these issues 'in house'.

Participants commented on how helpful and timely the advice from the Helpdesk was. There were several comments about how useful the fieldwork notes were when undertaking the audit

The second objective was to determine whether participants have a better understanding of shade issues and possible risks at their sites after using WebShade. This objective was clearly met with all participants answering the question positively. It some cases participants indicated that it confirmed what they already knew, in terms of the lack of shade, but gave them a number of solutions to think through. WebShade encouraged thinking about sun protection and shade in the widest sense, by rescheduling or moving activities, making shady areas usable, using natural shade and using their site differently. Where there was a decision to build a shade structure WebShade was seen as a useful tool to get the design right.

The third and last objective was to assess the quality of the solutions generated by the process. By using WebShade many possible solutions can be generated. In many instances the solution does not involve building anything. When a school used the risk modeller it was easy to judge which of the solutions generated would be successful because the outcome was to lower the risk of the activity from extreme to low.

Several schools commented on the benefits of involving students and parents in the solutions generated because this engenders a sense of ownership. WebShade does not guarantee a high quality solution however it gives the schools the tools to choose to make a high quality decision.

Overall the evaluation of WebShade in schools was very positive. Like any tool the school would have to be interested in using it, however, judging from the enthusiasm of the teachers, Principals and students it is hard to imagine that schools would not find it useful. The trial did take time and required commitment from the participants. Several of the schools would have liked to have had longer to complete the trial and all the schools intend to continue using WebShade beyond the trial period. The applications of WebShade go far beyond that of determining effective shade outcomes. Schools

continually emphasised its use as an authentic teaching tool that could be used across the whole school.

Councils

The participants from the three councils involved in the trial were all from the Parks and Properties sections. The participants identified many potential uses for WebShade in a council setting. WebShade was seen as a useful tool to design effective shade for identified risk areas, to plan the incorporation of shade proactively, to link with other council initiatives that address community health and safety concerns and also as a tool to assist community groups who are considering shade.

This council, particularly for the first time, are starting to look at health issues and more social issues... They have always had an infrastructure focus, and you know, here's an opportunity that we can…..start thinking about some of the community outcomes…….so we have got a tool that can start to work towards some of those community identified goals.

The aims of the evaluation were to find out whether councils could use WebShade and whether it was helpful for determining effective shade outcomes. There were no significant issues with the participants being able to use the software. All of the participants said that it was easy to use the drawing tools.

I think the program itself is pretty simple and straightforward. I mean it was incredibly simple, like comparatively I still get lost with Excel and compared to Excel it is a walk in the park.

WebShade was identified as helpful for determining effective shade outcomes in many different ways by the three councils. There was quite a strong emphasis on its use to generate solutions to known problems. Two of the councils had used shade modeller to look at differing solutions at sites that were known to be lacking shade. In a similar way to schools councils identified the advantages of using WebShade within a team. One of the councils emphasised its use with community groups and another talked about it as possibly having future use as a regulatory audit tool.

Councils were generally very positive about the range of uses for WebShade believing that it would be a very useful tool for designing effective shade solutions. Councils came up with a number of suggestions to improve usability and these have been referred back to WebShade for consideration. The most common request was for WebShade to be able to use a greater range of aerial photo file types so that aerial photos could be used rather than necessarily drawing in a site plan.

The participants were excited about the possibilities for using WebShade to determine and address the risks of different council facilities. In many instances it was the ability to plan proactively to reduce risk that was highlighted. The participants liked the concept of being able to show others in the council how shade could be incorporated at a planning stage to reduce risk.

For me it would be, firstly the development of new reserves, because we are a growing district, so we are getting sub divisions and new parks coming all the time, so to have this in at the design stage somewhere, whether it's us or whether it's the designers, it's going to save a lot of grief down the track, it is going to save a lot of people getting skin cancer probably, especially kids.

Participants in the council trial indicated on many occasions that using WebShade had given them a better understanding of the shade issues and risks at particular sites.

But what it did was made us look at the site a little bit better and say well here's three twenty foot tall Macrocarpa trees that cast a shadow over this entire part of the reserve, why don't you just think about where you are going to put the playground…..

As with schools it is difficult to assess the quality of particular solutions generated in the WebShade trial, however, the process of using WebShade was considered by the participants themselves to be very effective.

Conclusion

The WebShade trial has clearly shown that WebShade is a useful tool for assisting councils and schools to achieve effective shade outcomes. There were no significant issues identified with the usability and no major obstacles encountered. One of the most interesting outcomes of the trial was the wide range of uses that schools and councils identified for WebShade. It was seen as far more than a tool for designing effective shade, with uses identified by councils included crime prevention and encouraging physical activity. Schools consistently identified WebShade as a very effective curriculum tool providing authentic learning opportunities for students.

The health promotion staff involved with the trial found the experience positive and were unanimously positive about the benefits to councils and schools of using WebShade as a tool.

I can't wait for it to be widely available. I see examples every week where I could be telling schools about the software, and situations where they are planning significant spend on shade facilities but not really investigating whether it is the right shade in the right place.

Very useful in work with local government, educating them about their role in sunsmart policy development, creating supportive environments, their responsibility to protect the health and safety of all who use council facilities and those who are employed by councils. Gives a useful tool to help schools and councils make their environments safer, not only giving people the knowledge, the "why" but also the "how" to address the need for shade.

Appendices

School interview schedule

SCHOOL **Date**
Names of those present

1. **General impressions**

What are your general impressions of WebShade?

Using the software

Following the Shade Audit process

2. Participants

Did you have difficulties getting people together to work on the trial?

Time commitment

Skills

Lack of interest

Within schools, who do you think is most likely to understand the importance of creating a sunsafe environment?

Given your experience with the program, who do you think would be the best people to participate in a WebShade project for a school?

Staff

Students

Parents

3. Overall benefits of WebShade

What was the best or most valuable payoff for you in using WebShade?

Information or learning about shade and shade design

Quantified our risks

New insights about how we use our facilities

Good ideas for changes

How would you imagine WebShade being used within your school?

Educational projects

Once off development or improvement program

Annual check of how we're using our facilities- the risks

Only very occasional use to check our risk

4. Using the software

Are there any changes that you would recommend to make WebShade a more useful tool for schools?

Do you have any other comments you would like to make?

5. Performing the shade audit

Approximately how long did it take to complete the shade audit?

Drawing the site and completing the activities on the computer

Exploring the options to reduce risk

6. In conclusion

Do you think people in schools would be able to use the software?

Do you think WebShade would be helpful in determining effective shade outcomes?

Do you think it would be useful for schools to have free access to WebShade?

Council interview schedule

COUNCIL **Date**
Names of those present

1. General impressions

What are your general impressions of WebShade?

Using the software

Following the Shade Audit process

2. Participants

Given your experience with the program, what people in a council do you think would gain the most benefit from using WebShade?

Planners

Parks managers

Other

3. Overall benefits of WebShade

What was the best or most valuable payoff for you in using WebShade?

Information or learning about shade and shade design

Quantified risks of proposed developments

New insights about how we use our facilities

Good ideas for changes

4. Using the software

Are there any changes that you would recommend to make WebShade a more useful tool for councils?

Do you have any other comments you would like to make?

5. In conclusion

Do you think people in councils would be able to use the software?

Do you think WebShade would be helpful in determining effective shade outcomes?

Do you think it would be useful for councils to have free access to WebShade?