NEW ZEALAND

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Examples of the utilization of assistive technology in the education of children with disabilities

Finding the BEST FIT

Introduction:

In New Zealand there is a national Ministry of Education Assistive Equipment Policy and process. As it is specific to education it focuses on assisting students overcome barriers to learning or to accessing the school environment. It is based on the needs of the student, rather than on categories of equipment or cost. (Other technology essential for all of life remains the responsibility of the Ministry of Health.)

A student must fit into one of the Ministry's "Special Education 2000" initiatives to qualify for assessment and provision of Assistive Equipment:

☆ Ongoing and Reviewable Resourcing schemes (ORRS)
☆ Speech-Language (Communication) Initiatives
☆ Severe Behaviour Initiatives
☆ Special Education Grant
☆ Resource Teachers: Learning and Behaviour (RTLB)
☆ National provision for students with sensory impairments and physical disabilities
☆ School High Health Needs

Equipment applied for is then clustered into five categories:

- Hearing Access
- Personal Care
- Physical Access
- Written communication
- Vision

The focus of this presentation is how we, as a team, are addressing the specific needs of students within the area of written communication.

Our Journey into finding the Best Fit

As a Special Education team in the far north of New Zealand, technology is not a direct strength or specialist skill. Historically we depended on specialist communication consultants to fill this need around service provision to students. We decided to develop a Technology Team which consisted of a Speech-Language Therapist, an Occupational Therapist, a Physiotherapist, an Advisor on Deaf Children and one of our managers who had previously been a teacher. I was asked to be the Technology Coordinator as well as being the Occupational Therapist. The aim of the team is to process technology referrals and decide whether we can address the needs of the students within our framework or co-work alongside consultants. A second aim is to develop and expand our skills to take on more of the assessment and provision of technology over time.

The following three case studies reflect our growing knowledge and skills, as well as confidence in finding what works best for the students to whom we provide services. We will always work alongside and learn from communication consultants, even in an advisory capacity. Our skills and competencies are growing, but what I would not like to lose is the way we 'discover' the 'best fit' for the students we work with. That is, to identify the NEED, and hence make technology ' fit the student' rather than the student fit the current technology.

The students:

☆ Michael
☆ Mathew
☆ Serena

A description of each student:

Michael: Michael is 10 years old, has a quick sense of humour, loves learning and has acute hearing. He loves going out fishing with his Dad and has to participate in all the family chores. He always needs to know what is going on in terms of his education and input from others. He has spastic athetoid cerebral palsy affecting all limbs and voice output. He is in a manual wheelchair and another person pushes him where he needs to go. Over the years his head has been identified as his best point of body control.

Mathew: Mathew is 9 years old and in primary school. He loves playing soccer and golf, and is a great student who is very motivated and keen. He participates in all activities in school and is willing to try out adventurous activities, including rock climbing. He has athetoid cerebral palsy which makes all movements strenuous and it is difficult for Mathew to be exact with his muscle control.

Serena: Serena is a 13 year old who has just started high school and intends to go to University. She is a keen student who fights hard for her independence and is resistant to being treated differently to her peers. She has SLE (Systemic Lupus Erythematous), with Polyarticulararthritis.

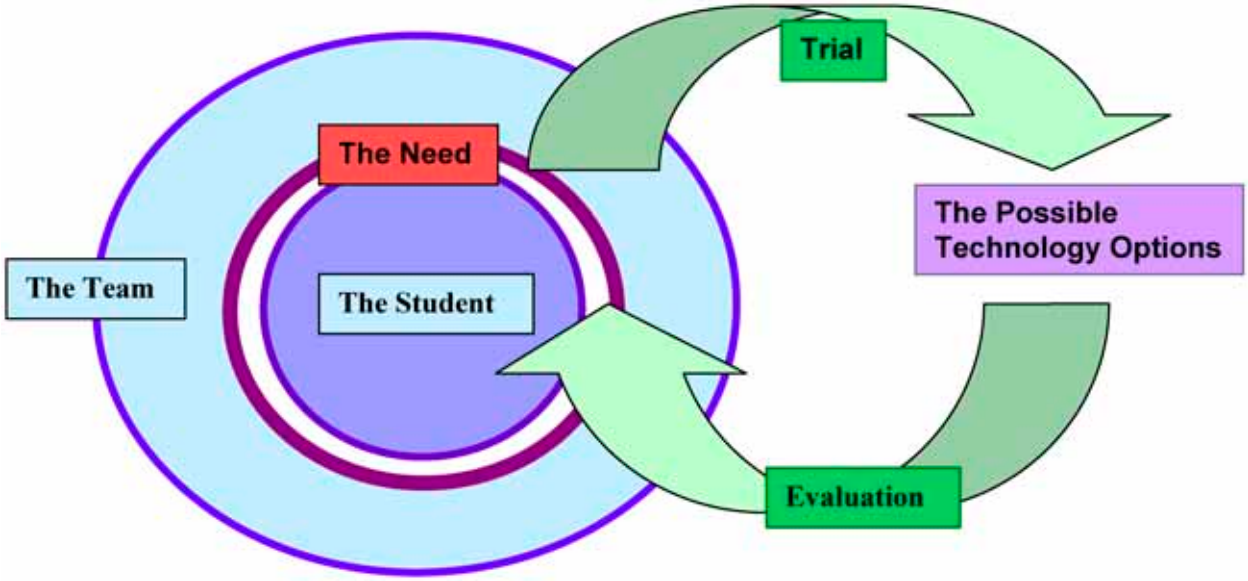
This primarily affects her joint mobility and strength and flares up over the colder months. Over time, it has reduced her hand strength and range of movement significantly.

Finding the 'best fit' seems to be a combination of:

- being certain of the learning goals
- the skills of the student
- clearly identifying the barriers to their learning
- teaming
- appropriate technology

	Michael	Mathew	Serena
The Goal	• To independently write his own stories	• To produce legible writing for both himself and others to read. • To work alongside his peers in group seating arrangements.	• To write even when unwell. • To carry own writing gear between classes. • To work alongside her peers.
The Skills	• Willingness to work and experiment with technology. • Some head control. • Has good knowledge of sight words. • Able to self evaluate.	• Good knowledge of language and early literacy skills. • Can write by hand. • Able to self evaluate.	• Competent writer • Has ability to self monitor her condition. • Able to self evaluate. • Basic keyboarding skills.
The "Barriers"	• No functional control of other body parts. • Insufficient independent head control for long term and sustained output. • Difficulty knowing educational levels.	• Writing is very strenuous and time consuming. • Mathew's athetoid movements cause writing to be large, irregular and difficult to re-read. Any hand movements are very difficult to control.	• Pain and reduced strength and mobility in her joints, especially over winter. She is then unable to write. • Minimal body strength so unable to carry a heavy school bag.
The Team	• Michael • Aaron, Teacher Aide and brother • Celeste, Mum • Specialist Teacher • Special Education Advisor • OT/Technology Coordinator • Communication consultants • SLT • PT • Wheelchair Therapist	• Mathew • Cheryl, Mum • Shane, Dad • Claire, Specialist teacher • PT • OT/Technology Coordinator • Communication consultant: OT	• Serena • Richard, Dad • Specialist Teacher, Intermediate and High School • Teacher Aides • Special Education Advisor • PT • OT/Technology Coordinator
The Technology	?	?	?

It was the dynamic mix of the team around the student, the student's specific needs and the technology alternatives considered that led us to different solutions for each student. At times, as a team, we did not know of certain options in technology, but we attempted to identify what was **needed** first. Therefore, we fitted the technology to the needs of the student and not the other way around.



Being Sure of the Goal:

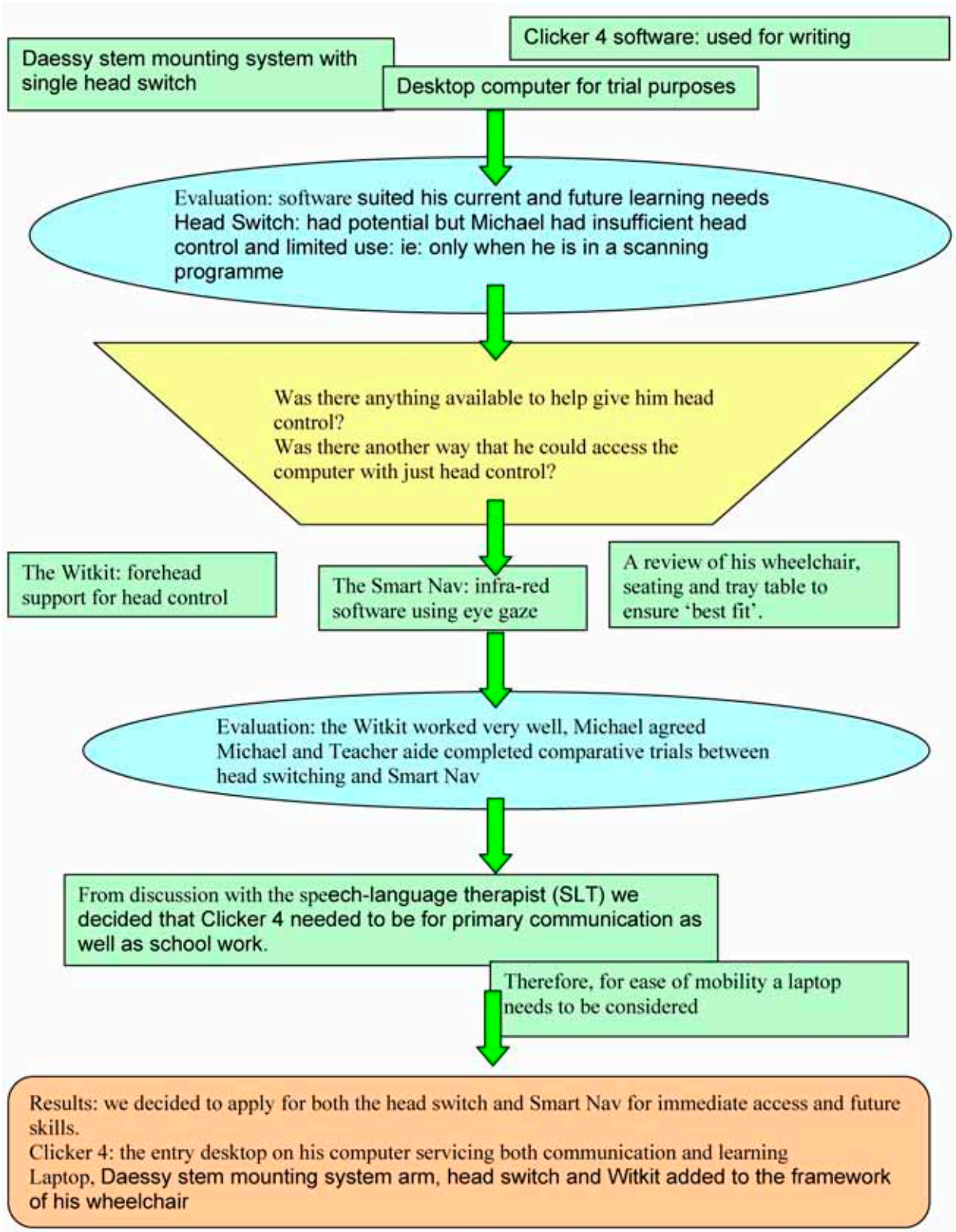
Michael:

To date, Michael has depended on others for all writing tasks. This has meant that he attempts to communicate verbally what he wants written either by using Yes/No responses or saying some key words and phrases. Michael wants to be able to "write" for himself.

Therefore, we needed to find technology that:

- enabled him to use his sight word knowledge, rather than try to type individual letters
- increased his own head control
- allowed for a system of single switch with scanning
- enabled him to access a word processor
- enabled him to use a computer and access data from the desktop
- could be a dual tool for oral communication as well as written.

Possibilities in Technology: Michael



Time Frame and Training:

From beginning to end the trial, assessment, evaluation and application process took over two years. This was due to the complexity of Michael's needs and of the technology, as well as the availability of technology. We had to ensure he was in the best seating possible so that accessing was an accurate reflection of his skills. Each cluster of trial equipment choices then required upskilling and training of Michael, his support staff and ourselves.

The biggest challenge has been the change of school staff and therefore the need to bring them up to speed with both the technology and how it can target the learning goals for him. The training for Michael was firstly to consolidate accurate head switching and then link it into the curriculum levels he is working within. With the approval of this equipment, the school has started to look at other software that may be useful, in particular for maths. I am currently providing fortnightly visits to support his staff and ensure we are targeting his educational goals.

Total Cost including Training: $12,368.00

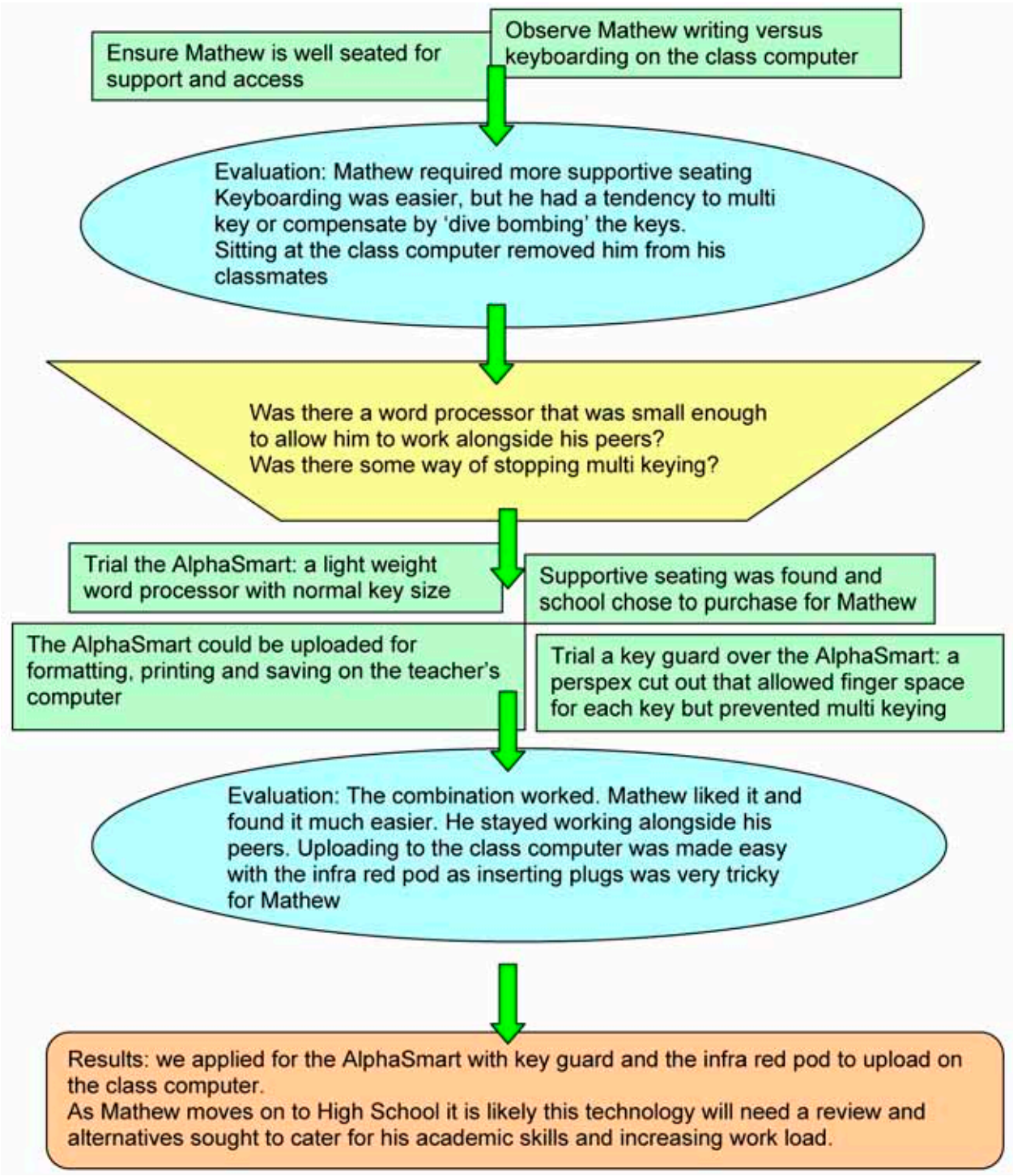
Being sure of the goal

Mathew: Mathew can write; he worked solidly on letter and word production in his early years of school. Therefore, he had consolidated the visual, perceptual, sensory, cognitive and motor skills around letter shape and form. However, writing was so effortful and 'messy' that he was dissatisfied with the results and could not keep up with his peers or his own cognitive processing. He was very keen to look at how to produce faster, legible, written work.

Therefore, we needed to find technology that:

- ☆ made written tasks easier
- ☆ reduced errors from uncontrolled movements
- ☆ increased legibility for Mathew and others
- ☆ allow for independence in producing final product
- ☆ ensured he could work alongside his peers

Possibilities in Technology: Mathew



Time Frame and Training:

The total trial, assessment, evaluation and application process took approximately 6 months. This was in part due to the fact that Matthew lived in a small, isolated community in the far north; we were working with consultants who were a five hour drive away from Matthew's school.

The trial process consolidated the use of technology for Mathew. He was quick to pick up both the filing and typing skills. We equipped him and his staff on how to plug in and send work to the computer. Ongoing training is only necessary as he moves schools and this is to equip new staff in the technology and process.

Total Cost: $1,591.00

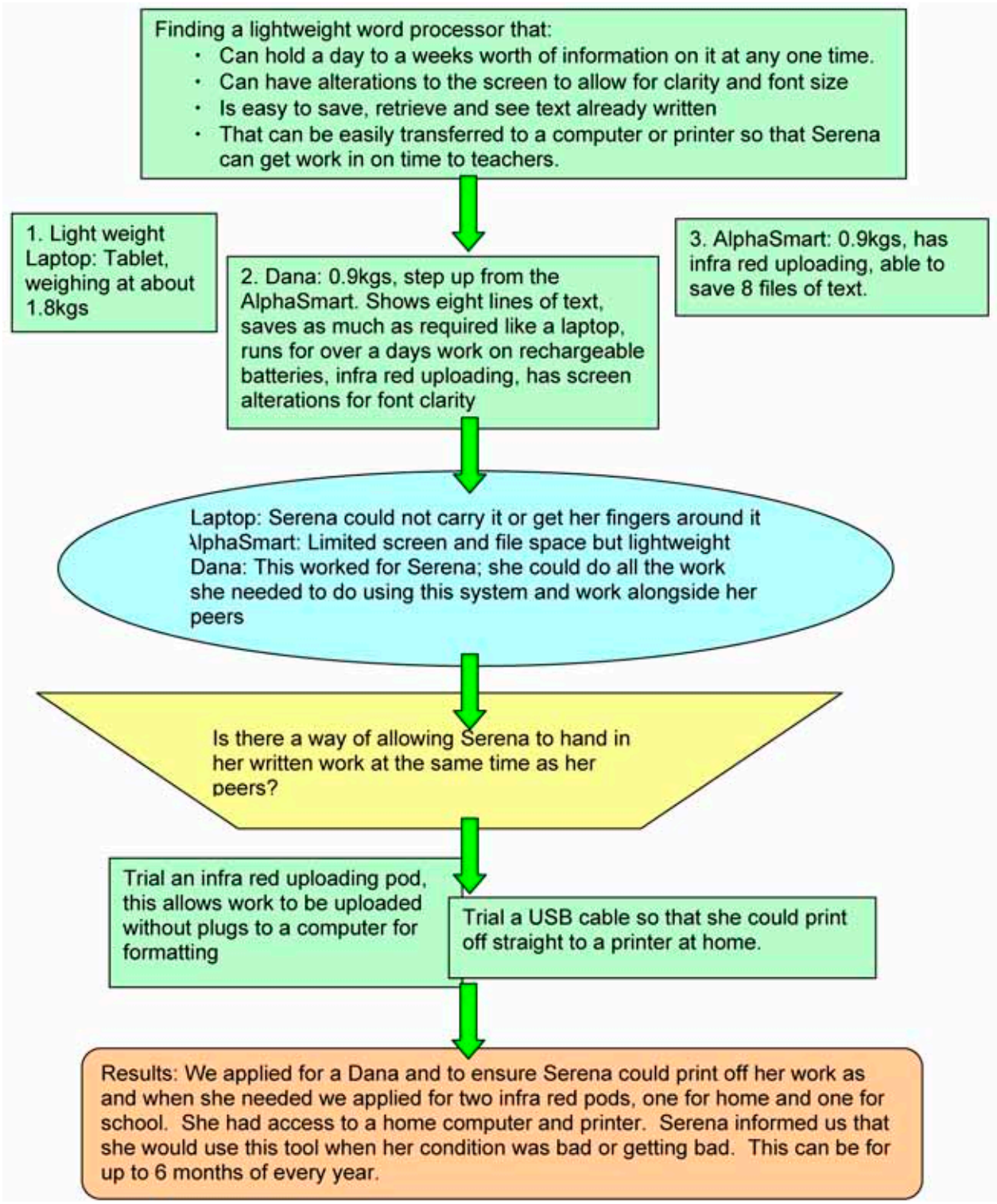
Being sure of the goal

Serena: Serena writes beautifully and up until recently was very keen to retain this as her primary form of written communication. During her last year at Intermediate School (Year 8), her SLE flared up and she found that writing became too difficult and was therefore, willing to look at how else she was going to keep up with the demands of school work. Serena moves between 5 to 6 classes a day, any system she uses must be light to carry. She does not want a Teacher Aide supporting her if possible and wishes to work alongside her peers.

Therefore, we needed to find the technology that:

- ☆ did not produce the pain and fatigue that she currently had with hand writing
- ☆ enabled her to sit with her peers
- ☆ enabled her to carry all her school gear between 5-6 classes/day
- ☆ enabled her to hand in written work alongside her peers
- ☆ was quicker and more sustainable than handwriting

Possibilities in Technology: Serena



Time Frame and Training:

The total time from trial, assessment, evaluation and application took approximately eight months. The need was indicated at her last year at Intermediate school and we put trials on hold over the six week summer holiday period. Serena had already developed the initial keyboarding and filing skills. We have had to spend time communicating and training with home and school around how to use the uploading system and then teaching Serena how to effectively sort and save her work in a computer. This training is continuing as we match Serena's needs with the capacities of the technology.

Her condition is now in remission, however she has lost further range of movement and is realising that keeping up with her keyboarding is important as she will need to consolidate this skill especially if she wants to go to University. She also informed us that as her strength was better now, that maybe in her future we might be able to look at a laptop for her.

Total Cost: $1,454.00

In Summary:

The need for access to written communication has helped to drive us to reach the best outcome for each of the students we have worked with.

The trial process at times has been very long: for Michael the ongoing trial process was well over a year and in fact still continues. However, when a student has complex issues I don't think we can rush the process.

Our results or decisions around technology are also reflections of what we know to date, as well as the current skills of the student. Therefore, it is assumed that as we gain further skills, have more options and the students grow in their skills, then they may receive better services in the future with other choices of technology.

Listening to parents, teaching staff and most of all to the students was essential to find the best solution.

Technology is not the solution; it is part of the process of enabling students to reach learning goals and therefore, will always need reviewing. It is something that we can all learn about ; teaming is something we can all facilitate.

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Tai Tokerau
New Zealand

Resources: Ministry of Education (January 2000, revised July 2002) *Assistive Equipment: Supporting Students with Special Education Needs.*