Nanotechnology curriculum website

Facts at a glance

Challenge
Providing a platform for St Helena Secondary College to share their new nanotechnology curriculum (a Victorian-first initiative) with other Victorian secondary school teachers and students.

Type of designer engaged
Graphic designer with Web specialisation

Most important part of the process
Getting alignment between the designer and client's objectives, which was achieved through clear communication and passion for the project.

Most difficult part of the process
Distilling complex content about nanotechnology into an accessible, web-based form within time and financial constraints.

Solution
The first phase of the interactive SHINE (St Helena Innovative Nanotechnology Education) website (www.shine.vic.edu.au) containing curriculum, images, the latest developments in nanoscience and separate sections for students and teachers.

Outcome
The website was launched by the Victorian Government Minister for Education, The Honourable John Lenders, in May 2007. It forms the basis of the nanotechnology subject at St Helena, and is now be available to teachers and students across Victoria and around the world.

"Using a designer saved us hours of work and turned the website into something fantastic"
– St Helena Secondary College

Company background	Designer background
St Helena's Secondary College	R-Co
www.sthelena.vic.edu.au	www.r-co.com.au
Established: 1983	Established: 2003
Org type: Education provider	Type: Graphic Design
Project lead: Francesca Calati	Project lead: Richard Henderson

Background to the project

St Helena Secondary College (SC) on Melbourne's northern fringes is a pioneer in Victorian education. The school is the first in the state to teach a nanotechnology subject as part of its science curriculum, with the subject now taught to students from all year levels at the school. The addition of nanotechnology to the curriculum was seen by the school as a way to make science in general more attractive given that nanotechnology was starting to emerge as a 'cool' subject.[1].

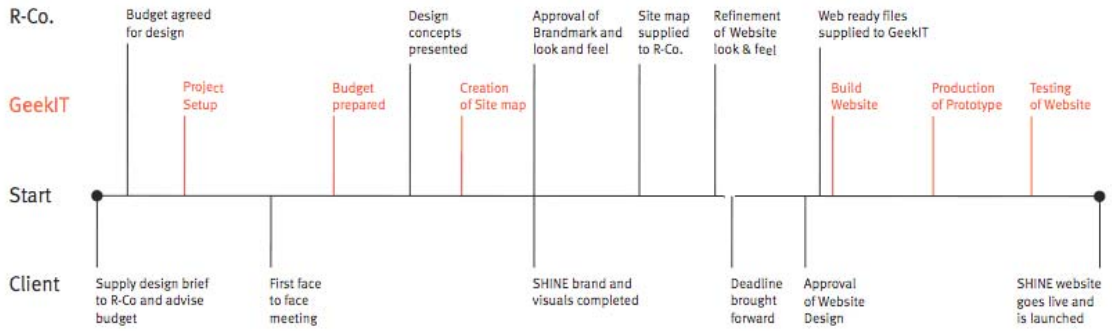
As part of funding agreement with the Victorian government, St Helena SC was asked to adapt what had been developed and make the curriculum available to other schools in Victoria. The need for a website to make the curriculum accessible to all was not immediately clear, as the school initially wanted to present the curriculum on a CD. However, once the benefits of the Web-based format were discussed (including ease of distribution of the content and ease of updating), it was decided that a website would offer better value for money than a CD.

Role of the facilitator

A facilitator was appointed by the Victorian government to help the `client' to make decisions about a suitable designer, ensure that expectations were understood and managed throughout the process and provide a mechanism for problems to be addressed. The facilitator's main function was to help ensure that each party asked the `right' questions at different parts of the project.

[1]The curriculum was developed by Nanotechnology Victoria in conjunction with nanoscience consultants bridge8 and funded by the Department of Education through a Teacher Professional Leave Grant. Nanoscience is the study of phenomena and manipulation of materials at atomic, molecular and macromolecular scales, where properties differ significantly from those at a larger scale. - www.nanologue.net

Response – a nine week design process



Selecting a Designer

The project was intended to result in an accessible and easy-to-use resource that would enable teachers to readily integrate a nanotechnology study module into the year 11 VCE Chemistry subject. The website needed to be designed to help teachers deliver nanoscience classes in an interactive, engaging way that motivated students to learn. For the website to work the school wanted a designer who would:

1. design and construct the basic architecture of the website in a timely manner for an official ministerial launch
2. present content in a way that would motivate students to learn, and help teachers to teach
3. complement the site with additional features such as animation
4. provide for the addition of content in the future.

Melbourne design firm R-Co was selected to work with St Helena Secondary College because of their strong reputation in design and brand development, track record in website design and interest in deepening its education business. GeekIT, R-Co's web development partner was enlisted to develop the architecture and functionality of the website.

The project had four key phases:

- Project set-up
- Developing a number of design concepts
- Refinement of favoured concept
- Production of the prototype

Phase 1: Project set-up

The project represented collaboration between four separate parties:

- The client (St Helena Secondary College) – Providing content about nanotechnology, including curriculum for school teachers and students, news and general information for website
- A nanoscience consultant Kristin Alford (bridge8) – Providing advice to the client on the nanotechnology content
- The graphic designer (R-Co) – Designing the website, development of the SHINE (St Helena Innovative Nanotechnology Education) brand, creation of an animation sequence and other features on the site
- The web developer (GeekIT) – Building the underpinning architecture and functionality for the site.

The design brief

The school produced a design brief for R-Co with the help of bridge8 and the Business Immersions facilitator. The brief was designed to enable two separate responses: one from a brand image designer focused on presentation of visuals and another from a web designer focused on ensuring that the underpinning web structure was sound. The design brief specified critical issues including timeframes for delivery, budget and the objectives of and background to the project.

Another function of the design brief was to clarify the roles and responsibilities of all parties. As an example, it was established during the development of the brief that the school would have the final say on approval of the website. It was important that trust and a `common language' was developed between the client and designer as the designer had been used to dealing with corporate clients, not schools, and the school had never dealt with a designer.

Clarifying the design process with clients

Teacher Francesca Calati and designer Richard Henderson established trust and a common language, and found face-to-face meetings the most effective. These were crucial in ensuring the designer and client were clear about what each required.

An early challenge was the fact that not all the curriculum for the site was finalised, which meant that the teachers and nanoscience consultants Bridge8 had to work in parallel with the design process to complete the necessary work.

The school was keen to ensure that the website convinced students of varying ages that nanoscience was fun and important. They also wanted the website to be a useful resource for science teachers to teach interesting nanotechnology lessons. In response to the objectives established in the design brief, R-Co:

- sought to understand the nanotechnology curriculum so they knew what material they would be dealing with when designing the website

- identified the ‘highlights’ of nanotechnology were, including potential health and environmental benefits, to be used for illustrative purposes in designing the website, including animations
- designed a brand that gave the website and nanotechnology program an identity that appealed to both students and teachers.

Establishing IP Rights

The resolution of intellectual property issues was straightforward. That is, R-Co agreed to assign IP in the prototype to St Helena, following payment of fees. Assignment of copyright is always required to be registered and it is important to agree prior to commencement of a project. Designers naturally retain ownership of any proprietary knowledge that they use in developing prototypes/concepts.

Phase 2: Developing a number of design concepts

R-Co produced several concepts including different options for how the nanotechnology subject and website’s brand would look. In thinking about the best way to present the curriculum content, the school and designers were conscious that it had to be done in a way that motivated students to learn. The students still had to be convinced that nanotechnology was exciting and worthwhile. The use of animations and other features was central to this aim. Design also needed to deliver functional as well as aesthetic benefits, meaning that the brand needed to be underpinned by an architecture that provided clear and easy to access information on the website.

The next challenge for R-Co and GeekIT, was that, unsurprisingly, they knew little about nanotechnology and needed to do some research.

“There has been a decline in interest in IT and science in Australia and it is important that the message gets out that these jobs are not about being a nerd behind a computer. We agreed on this fundamental point and saw that what we were doing made a direct contribution to this repositioning of IT and science as exciting, leading edge vocations’’ – GeekIT

The school had significant input into the design, helping develop a ‘molecular’ star above the SHINE acronym (the star represents five elements breaking up at the nano level) that became the basis of the brand. This was a significant moment, with Ms Calati’s vision for the nanotechnology subject’s “look and feel” coming to life and becoming aligned with the designer’s vision. The regular meetings enabled this to happen with the designer understanding the school’s desire for a functional website while wanting to create an attractive, interesting product that would draw people in.

The school maintained a hands-on role to help the designer apply the complicated nanotechnology content, though that process was not always straightforward. For example, it was a difficult balancing act throughout the project to ensure that the school had input but that the final deadline was not breached.

Phase 3: Refinement of favoured concept

The designer's vision for the site, in consultation with the school, was that it should have a 'cutting-edge' futuristic and scientific feel to it, with images of nanoscience applications such as glass and water weaved into the design. The designer also suggested the heading: 'a nano is one-billionth of a metre' be included throughout the site to remind people of the size of materials involved in the technology. The school instantly recognised the appeal of both the futuristic graphics and tagline and agreed to incorporate both for the final website design.

The school provided content including the curriculum and lesson plans for a teacher-only section, pictures of students and teachers practising nanoscience, the school's achievements and awards through its SHINE lab plus the latest developments in the technology around the world.

"Our aim was to empower young minds using technology and help teachers prepare lectures with it" – R-Co

A major unexpected challenge arose when the deadline for completion of the site was brought forward by the opening of the school's new nanotechnology laboratory launched by the Minister for Education John Lenders. It was considered important to launch the SHINE website at the same time. This meant that the process had to be highly streamlined, with no time to waste as a result of duplication of roles or unclear responsibilities.

"The timeframe was so short we had to focus on the desired outcomes, while at the same time making a conscious effort to build up client rapport and trust quicker than usual" – R-Co

The designer at R-Co teamed up with GeekIT to design and build an interactive site with an opening page "science-themed animation" that invites the user to enter.

Phase 4: Production of the website

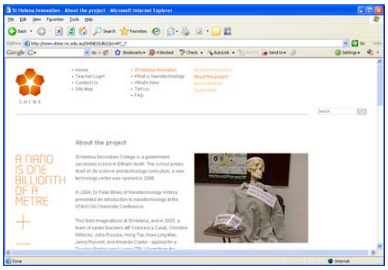
The designer and web builder spent this phase creating and undertaking limited testing of the SHINE website. The testing process was constrained by the looming deadline, but the first version of the site needed to be professional and credible. Both designer and client were willing to go 'the extra mile' to make that happen. This included production of an animation that was not originally envisaged, as well as additional work by the school to complete the content. It is likely that further work on functionality will be required down the track as more content is added.

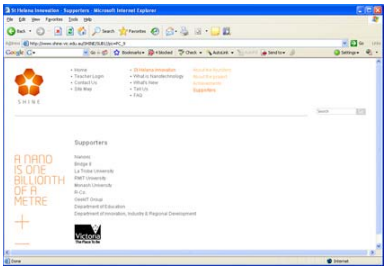
The decision to `go live' with SHINE was made on the day before the launch. There was scope to delay the launch to do more work with the website, but the school was delighted with the product and was keen to ensure that the content was available as early as possible. At the launch Minister Lenders highlighted the website's potential value to the wider community, as well as to students and teachers. The design process had been instrumental in ensuring that the nanotechnology

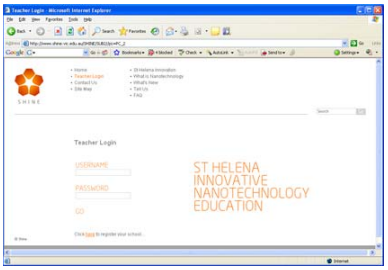
curriculum could be presented clearly, and in a format and style that would encourage students to discover the subject in an interactive way.

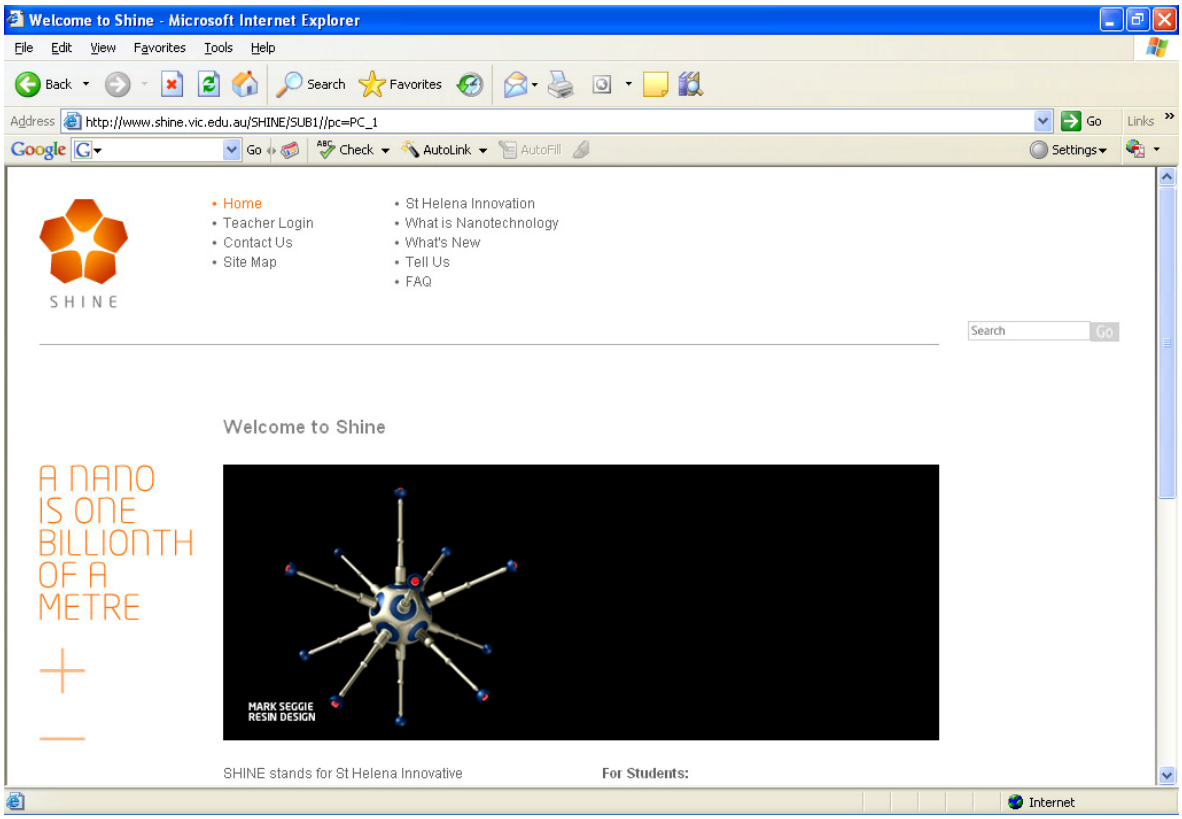
"The future success of the nation's economy will be greatly affected by students' ability to succeed at maths and science-related areas such as nanotechnology. This site plays a part in building our maths and science capability in schools." – Minister Lenders

"I love how a product can be brought to that next level by a group of educated professionals whose skills are completely different from ours … There should be more of it" – St Helena Secondary College









Results

The first phase of the website went live in May 2007. The involvement of a designer ensured a professional website that is straightforward to use, interactive and scalable. There is more work to be done but the school is optimistic about the website's potential. Design has enabled the school to have a broader vision about the future possibilities for using the site to supply nanotechnology curriculums to students.

The website when launched did not contain all planned content, and as such is considered a work in progress. This approach is typical of website development. That is, while the first version of the site was highly professional it will be significantly improved over time as a result of thorough user testing and the addition of new content. The contract with R-Co included training for school representatives on the content management system, which will provide St Helena with the ability to continually updating content.

"Developing the rest of the website will be easy now that the hard part is taken care of. The fundamentals and basic architecture are there and we can build on that" – St Helena Secondary College

"Our school's new SHINE nanotechnology website, including the teaching modules, will now be made available to other schools" - St Helen's Secondary College principal Trudy Thomson

"The project was really fantastic because when you work in education you treat any opportunities like this – where you get to work with professionals - as a chance to make a positive difference and we were keen to take on the challenge" – St Helena Secondary College

The website is an important complement to the school's other highly successful nanotechnology initiatives. The teaching team recently won the $20,000 *Victorian government award for Curriculum Innovation* for SHINE. Francesca Calati was nominated by Nanotechnology Victoria for the *2007 Prime Minister's Prize for Science Teaching* and she co-authored a paper on teaching students nanotechnology that was presented at the *National Science Technology Initiative Nanotech 2007 Conference* in California.

Summary

St Helena Secondary College had never employed design services before and believed that the design services provided by R-Co and GeekIT helped them develop a professional and adaptable website.

The school reflected at the end of the process that they had saved "hours and hours" of work and been presented with a fantastic product – a website – they could never have produced themselves.

Key observations about the process

Question	Designer's response	Company response
What you wish you had known at the outset	More about nanotechnology	That the project would make significant demands on my time, particularly at certain parts of the process
Biggest fear going into the process	That the client wouldn't deliver requirements on time or the quality of information wouldn't be there	We felt lucky to be given the opportunity to work with professionals and did not hold any fears
Most satisfying moment	Going live, seeing the website and the client appreciating it	Seeing what was envisaged come to life through animation and the SHINE brand
Most important meeting	The first, when you establish credibility, trust and expectations	The first solo meeting with designer at his office in town
Most unexpected development	The changed launch date	There was less continuous communication with the designer than expected
Biggest decision	Taking it on and agreeing to commit to the desired outcome within the time and budget	Deciding on the Thursday before the Friday launch that we were ready to go live with the website
Biggest challenge	Ensuring that everyone felt great about both the process and the end product	Working late to get it done on time, on top of regular teaching work