



Evaluation of the ‘New Initiatives’ in ‘Interactive Education: An Information and Communication Technology (ICT) Strategy for Schools’



**Educators’ Use of the
Online Learning Centre
(Te Kete Ipurangi)
1999-2001**

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Te Whare Whai Matauraka Ki Otautahi

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Vince Ham and Derek Wenmoth.

Abstract

This research report is the second of three submitted to the Ministry of Education as part of the Christchurch College of Education's Evaluation of three of the "New Initiatives" announced in the 1998 document *Interactive Education: A National Strategy for Information and Communication Technologies in Schools* (Ministry of Education 1998).

Although there has been a lot written about the potential of the internet as a professional resource for teachers in recent years, and although several western governments, including New Zealand's, have invested large amounts of money in sponsoring websites for teachers and the infrastructure to support access to them, very little is actually known about the levels of uptake by teachers, or the roles such sites play in teachers' and school managers' professional lives. This research study investigates teachers' usage of the main official website for teachers in New Zealand, Te Kete Ipurangi (TKI) during its first two years of operation, 1999-2001.

The main findings have been that awareness and usage of TKI has grown significantly over its first two years of operation, and that the nature of that usage has been consistently focussed on one, or perhaps two, overriding purposes. Such usage, moreover, has varied in certain important respects between primary and secondary school users. Overall, secondary teachers were likely to focus their use on one or two particular Communities within TKI, while primary users went to rather more of it, and generally found it more 'useful' in their daily professional lives. Both groups tended to use the site primarily as a source of specific teaching ideas and resources, and to a lesser extent as a source of official information, and both expressed reservations about its overall 'user-friendliness' as a website.

1. Executive Summary

This research report is the second of three submitted to the Ministry of Education as part of the Christchurch College of Education's Evaluation of the so-called 'New Initiatives' announced in the 1998 document *Interactive Education: A National Strategy for Information and Communication Technologies in Schools* (Ministry of Education 1998). The 'New Initiatives' were:

1. The Principals First: First principles programme of professional development in ICT for Principals.
2. The Online Resource Centre, subsequently entitled Te Kete Ipurangi (TKI) the Online Learning Centre.
3. The 23 ICTPD School Clusters programme of professional development for teachers in ICT.

The overarching aim of the study reported here was to evaluate schools' contributions to, and usage of, the Online Learning Centre (TKI) during its first two years of operation. More specifically its objectives were:

- a) to analyse and critically evaluate the contributions of the 23 ICTPD Cluster schools to the Online Learning Centre,
- b) to describe how, and to what ends, NZ school managers and teachers used the Online Learning Centre, and
- c) to identify users' views on the value of the Online Learning Centre.

The aims and objectives of the TKI website

The emphasis in stakeholder goals for TKI have changed somewhat over time, as the concept of a New Zealand portal site has expanded, and as technical advances in terms of the database driving the site have opened up new opportunities for features and structures. Three key aims of the site in its first two years of operation were for TKI to act as a portal through which users could access high quality, comprehensively cross-referenced resources and information on the world wide web, as a repository of official information and similarly high quality and cross referenced home-grown educational resources, and as a virtual community for educators in New Zealand schools.

The 23 ICTPD Clusters' contributions to TKI, 1999-2001

In total the 23 Clusters had published 112 educational resources on TKI to the end of 2001. Most of these were either ready-made units of work for students incorporating ICT components, or pedagogical strategies for teachers using ICT in their classrooms.

Clusters were variable in the extent to which they committed to, and succeeded in, meeting the requirement to publish educational resources through TKI. Only four clusters even came close to reaching the probably unrealistic targets set in their contracts.

Only a minority of the resources submitted by the 23 Clusters in 1999 and 2000 reached publication standard for the TKI site, and most of those were published only after extensive revision. However, the expected ratio of submissions to publications for resources sent in 2001 was significantly higher, largely as a result of increased provider experience and understanding, combined with the publication of clear criteria for publication by TKI during 2001.

The process of editing and revising submitted resources for web publication was proving a lengthy one, turnaround times being measured in months for many resources.

Educators' use of TKI, 1999-2001

Users

After the first year of operation about a half of New Zealand teachers had heard of TKI and about a third had accessed it. By the end of its second year of operation over two thirds of New Zealand teachers had heard of the site and around half had accessed it.

Males were significantly more likely to be users of TKI than females.

In its second year of operation at least, secondary teachers were more likely to have accessed TKI than primary teachers. However, primary teachers who were regular users of the internet were more likely to also be users of TKI than secondary teachers who were regularly users of the internet.

There seemed to be no significant differences within TKI user groups in relation to school type, teaching experience, positions of responsibility held, or the particular age levels within schools that teachers teach.

Levels of usage appeared to be similar in Maori immersion or bilingual schools to those in other schools, although only small numbers of teachers from those schools responded to the survey.

Teachers did not lack access to the Internet. The major constraints on teachers' use of TKI seemed to relate to lack of awareness, lack of skill, perceived irrelevance, the pressure of other priorities or, above all, lack of time, rather than to limited access.

Usage

More users visited the site more often, and for longer periods, over its first two years of operation.

The greatest use of the site occurred during the school week and within the working day.

Usage of TKI tailed off significantly during the December/January school break, but not during the other breaks in the student year.

Taken as a whole, the available figures on frequency and duration of visits, especially when put alongside the figures for *repeat* visiting, paint a picture of a proportionally small but growing number of teachers who visited often and stayed for quite long times (over 20 minutes), alongside a much larger number of visitors, still the vast majority, who visited the site infrequently and took only a glimpse. For both the Day 1 and the Day 2 Sites, there appears to have been a tendency for users to be either fanatics or phobics, regulars or reluctants, with relatively few in the middle ground.

Users of both the Day 1 and the Day 2 Sites were quite focussed in their travels through the sites, and tended to go back to the few areas that they know, rather than explore widely throughout the sites. They seemed to have quite finely focussed reasons for visiting the site which centred most around the collection of curriculum related teaching resource materials and/or official reference information.

A substantial proportion of the increase in secondary teachers' usage of TKI is explained in terms of their use of the NCEA and Assessment Communities.

Usage of the more interactive public features of the site, which involve collegial communication and active contribution, was restricted to a very small minority of users who visited these sections rarely.

Even those users who did stay online at the site for a long time, or who visited very regularly, apparently strayed little from their previously well worn, and quite narrow paths.

Usability

Users rated the Day 2 Site interface more user friendly than the Day 1 Site interface, especially its organisation around curriculum content areas.

Most users came with a specific task in mind rather than to browse or 'window shop'.

Most users had been able to find what they were looking for through the site, and the Day 2 Site had proven more 'searchable' than the Day 1 Site. However, for a significant minority failed 'searches' within the site were still a problem. The reason for this may have been in the still relatively limited numbers of site references and resources that were fully catalogued according to the site's meta-data system.

The greatest difficulties users had with the site relate to navigation and structure. This was partly due to what they saw as confusing labelling and icons, but even more it was due to a frequently reported lack of a sense of where they were in the site at any given time. It would appear that users of the site did not have a clear concept of its varied purposes and roles and thus had difficulty developing, on the basis of the way it was presented to them visually, a coherent mental map of the structure and operation of the site which would make it more easily navigable.

Usefulness

Teachers found the sites most useful as a source of specific classroom resources and ideas, and least useful as a place to locate professional readings or to make collegial connections. Consistent with their view of TKI as a 'repository for quality teaching resources', users used it almost exclusively as a place to visit for ideas and resources 'for tomorrow's lesson or test', and, to a lesser extent, as the place to go for official curriculum documents and news.

Moreover, users seemed to go to the site only with the *expectation* of locating and possibly downloading teaching resources, and had neither sought out, nor made much use of, the other features and information that the site offered. In this regard, users in secondary schools were even more focussed than users in primary schools.

For the end users, the most used, and most useful, general sections of the sites were:

Day 1 Site

Literacy and Numeracy
Teaching, Learning & Curriculum
ICT
General Research
Professional Development
Governance/Management

Day 2 Site

Communities
Webguides
Schools
Hot Topics

The least used, and least useful, general sections of the sites were:

Day 1 Site

Events
Student Exemplars
Futures
the Shop
Discussion
Reviews

Day 2 Site

Private Areas-Commsuites
Interact
Message Board
What s on the Box

The most used, and most useful, Communities in the Day 2 Site were:

Primary

Gov/Man
Science
Assessment
ICT
Lit & Num
The Arts

Secondary

NCEA
Science
Technology

The least used, and least useful, Communities in the Day 2 Site were:

Primary

NCEA
Curriculum Stocktake
Digital Opps.
NESB
Gifted & Talented

Secondary

Gifted & Talented
Curriculum Integration
Digital Opps.
NESB
School Innovation
Curriculum Stocktake

Except in respect of NCEA, primary teachers found the various Communities more useful than secondary teachers.

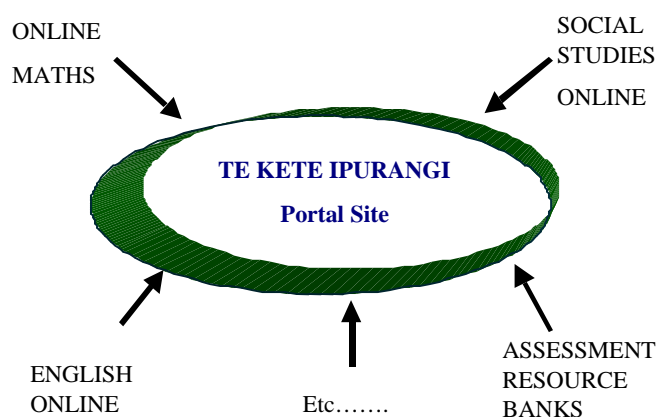
About half of the users of the site had used specific resources in their classrooms. These were mostly assessment ideas and exemplars, or classroom teaching ideas and ready made plans for units of work. To a lesser extent users also found and used specific learning resources for students, and resources related to policy issues.

For teachers, the direct classroom benefits of their use of TKI related more to improved 'teaching' than to improved 'learning', but within the latter, the perceived benefits related more to improved student motivation and attitude than to improved student achievement.

2. Introduction

2.1 TKI in the ICT Strategy

In New Zealand, Ministry funding of 'official' websites for teacher professional development began in 1997-8 with the Assessment Resource Bank site developed under contract by NZCER, and the English Online site developed by Unitec School of Education. These initiatives were quickly followed by sites for Social Studies, Mathematics, and more recently more of the seven Essential Learning Areas. Such sites were initially sponsored by different branches of the Ministry with little sense of planned strategy or common development. However, in *Interactive Education: A National Strategy for ICT in Schools*, launched in 1998, the Ministry proposed to establish an overarching website for teachers, known then only as 'The Online Resource Centre'. This 'portal' site was launched in August 1999 under the name Te Kete Ipurangi. Te Kete Ipurangi has since become a central plank in the Ministry's ICT strategies, and is now the focal lens, as it were, through which all the other officially funded sites and many other teaching related web-based resources are channelled (See Diagram below).



2.2 The Aims and Structures of the Day 1 and Day 2 TKI Sites

Aims

Stakeholder consensus on the aims and objectives of the site has changed somewhat over time, partly as stakeholders' concepts of what a 'portal site' is or could be have changed, and partly as internet technologies themselves have advanced and opened up new opportunities. The original concept of an online resource centre for teachers came at a time when the thinking about such things was still in its infancy. Some overseas examples that were available at the time (eg. SOFweb, the Victorian website for teachers) were simply a list of links that had been organised for teachers to find and follow. Perhaps in keeping with such precedent, the aims of TKI as delineated in the setup documents seem to emphasise its role as, indeed restrict its role to, a 'portal' site - that is, a website designed as a 'first port of call' for educational users, through which quality-filtered resources, information or services, mostly provided by others, could be accessed.

The Request For Proposals (RFP) document identified the intended aim of the site as being “To help users in New Zealand with access to the internet to find reliable and good resources. ... [It will be] an easy to use, one-stop online access point... [and] will build up high-quality evaluations of resources for New Zealand teaching situations.” (Ministry of Education 1999a. p.6)

Similarly, the Contract document states that “The Online Resource Centre (OLC) will be a vertical portal for New Zealand school personnel. A vertical portal is a central point of access to the full range of online needs of a class of users. The portal will be database driven. ... The OLC is primarily a referral site intended to provide the target audience with information that will assist and inform them in their search of the web.”(Ministry of Education 1999b. First Schedule. p.9)

As one of the developers described the portal function: “At its heart it’s about good librarianship and it’s doing that librarianship for teachers so that when they get there there’s already been some sifting and sorting done. To get them quickly to the resources that match the students that they have.”(Interview, December 1999)

The primary functions of TKI as a portal site, therefore, were to locate, evaluate, catalogue, reference and list the educational resources of other providers, rather than to develop, edit or store them itself. Very early in the genesis of the site, however, these latter functions of development, publication and storage, which are more typical of the conception of the site as a ‘repository’, also entered the discourse on the purposes of the site, and, for some, were incorporated into their definition of ‘portal’. As one of the developers commented, late in 1999:

“Awareness of what a portal website really means, and what its potential is [has changed]. ... In its purest form, finding content that’s relevant to the enquirer’s needs quickly and efficiently, is what a portal is meant to do. We need to have some way to shape some of the fundamental content that people need to support their enquiry, and that could be as simple as a quick access to the specific part of the curriculum. That is what they’re looking for. To be able to provide the enquirer with that kind of response. Not just a list of sites, but also a reminder of what the curriculum statement might say. We need content as well, we need information on the site that we can have domain over, which is just like fundamental reference material that teachers and principals use. ... it’s a doorway plus it has some information already within its world. So it’s a door with an entry chamber or something.” (Interview February 2002).

Also forming a growing element in the discourse of the site over its first two years, was a possible role as a venue for user interaction and dialogue, through discussion boards, message boards, chat rooms, shopping baskets and the like, which collectively might be summarised as the concept of the site as a ‘virtual community’. Although present in the Day 1 Site in the form a Forum section, this component of the site was much more heavily emphasised in the Day 2 Site with its Commsuites, Message Board, and Interact sections.

For the developers, this threefold role was envisaged from the start, though it has taken rather longer for the roles to be given equal weighting either in the minds of other stakeholders, or, if the results of this study are any indication, in the minds of the end users. When interviewed in December 1999, for example, Learning Centre Trust member David Copeland described the developers’ task as threefold:

- (a) to build a device that will help people find something online
- (b) to build a place where content can be gathered and stored
- (c) to build a sense of community.

The definition of the aims and goals of the site, as published on the site itself, reflect that tripartite conceptualisation of the site. Te Kete Ipurangi, as a bilingual education portal, is intended to:

“Provide easy access to useful and relevant information on the Internet for New Zealand school communities and whanau.

Help New Zealand educators to find reliable and relevant information on the Web quickly and easily by delivering a clear path to quality online information, services and resources to meet a diverse range of school needs.

Provide access to quality information and resources provided by the Ministry of Education in New Zealand.

Provide a gateway to useful and relevant education-related content available in the wider world of the web.

Establish a community of learners, who are sharing information, with the development of the site being shaped by user feedback.

Provide fair opportunities for commercial providers to promote and house resources, products and services to the Te Kete Ipurangi audience.”

(<http://www.tki.org.nz/e/tki/about/>).

Finally with regard to aims, it should be emphasised that the intended audience for the site was educators within schools, that is, school teachers, principals, librarians and school administrators. It was not until late in 2001, when the WickEd pages were added to the site, that school students were established as users. This evaluation only investigated the site with regard to its primary audience of educators.

Structure

In order to meet the requirement to have an initial site up and running within the space of only ten days of signing the contract, a “static” site was developed, providing a simple overview of the sorts of areas and content that the expanded site may contain when completed at a later stage. This site became known as the “Day 1 Site”, and was launched in July 1999. The “Day 2 Site”, which they hoped would go a long way further towards becoming a true ‘portal’ site as described in the initial RFP documentation, was launched in August 2000.

The structure of Te Kete Ipurangi, as it was launched in the form of the Day 1 Site in late 1999, emphasised its role as an electronic reference point for teaching ideas and resources, and as a source of official information for teachers on matters related to NZ education and schooling. The Day 1 Site featured sections on resources and teaching ideas, official documents on school governance, ICT, a directory of events, an educational newsletter, an interactive forum, and so on.

The Day 2 Site, by contrast, was structured according to a rather greater number and variety of resource types and services. The concept of organising the resource component around Communities, which included all of the 7 Essential Learning Areas, was a key change in the Day 2 Site structure. The key general sections or parts of the Day 2 Site, as presented to users on the Home Page, were:

- News
- Search
- About
- Communities
- School
- Interact
- Shopping
- Newsletter
- Message Board
- Glimpse of the Future
- What's on the Box
- Hot Topics
- Web Guides
- Private Areas/Commsuites

2.3 Teachers' Use of 'Professional Development Websites'

Teachers in New Zealand schools do not lack ready and almost universal access to the internet, either in their schools or at home, or both. Recent surveys estimate that between 90% and 100% of our primary and secondary schools have full and ready access to the internet available to teachers and students. (ITAG 1998, 2000; Pelgrum & Anderson 1999; The Learning Centre Trust 2001). It is less apparent, however, *to what extent, and for what reasons*, teachers actually make *use* of such access. The 2000 ITAG Report concluded that, although increasing, teachers' internet usage levels were generally low. Two years later, a Learning Centre Trust survey report paints a rather rosier picture, stating that about two thirds of primary and secondary schools have more than 25% of their staff using internet/email in the course of a typical school week, up from the 1999 figures of around a half of schools. The same survey, moreover, claims that more than three quarters of schools said they have at least one teaching staff member using TKI during every typical school week, up from 19% in 1999. (Learning Centre Trust 2001).

It is a moot point, of course, whether one staff member making regular use of the internet constitutes a 'high level of usage' in those two thirds of schools. More importantly, none of these surveys, not even those that make claims of increased or extensive teacher use of such sites as TKI, were completed by the people arguably most qualified to know: the teachers. Rather, all were addressed to, and completed by, Principals on behalf of their staff, or by school computer co-ordinators on behalf of their colleagues.

Generally, therefore, the focus of other studies on teachers' use of the internet has been almost exclusively on Principals' reports of staff or student use, usually described at the most superficial frequency level. Exceptions to this seem to be an American study which found that some 68% of US teachers use the internet for professional development on a regular weekly basis (Becker 1999), and one New Zealand study which concluded that a much smaller proportion (around a third) of NZ teachers of English were regular users of the English Online website (Davey 2001).

This latter study, moreover, is the only one that seems to have attempted to go beyond the issue of *how often* teachers use such sites in order to deal with the more substantive issues of what they use such sites for, and how useful they are felt to be. The major conclusion of Davey's study was that New Zealand teachers tend to be infrequent visitors to such professional sites, and tend to find them useful only as a source of ideas for specific lessons, making little or no use of the more interactive features that are often contained in the sites. Little else, however, is known about how useful teachers are finding websites such as TKI, or whether or not they are achieving in practice the potential professional benefits highlighted in much of the ICT literature and anticipated in the establishment of TKI as New Zealand's main 'official' education website.

In scoping discussions with the Ministry it was agreed that the Online Learning Centre evaluation should be focussed on two areas: first, as the TKI study is but one part of a more wide ranging evaluation of all of the 'New Initiatives', including the 23 ICTPD Clusters professional development programme, the Report should in part evaluate the contributions made to the site by the 23 ICTPD School Clusters, 1999-2001. More importantly, however, it should primarily focus on reporting the effectiveness of the first two years of TKI's operation **from the end users' perspectives**. To this end, the key research questions guiding the study have been *which* professional groups in schools were likely to be users of TKI, *what* were the rates of uptake among teachers in the first two years of its existence, *what* aspects or features of the site were they most likely to use, and *how* have the resources actually contributed to teachers' daily classroom lives?

3. Research Methodology

3.1 Evaluation Strategy and Objectives

The aim of this evaluation, as stated in the contract with the Ministry of Education, was:

“To evaluate schools’ contributions to, and usage of, the Online Learning Centre during its first two years of operation.

Specific objectives within this overall aim were:

- a) to analyse and critically evaluate the contributions of the ICTPD Cluster schools to the Online Learning Centre.*
- b) to describe how, and to what ends, NZ school managers, teachers and students use the Online Learning Centre.*
- c) to identify users’ views on the value of the Online Learning Centre.”*

The general strategy for the evaluation was a mixed method investigation of the usage of the Online Learning Centre over the first two years of its existence with a focus on the perspectives of the end users. Data came from the materials placed on the site itself, documents related to its development and operation, a series of interviews with stakeholders, usability tests with a small sample of teachers and principals, statistics of site usage automatically collected on the site, and annual surveys of a national sample of teachers in 2000 and 2001.

3.2 Dealing with the Data

Contributions to TKI from the 23 ICTPD Clusters

Numerous staff changes at TKI in this area, and changes in the systems of recording information on submissions at TKI, somewhat limited the amount of data available to the evaluation team, especially detailed quantitative data related to the nature and quality of submissions over time.

Data used in the analysis of the contributions to TKI from the 23 Clusters primarily came from:

- recorded interviews with the then managers of this aspect of TKI late in 2000 and early in 2002.
- questions on the topic in several interviews with the managers of the site and the National Co-ordinator of the 23 ICTPD Clusters programme over the period 1999-2001.
- a database summarising the contributions submitted by clusters to the end of 2000.
- the edited resources as posted on the TKI website as at November 2001.

Current statistics regarding the resources actually published in the site were relatively easy to calculate since they can be accessed directly on the site. However, calculating figures related to the submissions initially sent to TKI from the clusters but which may not have got to publication stage, proved more difficult. This was partly because the databases made available by TKI did not contain data on the date the resource was first submitted or the date of any subsequent publication on the site. Since the need for revisions meant that the period between these could be many months, resources submitted in, for example, 2000, might not have been published until well into 2001. The

calculations of submission to publication ratios for the year 1999-2000 were based on data provided to mid November 2000, and do not include submissions that may have been sent after that date.

Surveys of educators, August 2000 and September 2001

Sampling in the year 2000 survey on the Day 1 Site was based on a random clustering by school, stratified by sector (primary/secondary). 2,000 questionnaires were sent to a stratified random sample of 200 secondary/composite schools and 200 primary/intermediate schools, with 5 'randomly selected' teachers in each school asked to respond. Sampling in the second survey (on the Day 2 Site) was based on a national random sample of 1950 teachers, stratified by sector (primary/secondary). There was no clustering by school in the second survey. Instead, questionnaires were sent to a random sample of teachers drawn from the list of registered teachers held by the Teacher Registration Board. Responses from registered teachers who were not working in schools at the time of the survey were excluded from the results. The population represented in the survey results, therefore, was people currently acting in a teaching or management role in New Zealand primary, intermediate and secondary schools.

The response rate was 647/2000 (33%) in the year 2000, with approximately equal numbers of primary/intermediate and secondary teachers in the respondent group. The response rate was 500/1950 (26%) in 2001, with a higher proportion of respondents who taught at primary levels compared to the first survey. In the 2000 and 2001 surveys, 27 and 23 respondents respectively taught at both levels.

Table 3.1. Number of Survey Respondents by School Level Taught

School level taught	2000	2001	Total
Both	27	23	50
Primary	317	264	581
Secondary	303	213	516
Grand Total	647	500	1147

For both surveys, respondent and non-respondent groups were found to be broadly matched with regard to core demographic variables such as gender, school type, levels taught etc. A greater proportion of more experienced teachers responded to the 2001 survey than responded to the 2000 survey. In all other respects, the respondent group's demographics broadly matched the distributions of such variables within the population of teachers generally.

The great majority of the respondents to both surveys (81% in 2000 & 83% in 2001) were classroom teachers. 10% and 11% respectively were Principals or Deputy/Assistant Principals, and 8% and 6% respectively were in other teaching or quasi-teaching roles such as teacher-aides, school counsellors and so on. In this report the term 'teachers' is used generically to refer to anyone in a current teaching, quasi-teaching, or management role in their schools. Similarly, a 'user' is a survey respondent who reported having accessed the TKI site at least once.

Although sampling guidelines accompanying the questionnaires in the year 2000 emphasised randomness in the distribution of the questionnaires to teachers, simply *because* there was local selection of final respondents in that survey there may be some bias in the sample with regard to some of the less obvious demographic variables. Logic would suggest, for example, that there may have been a selection bias in the first survey towards computer users rather than non-users, and towards those more rather than less familiar with TKI. It is also possible for both surveys that teachers with an interest in TKI, or in computer use generally, would have been more likely to *respond* than those without such interest or knowledge. If either of these biases apply, it would

mean that actual usage and familiarity rates among teachers generally may be *lower* than those found in our respondent samples, but are unlikely to be greater.

Site Statistics from TKI

At the time of writing the site statistics for the Day 2 Site were maintained at <http://www.tki.org.nz/e/tki/about/stats.php>. The site statistics for the Day 1 Site were no longer available through the public sections of the site, but were kept in a private area of the site. Until early July 2001, the Day 1 Site site statistics were calculated differently to those for the Day 2 Site, making direct comparisons invalid for many of the variables. However, since then the statistics for both sites from April 2000 were recalculated in the same way and the new, compatible, figures published. All figures cited in this report come from the post-July 2001 statistics.

Only data on the number of site hits and the numbers of pages and files accessed seem to have been kept from August 1999 (when the Day 1 Site was first brought online) to April 2000, when more complete and more useful statistics began to be gathered. Statistics on the Day 1 Site reported here, therefore, were very largely drawn from the period April-August 2000, whereas the data on the Day 2 Site covers the complete period September 2000 to December 2001.

The producers of the automatically collected site statistics cited in this report use the following definitions of terms:

- Visits** - The number of times a visitor came to a site. If a visitor was idle longer than the idle-time limit, WebTrends assumed the visit was voluntarily terminated. If the visitor continued to browse a site after they reached the idle-time limit, a new visit was counted. The default idle-time limit was thirty minutes.
- Visitors Who Visited More Than Once** - Individual visitors who appear more than once in the log file. Individuals could be tracked by IP addresses, domain names, and cookies. Cookies provided the most accurate count.
- Number of Visitors** - The number of unique individuals who came to the site.

Usability tests

Usability tests were conducted in October/November 2001 in relation to the Day 2 Site interface only. The primary aim of the tests was to investigate in some detail how a group of teachers and managers with varying degrees of internet or TKI experience responded to the interface and how they navigated through the site.

The tests involved the participants working their way through the site in response to a mixture of set tasks and free exploration activities. Participants were encouraged to 'talk through' the process of navigating the site with the researcher taking notes. At the end of each session the participants were interviewed about the interface and their use of the site. The sessions were videotaped for further post-hoc analysis.

The participants:

- ⇒ N was a primary trained teacher of 12 years experience. At the time of the tests she was Head of the Junior School at a Christchurch girls' school and worked part time for a company providing computer based learning for children. She had little experience with TKI, but a great deal with other internet sites.
- ⇒ P was a primary school teacher at a North Canterbury area school. She had used TKI once or twice.

- ⇒ M was a secondary trained geography teacher who had since completed his Ph.D and at the time of the tests was teaching at university level. He used websites a lot in his work, but this was his first time using TKI.
- ⇒ B was the Principal of an area school in Canterbury. He had used TKI quite often.
- ⇒ ML was a secondary Maths teacher at a large high school in Christchurch. She had used TKI occasionally.
- ⇒ L was a primary trained teacher working in a small 3 teacher school in rural Canterbury. She had used English OnLine a lot and TKI a few times.

The developers of TKI conducted their own feedback sessions with some small groups of teachers during 2001 and reported those groups' views in a separate, internal Report to the Ministry. As part of the evaluation process this Report was made available to the research team. While the responses of those teachers were useful in raising certain issues for TKI, the data was in our view inappropriately analysed and reported. Accordingly, we have relied primarily on the results of our own usability tests as a source of data on the TKI interface and the site's general 'user-friendliness'.

4. The Contributions of the 23 ICTPD Clusters to TKI

If the developers and sponsors of the site were uncertain of the extent to which the site should restrict itself to being a portal in its formative stages, there was at least one respect in which the site was always going to act as a repository, and that was with regard to the resources the 23 ICTPD Clusters were required to produce as part of their professional development programmes 1999-2001.

The contracts for the ICTPD programmes all required the teachers involved to “Develop printed and digital resources for dissemination that reflect good practice in the use of ICT in teaching and learning”. The contracts required that “a number of resources [be] made available for national dissemination. ... [and that] at least 4 resources per year are accepted by the Ministry of Education for national dissemination.” A good number of the contracts specifically required that the clusters “contribute project resources to the Online Resource Centre ” and once TKI was established in mid 1999 it became *de facto* the expected medium for ‘national dissemination’ under this clause in all of the Ministry’s dealings with the clusters.

The stakeholders interviewed in this study, as well as in the case studies conducted as part of the evaluation of the ICTPD Cluster programmes, have consistently felt that the production of resources for TKI has been problematic and not very successful, especially in the first two years of the programme, but that a more satisfactory system for editing submissions and quality control has been worked through over 2001. When interviewed at the end of 2000, the TKI site manager responsible for the submissions expressed significant reservations about the quality of the resources being submitted by the clusters, and outlined difficulties in getting many of them modified and improved to bring them up to publication standard.

The reasons for this seemed to lie partly in a lack of clear understanding among all parties of what a ‘resource’ in this context should actually look like, partly in the cluster facilitators’ giving priority to other aspects of their programme with teachers in the first two years of their ICT development, and partly in the relatively low levels of ICT experience and understandings that were by definition predominant among the population of participating teachers. Several informants felt on reflection that 4 quality resources per year was an unrealistic expectation of teachers and schools given such constraints.

Over the third year of the ICTPD programme, however, the quality and quantity of the submitted resources markedly improved, and publication rates rose significantly. In part this reflects the impact of the development and publication by TKI of a clear set of criteria and exemplars for the resources during 2001. (See http://www.tki.org.nz/r/ict/interact/elearning/preparing_e.php - 1). It also probably reflects increased understandings and skills among the cluster participants, by then in many cases in the third year of their development in ICT.

Table 4.1. Numbers of Resources Published from the 23 Custer Schools, by Cluster, by Year, and by Type of Resource

Cluster	Total Published	Year	Total Published
Te Rapa	22	1999	11
St Albans	10	2000	90
Auckland Normal Intermediate	10	2001	11
Tawa	8	Total	112
Mahurangi	8		
Papatoetoe	8		
Nayland	7	Form of Resource	Total
Greymouth	7	Units of work	64
Cantatech	6	Teaching strategies for ICT	29
Porirua/Houghton Valley	5	Applications & technical skills	12
Pakuranga/Farm Cove	5	Policy & school management re. ICT	12
Karori West	5	Professional Development strategies	13
Te Ara Rima	2		
Tamatea	2		
Piopio College	2		
Fendalton	2		
Edunet	2		
Porirua College	1		
Tahatai Coast	0		
St George	0		
Bayfield	0		
Paihia	0		
Kaitao	0		
Grand Total	112		

To April 2002 there were 139 resources from either the 23 Clusters or 28 Clusters programmes published on TKI. 112 of these have come from schools in the original 23 Clusters programme. Of the 181 resources submitted by 23 Cluster schools to November 2000, 70 (40%) were eventually published on, or linked through, the TKI site. A much higher ratio of publications to submissions is expected by the TKI editors for the 2001 submissions. As at April 2002 only one of the 2001 submissions had been rejected outright, and approximately 110 were currently being revised or edited and 29 (11 of them from the 23 Clusters) had been published on the site.

As can be seen in Table 4.1, the great majority of resources from the clusters took the form of ready made units of work for students incorporating ICT learning activities, and, to a lesser extent, pedagogical suggestions and advice for teachers about teaching with ICT. Smaller proportions of the resources take the forms of technical procedures for the operation of specific software applications, resources on ICT in relation to school policy and management, and strategies for teacher professional development in ICT.

Some published examples of each of these resource forms are listed below. The resources themselves are available through the ICTPD Resources icon on the ICT Community page of the site (<http://www.tki.org.nz/e/ict/>).

Units of work

Around the World Food Technology Unit
Computer Generated Art
Developing a School Web Site
Developing ICT Skills - Olympics Sydney 2000
Email Activities to Get Started
Fairy Tales Unit
Fax Activities to get Started
Footprint on the Land - A Social Studies Unit
iMovie Ideas
Internet Activities to get Started
Making Number Stories Using the Digital Camera
Marae Visit
Pick-a-Path Stories in PowerPoint
He Rārangi Kupu Nā Te Ara Rima Mā? Etahi Rauemi Rorohiko

Applications & technical skills

Digital Camera Techniques
Email Guide: Novell GroupWise
FrontPage 98 Tutorial Participants Notes
Group Access on Intranet
Intranet
Kidpix Animation
Net Meeting User Guide
Radio Link to Internet
Terminal Server
Word Processing - An Introduction

Professional Development strategies

An Interactive Staff Presentation
Christchurch ICT Cluster Web Site
Developing Resource Materials for Use with Prospective Client Schools Attending a Technology Centre
ICT Olympics - A Staff Development Activity
Learning About the Internet - Staff
Mentoring as a Model for Professional Development in Information Communication Technology
Our Journey - A TUANZ Presentation
Tawa School Cluster Professional Development Model

Teaching strategies

Five Computers Per Class?
Frequently Asked Questions on ICT
Integrating ICT into the Curriculum - Planner Overview
PAT Study Skills Analyser
Thinking About Thinking
Tips for Using Teleconferencing in the Classroom
Tips for Using the Fax in the Classroom
Using an Electronic Encyclopaedia to Enhance Children's
Using Crocodile Clips Program in Year 10-13 Science
Using DataLogging Equipment in Year 7-13 Science
Using the Computer as Tool to Enhance the Quality of W
Using the Internet in the Classroom
Using the Intranet in the Classroom at Warkworth School

Policy & school management re. ICT

A Plan for Integrating ICT into Junior and Senior Mathen
Agreement to Lease Computers to Staff
Growing a Culture for Change - The A.N.I. Experience
ICT Skills Matrix: Years 4 - 13
Recycled Computers
Types of Finance Agreements

Examples of what the TKI developers considered to be particularly good resources include the following:

1. **Camera-less Animation** - submitted by Glen Eden Intermediate, the resource describes a unit where a range of software applications were used to create camera-less animations. Curriculum links are well identified, and useful links to online support resources included. Links to sample animations created by the students are also included. The full resource can be found at: http://www.tki.org.nz/r/ict/ictpd/cameraless_animation_e.php
2. **Winter Abroad - an emailing experience** - submitted by the Oamaru cluster. This resource describes a successful emailing activity that provides a useful structure for other teachers to follow. Also included are links to the various task sheets and resources developed by the teacher to support the learning experience. The full resource can be found at: http://www.tki.org.nz/r/ict/ictpd/winter_abroad_e.php
3. **A plague on plagiarism** - submitted by the Pakuranga/Farm Cove cluster. A detailed description of a learning experience at year 9/10 level, providing some excellent guidance for other teachers looking for ways to educate students about how they can complete assignments using online resources without simply copying and pasting chunks of other people's material into their own work. Includes useful PDF templates and files to assist teachers. The full unit can be found at: http://www.tki.org.nz/r/ict/ictpd/plague_on_plagiarism_e.php

According to the site manager, the availability of the guidelines greatly reduced the rate of outright rejection of submissions, but there has remained a lot of variety in the quality of material submitted to the TKI site. Most submissions still require various degrees of editing before they are considered ready for publication on the site. As the site manager observed: “Some people have put a lot of time and effort into producing resources whereas others have completed in an apparently short period of time, without much thought. Others have not submitted material at all.”(Interview April 2002)

It is a stated part of the publication process that authors/submitters have their submission sent back to them for any modifications that may be necessary. On the whole most seem to have followed up to explain further, gather more support material, or obtain relevant permissions or references. But the length of time the editing process has taken has been at best variable, and for many, if not most resources, the duration of the editing process has been lengthy, measured in months rather than days or weeks. Four months into the 2002 year, for example, the site manager estimates that around 110 of the 130 submissions sent in during 2001 were still in the editing process.

The reasons for non-acceptance of work submitted have been many and varied. They include work that was not accepted due to copyright/privacy reasons, failure to provide explanation or contexts to a resource, poor standards of writing, lack of evidence that the use of ICT had enhanced or been made relevant to learning, and unclear purposes. An example of a resource that was rejected outright was a unit plan which had no ICT integration evident (apart from the fact that it had been word-processed). Another rejected resource was a page on how to create a dropdown menu in Word. It was felt this might have been useful support material if it was accompanied with an explanation, given a purpose, or put into a learning situation, but “nothing of this kind was forthcoming.” (Interview April 2002)

Summary

In total the 23 Clusters had published 112 educational resources on TKI. Most of these had been either ready made units of work for students incorporating ICT components, or pedagogical strategies for teachers using ICT in their classrooms.

Clusters were variable in the extent to which they committed to, and succeeded in, meeting the requirement to publish educational resources through TKI. Only four Clusters even came close to reaching the probably unrealistic targets set in their contracts.

Only a minority of the resources submitted by the 23 Clusters in 1999 and 2000 reached publication standard for the TKI site, and most of those were published only after extensive revision. However, the expected ratio of submission to publications for submissions sent in 2001 were significantly higher, largely as a result of increased provider experience and understanding, combined with the publication of clear criteria for publication by TKI during 2001.

The process of editing and revising submitted resources for web publication was proving a lengthy one, turnaround times being measured in months for many resources.

5. Teachers and TKI

5.1 Users

What do we know about the users of the TKI site? Which groups of school teachers and managers are most likely to be aware of the site, to access it, or to use materials from the site as part of their professional practice and development?

'Site Statistics' generated automatically within the site itself indicate that the majority of users of both the Day 1 and Day 2 Sites were from New Zealand. 54% of visitors to the Day 1 Site between April and August 2000 were from New Zealand. Similarly, from August 2000 to November 2001 a consistent proportion of around 60% of users of the Day 2 Site came from New Zealand, except during the December-January holiday periods when the proportions dropped to around a half.

These site statistics, however, tell us little about actual levels of awareness and uptake among the sites' target audience in schools *within* New Zealand. We know little from them, for example, about the overall proportion of New Zealand teachers who may or may not be users of the site, about which groups of teachers are more or less likely to access the site as part of their professional routine, and so on.

The research team gathered data on such questions through two surveys of teachers and principals in schools, first in August 2000 and then again in September 2001. The first survey was conducted in the week that the Day 2 Site, (which represented a major revision of both the site structure and its interface), went 'online'. The second survey was conducted in September 2001, about a month before a further significant revision of parts of the interface occurred in November/December 2001. The survey results reported here for '2000', therefore, represent the views and usage of teachers *after one year of the Day 1 website*. The figures in the Tables labelled '2001' represent the views and usage of teachers *after one year of the Day 2 website*.

Which groups are most likely to access TKI?

Table 5.1 and its associated graphs indicate that, at the end of TKI's first year of existence, just under half of New Zealand teachers or school managers had heard of TKI, and that just over a third of teachers (35%) had accessed it at least once. A year later these overall proportions had risen to 61% and 47% respectively.

Teachers of secondary classes were no more likely to know about, nor to have accessed, the TKI Day 1 Site than their colleagues in primary schools. However, teachers of secondary classes *were* significantly more likely to have accessed the Day 2 Site than teachers of primary classes.

Table 5.1. Teacher 'Awareness and Use of TKI by School Sector

Heard of TKI?					Accessed TKI?				
Prim/Sec	No	Yes	Total	% Yes	Prim/Sec	No	Yes	Total	% Yes
2000					2000				
Both	18	9	27	33%	Both	22	5	27	19%
Primary	156	160	316	51%	Primary	204	112	316	35%
Secondary	156	148	304	49%	Secondary	196	107	303	35%
Total	331	317	648	49%	Total	422	224	646	35%
2001					2001				
Both	10	12	22	55%	Both	13	9	22	41%
Primary	108	152	260	58%	Primary	147	113	260	43%
Secondary	73	133	206	65%	Secondary	96	109	205	53%
Total	191	297	488	61%	Total	256	231	487	47%

Percentage of teachers aware of TKI 2000 & 2001

Percentage teachers who use TKI 2000 & 2001

(Secondary -v- Primary, Accessed 2001: $\chi^2=10.151$, * $p=.0175$)

In 2000 there was a statistically significant trend for teachers in Composite/Area Schools to be the least likely users; and, interestingly, rather higher rates of usage among teachers in Full Primary than in either Contributing Primary or Secondary schools (Table 5.2). In the 2001 survey, however, no such significant differences appear, and usage rates were much the same across all school types. Usage rates in Full Primary schools in fact seem to have gone down between 2000 and 2001, while the rates in other schools have increased (Table 5.2).

Table 5.2. Percentage of Respondents who had Accessed TKI, by School Type

School Type	2000	n=	2001	n=
Composite/Area	22%	77	45%	40
Contributing Primary	29%	119	51%	103
Full Primary	46%	135	37%	120
Intermediate	26%	31	44%	18
Secondary	36%	280	52%	199

(2000: $\chi^2=15.625$, * $p=.0080$; 2001: $\chi^2=11.632$, $p=.1132$)

Among primary school users there seems a fair correlation between professional use of the web generally and use of TKI in particular. In other words, primary teachers who used the internet often tended also to be users of TKI. Among secondary users, however, being a frequent user of the internet for professional purposes seems a poor predictor of use of TKI. One third of the secondary respondents who accessed the internet daily or almost daily for professional purposes (and 42% of those who accessed the web more than once a week) had never accessed TKI at all.

There also seems to have been a tendency for users in 2000 to be in 'mid career' rather than in the first five years of their teaching experience. In 2000, for example, 40% of respondents with between 6 and 10 years of teaching experience had visited TKI compared with 29% of teachers in their first few years of teaching. The differences in 2000 were not statistically significant, however, and by 2001 the proportions of users were very similar across all ranges of experience (Table 5.3).

In both years, though, the results stand somewhat in contrast to the findings of a contemporaneous study of US teachers in which less experienced or younger teachers were found to be significantly more likely to use the internet for professional purposes than more experienced or older teachers (Becker 2000).

Table 5.3. Percentage of Users of TKI by Teaching Experience

Teaching Experience	2000	n=	2001	n=
0 to 5 yrs	29%	141	52%	66
6 to 10 yrs	40%	95	42%	64
11 to 15 yrs	33%	93	48%	54
16+ yrs	35%	311	48%	296

(2000: $\chi^2=4.699$, $p=.3196$; 2001: $\chi^2=12.974$, $p=.1128$)

Reflecting the composition of the population of teachers generally, there were twice as many female respondents as males in both surveys. In both years, but especially in 2001, male teachers were more likely to have accessed TKI than their female colleagues, with the difference being much more noticeable among primary school teachers (Table 5.4). In 2001 38% of female respondents from primary schools had accessed TKI, compared with 59% of male respondents. Between mid 2000 and mid 2001 the rate of use increased much more among male teachers than among female teachers in both the primary and secondary sectors.

Table 5.4. Percentage of Males and Females who were Users of TKI, 2000 and 2001

Gender	2000	n=	2001	n=
Total Female	32%	432	42%	314
Total Male	39%	212	59%	166
Primary Female	32%	257	38%	198
Primary Male	42%	86	59%	78
Secondary Female	33%	187	48%	130
Secondary Male	35%	141	57%	95

(2001: $\chi^2=16.581$, $*p=.0003$)

In terms of the roles that users tended to have in schools, there was a notably higher 'user' rate among Principals/APs/DPs than among teachers in both surveys. Indeed, some 80% of respondent principals in the 2001 survey said that they had accessed TKI. There was also a higher user rate among teachers from the 23 ICTPD Cluster schools in both years (51% in 2000 & 64% in 2001) compared to teachers outside the ICTPD Clusters (27% & 43%). Understandably, too, those whose job revolved around ICT, such as ICT co-ordinators in schools and ICTPD facilitators in the 23 Clusters, were more likely to have accessed TKI than teachers generally. (Table 5.5)

Table 5.5. Users of TKI by Professional Role

Respondent's Role	No. Users 2000	Proportion of role	No. Users 2001	Proportion of role
ICT Coordinator	16	89%	2	67%
ICT Coordinator ICTPD Cluster schools	11	73%	0	0%
Teacher ICTPD Cluster school	18	51%	25	64%
Teacher (non ICTPD Cluster school)	134	27%	151	43%
Principal (incl. DP/AP/Teaching Pcpls)	38	49%	43	80%
Other (Tchr Aide, RTLB, Counsellor etc)	5	71%	6	24%

In the results for the year 2000, there was no indication that teachers of a given age level (eg: new entrants versus senior primary school or intermediate level) were any more likely to be users of TKI than others. The 'level taught' data for the 2001 survey was broken down only into primary (years 1-7) and intermediate. Again, neither of these groups appeared more likely to have accessed the site than any others.

Awareness and use of TKI in bilingual and Maori immersion schools

TKI is a 'bilingual' site, and much effort has gone into maximising the quantity and quality of the features of the site accessible in the Maori language. Although respondents were not asked about their ethnicity, they were asked about the language of instruction in their classes and the language they preferred to use when reading TKI.

Table 5.6 shows that 57% of respondent teachers of bilingual classes, and all of the respondent teachers of Maori immersion classes, were users of TKI in 2000. The percentage of users from bilingual classes had risen to 65% by 2001. There were no respondents who taught entirely in Maori among the respondents to the 2001 survey. In both years levels of awareness of TKI's existence and levels of actual use of the site were higher among teachers in Bilingual or Maori immersion classes than the overall average, but the numbers of Bilingual and Maori immersion teachers who responded may be too small to draw any generaliseable conclusions from this. It is also possible, given the small size of such schools, that ICT users in bilingual and immersion schools were more likely to have received the questionnaire to complete, or to have responded, than in the general populations sampled (Table 5.6). Data on the language users preferred to view the site in are provided in a later section (see Table 5.17).

Table 5.6. Respondents' Language of Instruction and Use of TKI

Language of Instruction	2000			2001		
	No. Respondents	No. Users	% who were users	No. Respondents	No. Users	% who were users
Bilingual	37	21	57%	26	17	65%
English	585	193	33%	455	214	47%
Maori	5	5	100%	0	0	0%

Reasons for non-use and constraints on use

In the 2001 survey respondents who were NOT users of TKI were also given the opportunity to provide reasons why they had not accessed the site, and those who *were* users were asked what constrained their use of the site.

The reasons of the non-users for not having accessed the site seem to group into six main categories. Examples of responses in each category and numbers of responses from (P)rimary and (S)econdary respondents are indicated in brackets.

- ⇒ Lack of interest, motivation or perceived need ("I don't use the net"; "Haven't felt the need to", "I have sufficient resources... at this time", "No reason to do so", "Don't know what it is, don't care about it", "Other sites have been more of a priority". P= 16, S= 12)
- ⇒ Time factors ("haven't had the time"; "time", "lack time". P= 15, S = 7)
- ⇒ Lack of awareness of its existence. ("Do not know about it", "Heard about it [only] recently", "I've never read or even heard of it", "Not really aware of it". P= 6, S= 9)
- ⇒ Lack of computer skills ("Don't know how to access", "Probably my poor skills", "Not computer literate", "I have neither the time nor the expertise", "Only just learning to use the internet; give me time". P= 10, S= 1)
- ⇒ Access difficulties ("No access"; "Have only just had internet availability put in classroom", "Location". P= 4, S= 2)
- ⇒ Perceived or anticipated difficulties in using the site itself ("Limited information on it", "[It's] cluttered and often slow", "Never been able to locate it", "Not user friendly". P= 3, S= 0).

Like the non-users, when users were asked to identify which of a group of constraints identified in piloting interviews for the survey applied to them, the external constraint of lack of time was again referred to very often, although a significant minority also found internal aspects of the site were constraints. 90% of respondent users found getting the time to browse TKI was a key constraint on use, while about a third of them also said that not knowing where to find things in the site, and not having a sense of what was in the site were constraints. In keeping with the findings of other studies that indicate teachers generally have good access to the internet in New Zealand schools, only 10% of the users who responded to this question identified access issues as a constraint on use.

Summary (Users)

After the first year of operation about a half of New Zealand teachers had heard of TKI and about a third had accessed it. By the end of its second year of operation over two thirds of New Zealand teachers had heard of the site and around half had accessed it.

Males were significantly more likely to be users of TKI than females.

In its second year of operation at least, secondary teachers were more likely to have accessed TKI than primary teachers. However, primary teachers who used the internet generally were more likely to also be users of TKI than secondary teachers who used the internet regularly.

There seem to be no significant differences within user groups in relation to school type, teaching experience, positions of responsibility held, or the particular age levels within schools that teachers teach.

Levels of usage appear to be similar in Maori immersion or bilingual schools to those in other schools, although only small numbers of teachers from those schools responded to the survey.

Teachers do not lack access to the internet. The major external constraints on teachers' use of TKI seem to relate to lack of awareness, lack of skill, perceived irrelevance, the pressure of other priorities or, above all, lack of time, rather than limited access.

5.2 Usage

The previous section of this report looked at *who* the users of TKI were likely to be. This section, on 'Usage', looks at why, when, how often, and for how long users visited the site, and which particular parts of the site they accessed most. Issues related to the user-friendliness of the sites, or to any subsequent or consequent use of site materials and features in classrooms and schools, are covered in the later sections on 'Usability' and 'Usefulness'.

Why do teachers access TKI?

In both survey questionnaires, users of TKI were asked a specific question on how often they had visited the site for each of a list of reasons, as well as an open ended question about what they knew about the nature and purposes of site. The specified purposes for visiting the site, derived from piloting the questionnaire and from interviews with the producers about the intended purposes of the site, were:

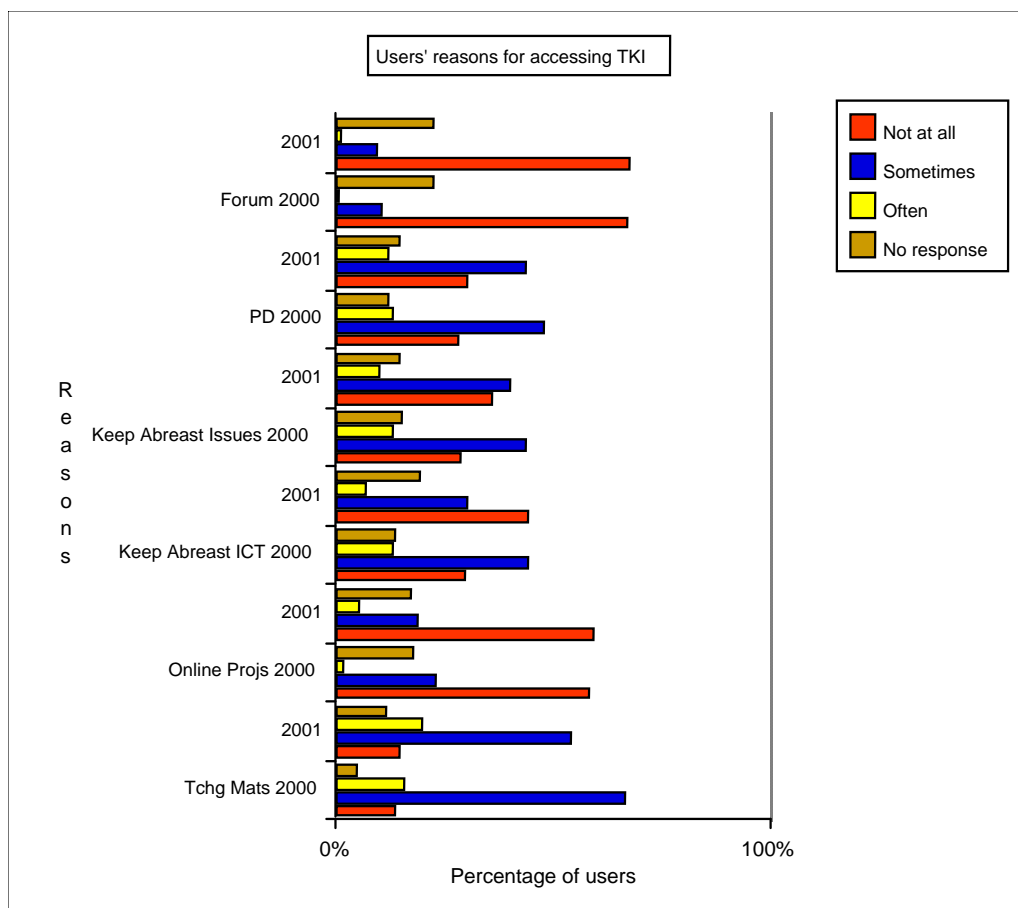
- (a) As a source of teaching materials and resources
- (b) As a source of online projects for my students
- (c) As a way of keeping abreast of ICT developments in NZ
- (d) As a way of keeping abreast of educational issues and developments in NZ
- (e) For my own professional development
- (f) As a forum for the exchange of ideas with other educators

Accessing teaching materials was the most frequently cited of the specified reasons for visiting TKI, and to a lesser extent 'keeping abreast' of educational issues and developments and ICT developments, and 'personal professional development'. Use for accessing 'online projects for students' and, especially, use 'as a forum for contact with other teachers' were the least frequently stated reasons. Indeed, the great majority of users said that they did not use TKI for the latter reasons at all. Patterns of use were the same for both the Day 1 Site and the Day 2 Sites, except for a slight tendency for fewer users to look up TKI to keep abreast of ICT developments in the Day 2 Site (Table 5. 7 and associated graph).

The usage pattern was generally the same for both primary and secondary teachers in both years, the only statistically significant differences being that primary teachers used the Day 2 Site to 'Keep Abreast of ICT' and 'Keep Abreast of education issues' more than secondary teachers (Chi Square $p=.0002$ & $p=.0389$ respectively).

Table 5.7. Frequency of User Visits for Specified Purposes, 2000-2001

Frequency	Purposes											
	Tchg Mats 2000		Online Projs 2000		Keep Abreast ICT 2000		Keep Abreast Issues 2000		PD 2000		Forum 2000	
		2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
Not at all	13%	15%	58%	59%	30%	44%	29%	36%	28%	30%	67%	68%
Sometimes	66%	54%	23%	19%	44%	30%	43%	40%	48%	43%	10%	10%
Often	16%	20%	2%	5%	13%	7%	13%	10%	13%	12%	0%	1%
No response	4%	11%	17%	17%	13%	19%	15%	14%	12%	15%	22%	22%
n=	223	231										



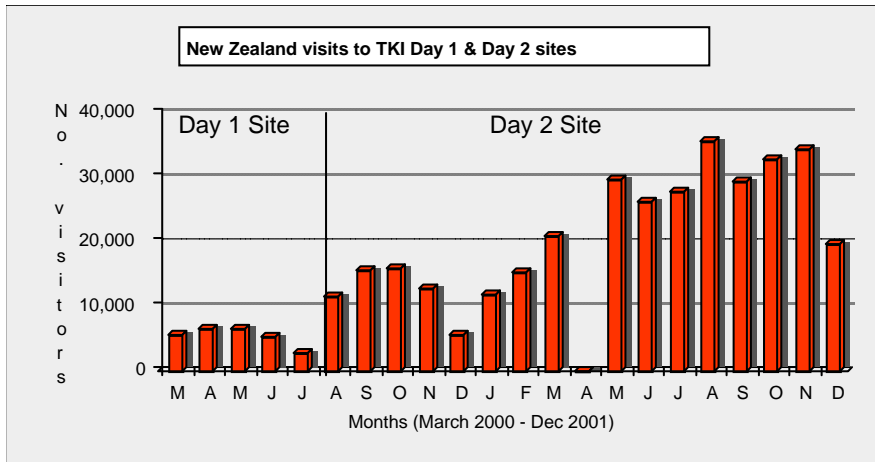
These responses are consistent with the responses to the open ended question about the nature and functions of the site, where the most frequently identified characterisation of the site in both surveys was as a repository for classroom and subject related resources, and official documents on educational policy and assessment initiatives. Among the other aspects of the site that were identified were: its New Zealand focus, its relevance to teachers, its Maori content and bilingual interface, its filtering of resources to ensure relevance and quality, its comprehensiveness, the fact that it has official Ministry sanctioned materials, its links to a wide range of other sites, and its currency or ‘up-to-dateness’. Access to information on NCEA was frequently visited by secondary teachers according to the 2001 survey, but apart from that, there were no discernible differences either between responses to the Day 1 and Day 2 Sites, or between primary and secondary teachers’ views on what they went to the sites to get.

When do teachers access TKI?

The overall pattern of visits to the Day 1 Site saw a distinct drop off in the last two months that the site was online, possibly reflecting users’ anticipation of the Day 2 Site, the launch of which had been initially announced for July (Chart 5.1). Visit rates for the Day 2 Site, however, rose consistently from its launch. There was little indication of either greater or reduced usage during the April, July, or September-October school holiday times, though there was a marked drop off in the December-January break in both 1999-2000 and 2000-2001.

Chart 5.1. Usage of the Day 1 & Day 2 Sites March 2000-December 2001

Based on: http://www.TKI.org.nz/e/TKI/stats/new_wt/day1/webtrends.yearly/index.html
<http://www.tki.org.nz/e/tki/about/stats.php>



(Data not available for April 2001)

In both user surveys teachers indicated that they accessed TKI from home or work in more or less equal proportions (Table 5.8), implying that visits were no more likely to be made during working hours compared with outside working hours. However, the site statistics indicate that TKI was visited most often during weekdays and during working hours, with 2-5pm and 8-9pm being peak times (Table 5.9. Charts 5.2 & 5.3). The usage patterns for both Day 1 and Day 2 Sites were very similar in these respects.

Table 5.8. Where Users most often Access TKI/Internet from

	2000	2001
Home	40.00%	43.00%
School	43.00%	41.00%
Either/both equally	17.00%	16.00%
	n=218	n=238

Table 5.9. Percentage of Visits during 'Working Hours'

	2000	2001
% in class time in school day	31.60%	34.30%
% in non-class time in school day	25.00%	26.70%
% in 'working hours' 8am-5pm	56.60%	60.90%
% in 'non working hours'	36.00%	39.10%

Chart 5.2. Percentage of Day 1 and Day 2 Site Visits by Day of the Week. April 2000-December 2001

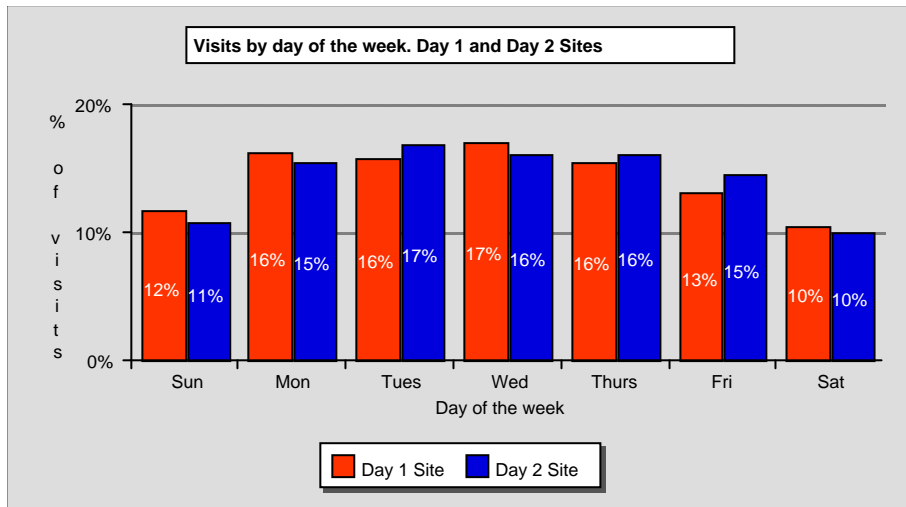
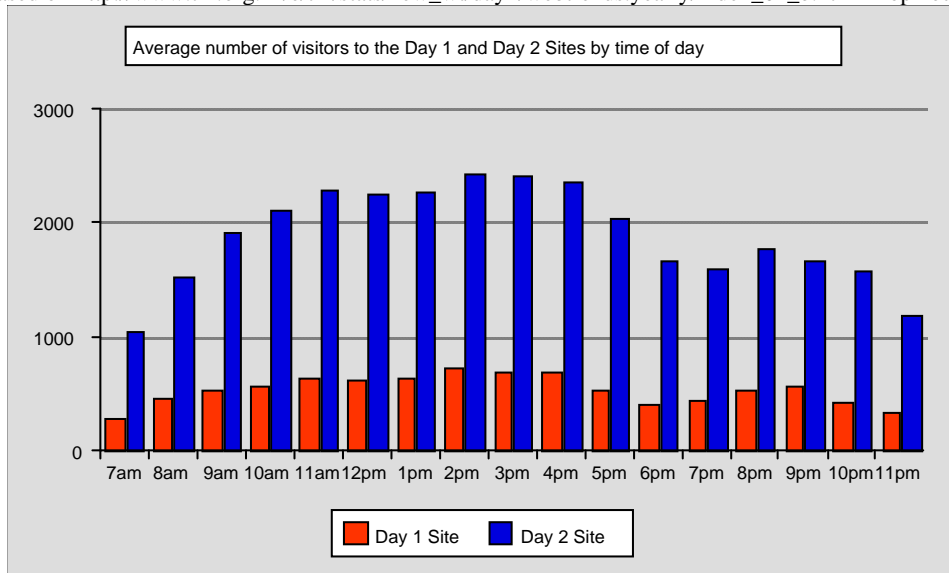


Chart 5.3. Visits to the Day 1 and Day 2 Sites by Hour of the Day. April 2000-September 2001

Based on http://www.tki.org.nz/e/tki/stats/new_wt/day1/webtrends.yearly/index_04_b.html#TopHourstc



How often do teachers access TKI, and how long do they stay?

In the survey, over 90% of the users of any given feature said they had visited that part of the site less than once per week. This implies that the profile of users is one of a few constant or regular users, and a much larger number of occasional visitors. The results of the user survey also show that even the regular users visited relatively few sections of the site (Table 5.10 below).

Such findings from the user survey are consistent with the results collected internally on the site itself, which indicate that the great majority of visitors to both sites had visited once only, and that those who had come back frequently, tended to visit on an average of once a month or better (Table 5.10). The proportions of visitors who were repeat visitors, moreover, was remarkably stable over time. That is, the same *proportion* of visitors were visiting once, twice, or any other number of times, in December 2001 as had been visiting that many times in April 2000 (Chart 5.5).

The figures in Table 5.10 and Charts 5.4 & 5.5 can be read in two ways, of course. Taking a ‘glass half empty’ view, one would emphasise that the great majority of the thousands of visitors who have accessed either site, have done so only once, or at most twice. Taking a ‘glass half full’ view, however, one might point out that there has been a proportionally small, but in absolute terms quite substantial and growing number of several hundred users who visit the site on at least a monthly basis. The *number* of users who had accessed the site at least ten times in the month of April 2000, for example, was about 130. In November 2001 the figure was 939. There was, in other words, a nine-fold increase in the number of frequent/regular users in the 18 months to December 2001 (Chart 5.4).

Table 5.10. Numbers and proportions of users making single or multiple visits to TKI. Day 1 Site (5 months use, April-August 2000) cf. Day 2 Site (16 months use, August 2000 - December 2001)

Number of visits	Day 1 Site	Day 2 Site	Day 1 Site	Day 2 Site
	Monthly average of unique visitors	Monthly average of unique visitors	% of unique visitors	% of unique visitors
1 visit	3,027	13,138	74.0%	77.4%
2 visits	582	2,112	14.2%	12.4%
3 visits	181	581	4.4%	3.4%
4 visits	72	237	1.8%	1.4%
5 visits	36	141	0.9%	0.8%
6 visits	24	100	0.6%	0.6%
7 visits	16	76	0.4%	0.4%
8 visits	11	62	0.3%	0.4%
9 visits	13	52	0.3%	0.3%
10 or more visits	130	468	3.2%	2.8%

Chart 5.4. Length of Visits to Day 1 & Day 2 Sites, April 2000-December 2001

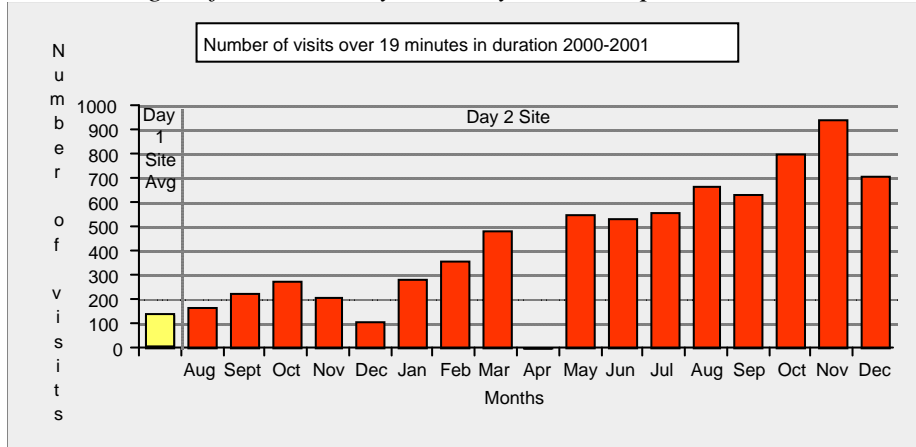
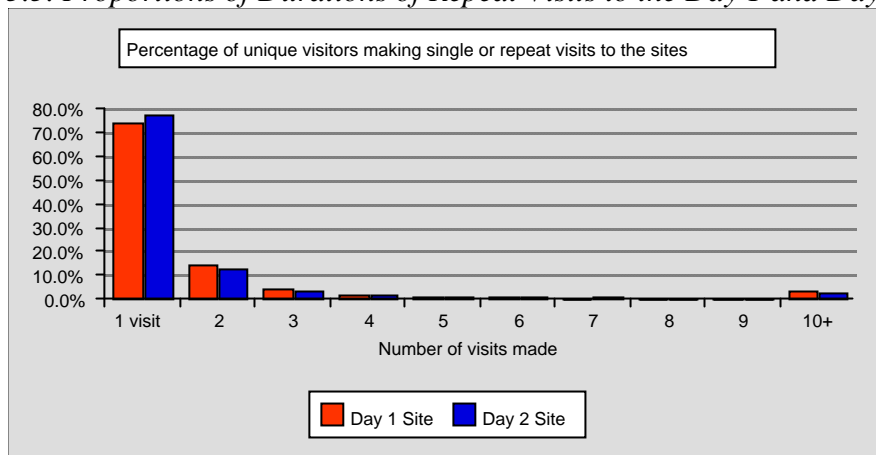


Chart 5.5. Proportions of Durations of Repeat Visits to the Day 1 and Day 2 Sites



In terms of the duration of these visits, respondents to the survey reported that their average online time using TKI was between 15 and 25 minutes. The internally generated site statistics indicate that the *actual* average ‘session’ length was at the lower end of that range. In the last 5 months of the Day 1 Site, for example, the average session length recorded at TKI itself was 14:26 minutes, and the median session length was 3:47 minutes. Over 75% of the total number of visits to the Day 1 Site from April to August 2000 lasted less than a minute. Figures for the first year of the Day 2 Site indicate that average and median session lengths for the Day 2 Site have been a little higher, at 17:32 mins and 4:31 mins respectively.

Such averaging, however, tends to hide a possibly important difference between the two sites in terms of users’ duration of stay. A consistently much lower proportion (57%) of visitors to the Day 2 Site have been online for less than a minute, compared with the Day 1 Site (75%). What this means is, that while only about a quarter of the users of the Day 1 Site stayed and looked around the site for several minutes, almost half of the visitors to the Day 2 did so (Table 5.11, Charts 5.6 & 5.7). In both the Sites, moreover, there are significant minorities of long duration users (5% and 12% respectively), who stayed online for 20 minutes or more. The *number* of visitors spending more than 5 minutes at the site at a time, moreover, had also increased several fold during the time the Day 2 Site has been online, even though the proportion changed very little.

Chart 5.6. Self-reported Average Session Duration (Survey)

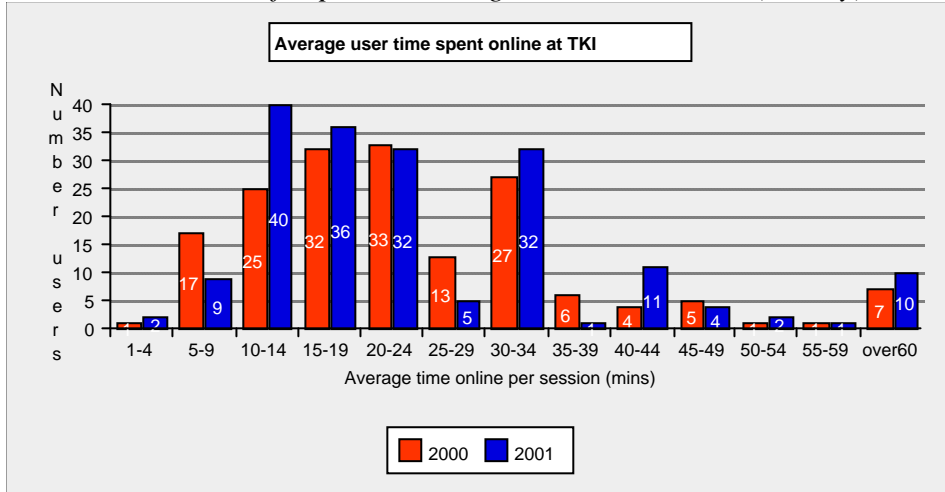
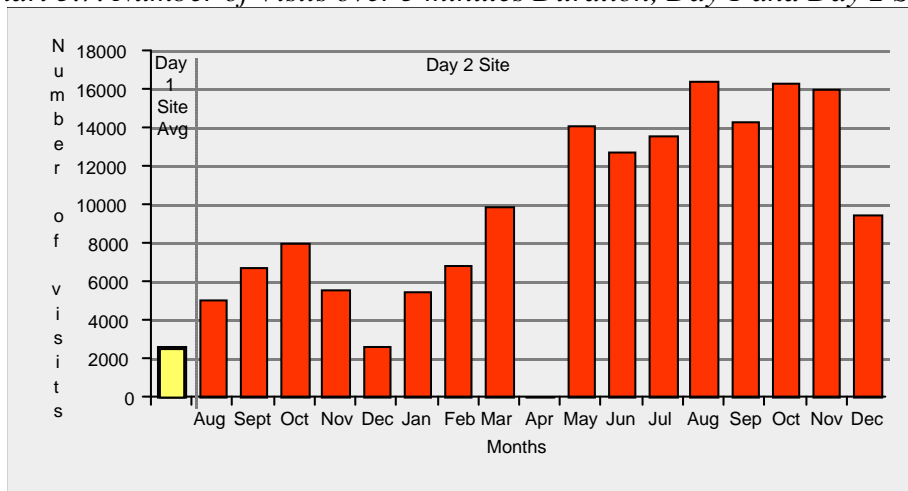


Table 5.11. Actual Average User Session Duration(Site Statistics)

Duration(minutes)	Monthly Average Day 1 Site	Monthly Average Day 2 Site	% of total visits Day 1 Site	% of total visits Day 2 Site
0-1 minutes	8,017	21,702	75.0%	57.7%
1-5 minutes	1,171	5,721	11.0%	15.2%
5-10 minutes	524	2,966	4.9%	7.9%
10-15 minutes	274	1,714	2.6%	4.6%
15-19 minutes	143	980	1.3%	2.6%
> 19 minutes	554	4,526	5.2%	12.0%
Other	Day 1 Site	Day 2 Site		
% of visits < 1min.	75.04%	57.70%		
% of visits > 19 mins	5.19%	12.03%		
Median duration of visits	3:47 mins	4.31 mins		
Average duration of vists	14:26 mins	17:32 mins		

Chart 5.7. Number of Visits over 5 minutes Duration, Day 1 and Day 2 Sites



Which sections or features of TKI are accessed the most?

The most prominent search phrases used in general Web search engines that resulted in visitors coming to the site, related to ICT, Maori issues, enquiries about official curriculum documents, and searches for individually named schools. Searches for specific subject areas or subject-specific resources were not prominent in such external searches, reflecting perhaps a tendency for these to be searched *within* the site itself, or a possible tendency for externally initiated searches to come from overseas visitors rather than New Zealand teachers.

The survey results detailed in Tables 5.12a and 5.12b (below) show which particular sections of the two sites New Zealand users reported visiting most often. By far the most popular section of the Day 1 Site was the Teaching and Learning/Curriculum section, which had been visited at some point by over 90% of the users of the site. Almost 20% of users said they visited this section on a regular basis (ie: more than once a week). The next most frequently visited sections of the Day 1 Site were the ICT section and the sections on Literacy and Numeracy, Professional Development, School Governance and News, though most reported that they went to these sections only occasionally (i.e.: less than once a week). Primary teachers were more likely to have visited the Literacy and Numeracy section of the Day 1 Site, but otherwise there were no differences between users from the two school sectors.

The high numbers and high proportions of users who had *never* visited these latter sections should also be noted, as should the fact that the great majority of all users had seldom or never accessed the other features of the site listed (Events, Student Ready Resources, Site Reviews, Glimpses of the Future, and Just Up).

Such selectivity in use was also a feature of the usage of the Day 2 Site. As can be seen in Table 5.12b, users accessed the sections of the site containing teaching resources much more often than the sections with official information or reference materials, and least of all the sections involving interaction or contribution. By far the most visited sections of the Day 2 Site were the Communities and Schools sections, followed rather distantly by Web Guides, News and Hot Topics, with the other features visited rarely, if at all.

As with the Day 1 Site, the high numbers and high proportions of users who had never visited many of the sections should be noted. A solid majority of users had never visited any of the Shopping, Commsuities, Message Board, Interact, Futures, or What's on the Box sections of the site.

Table 5.12a. Frequency with which Users Accessed Sections of the Day 1 Site, 2000

Information & reference	PD	% of Users	News	% of Users	Gov & Mgmt	% of Users	Events	% of Users	Futures	% of Users
No response	31	13.9%	44	19.7%	47	21.1%	53	23.8%	53	23.8%
1 Not at all	59	26.5%	82	36.8%	97	43.5%	107	48.0%	129	57.8%
2 Less than once a week	117	52.5%	82	36.8%	66	29.6%	52	23.3%	37	16.6%
3 1-2 times a week	14	6.3%	14	6.3%	12	5.4%	10	4.5%	4	1.8%
4 3-6 times a week	1	0.4%	0	0.0%	1	0.4%	1	0.4%	0	0.0%
5 Daily	1	0.4%	1	0.4%	0	0.0%	0	0.0%	0	0.0%
Teaching Resources	T&L		General Res		ICT		Lit & Num		Student Res.	
No response	13	5.8%	27	12.1%	37	16.6%	33	14.8%	55	24.7%
1 Not at all	17	7.6%	46	20.6%	51	22.9%	60	26.9%	128	57.4%
2 Less than once a week	157	70.4%	123	55.2%	111	49.8%	110	49.3%	36	16.1%
3 1-2 times a week	32	14.3%	25	11.2%	18	8.1%	19	8.5%	4	1.8%
4 3-6 times a week	4	1.8%	1	0.4%	5	2.2%	1	0.4%	0	0.0%
5 Daily	0	0.0%	1	0.4%	1	0.4%	0	0.0%	0	0.0%
Interaction / contribution	Review a Site		Discussions		Misc.		Just up		Shopping	
No response	50	22.4%	54	24.2%			55	24.7%	54	24.2%
1 Not at all	115	51.6%	141	63.2%			126	56.5%	146	65.5%
2 Less than once a week	45	20.2%	25	11.2%			36	16.1%	22	9.9%
3 1-2 times a week	11	4.9%	3	1.3%			6	2.7%	1	0.4%
4 3-6 times a week	2	0.9%	0	0.0%			0	0.0%	0	0.0%
5 Daily	0	0.0%	0	0.0%			0	0.0%	0	0.0%

There is also one respect in which patterns of access of parts of the Day 2 Site differed significantly between primary and secondary teachers. A statistically significant difference was found between primary and secondary users in relation to frequency of visits to 6 of the sections of the Day 2 Site (School, Interact, Newsletter, Message Board, What's on the Box, and Hot Topics). In all these cases primary users were more likely to have visited them, and to have visited them more often, than secondary. This would indicate that primary teachers were more likely to have looked around several sections of the site, and to have browsed beyond the immediate purpose of their enquiry than their secondary colleagues. While all users were very focussed and restricted in their usage of different sections of the site, secondary users were even more focussed and restricted than primary users.

Table 5.12b. Frequency with which users accessed sections of the Day 2 Site, 2001

Information & reference	School	% of Users	News letter	% of Users	News	% of Users	Futures	% of Users
No response	41	17.7%	47	20.3%	47	20.3%	57	24.7%
1 Not at all	63	27.3%	117	50.6%	94	40.7%	139	60.2%
2 Less than once a week	105	45.5%	59	25.5%	15	6.5%	5	2.2%
3 1-2 times a week	17	7.4%	7	3.0%	2	0.9%	0	0.0%
4 3-6 times a week	5	2.2%	1	0.4%	1	0.4%	0	0.0%
5 Daily		0.0%		0.0%	0		0	
Teaching Resources	Communities		Web guides		Hot Topics		What's on Box	
No response	40	17.3%	45	19.5%	45	19.5%	55	23.8%
1 Not at all	62	26.8%	91	39.4%	98	42.4%	145	62.8%
2 Less than once a week	93	40.3%	71	30.7%	70	30.3%	25	10.8%
3 1-2 times a week	21	9.1%	20	8.7%	14	6.1%	6	2.6%
4 3-6 times a week	14	6.1%	4	1.7%	4	1.7%		0.0%
5 Daily	1	0.4%		0.0%		0.0%		0.0%
Interaction / Contribution	Interact		Message Board		Private areas/Commsuites			
No response	52	22.5%	49	21.2%	58	25.1%		
1 Not at all	141	61.0%	143	61.9%	154	66.7%		
2 Less than once a week	34	14.7%	35	15.2%	18	7.8%		
3 1-2 times a week	4	1.7%	4	1.7%	1	0.4%		
4 3-6 times a week		0.0%		0.0%		0.0%		
5 Daily		0.0%		0.0%		0.0%		
Misc.	Search 2001		Shopping 2001					
No response	28	12.1%	46	19.9%				
1 Not at all	25	10.8%	171	74.0%				
2 Less than once a week	153	66.2%	14	6.1%				
3 1-2 times a week	19	8.2%		0.0%				
4 3-6 times a week	4	1.7%		0.0%				

Data from the Site Statistics on the most popular pages visited tell a similar story. In the Day 1 Site, the Resources pages, the Search page, the ICT pages, and the 'development' pages were the most frequently visited. In the Day 2 Site, the Search and Schools pages have been the most frequently visited, followed by the Communities (subject areas) index page, especially the pages on NCEA and the NEGS.

The Site statistics data in Table 5.13 also give some indication of the particular 'communities' and subject areas that users were most interested in. Among the individual 'communities' most often visited according to the site statistics the Maths, ICT, and Arts Communities feature strongly as 'subject' areas, along with Te Hiringa i te Mahara (Table 5.13).

Table 5.13. Top Ten most Visited Pages by Month. Day 2 Site.

(The number of months this section ranked in the top ten most visited pages, followed by the ranking(s) achieved)

Pages	No. months in the top ten	Place in the 'Top Ten Most Visited' Rankings, (Aug '00-Dec '01)
Schools	16	3-2-3-1-1-1-1-1-1-1-1-1-1-1-1-1
Search	16	1-1-1-2-2-2-2-3-3-3-3-3-3-4-5
Communities	16	2-3-2-3-3-4-5-5-4-4-4-4-4-5-6-6
NCEA	14	5-7-7-6-3-2-2-2-2-2-2-2-2-2-2
The Arts Community	14	4-4-10-7-8-7-6-7-5-5-7-5-7-9
ICT Community	13	4-4-8-8-3-4-6-7-8-10-9-10-8
NEGS	12	6-6-10-6-10-10-8-5-6-6-9-9
Maths community	6	5-10-10-8-6-9
Te Hiringa ie te Mahara	5	6-4-5-7-9
Social Studies Community	4	9-6-5-3
Resources	4	9-10-7-10
Interact	3	8-9-9
News	3	6-4-5
Assessment Community	3	8-5-7
WickEd	2	3
Literacy & Numeracy	2	8-6
Hot Topics	1	7
Language & Languages Community	1	10
Gifted & Talented Community	1	10

Table 5.14. Most Frequently Visited Communities in Day 2 Site

(Percentage of TKI users who have visited that Community)

Primary	% users	Secondary	% users
Com. Mathematics	75.86%	Com. NCEA	94.68%
Com. Arts	70.45%	Com. Assessment	57.50%
Com. Assessment	69.14%	Com. Technology	30.86%
Com. Science	69.05%	Com. Language & Languages	25.61%
Com. Language & Languages	67.06%	Com. Mathematics	25.32%
Com. Health & Phys Ed	65.06%	Com. Science	25.30%
Com. Social Studies	64.20%	Com. Gov/Man	25.00%
Com. ICT	62.20%	Com. ICT	24.68%
Com. Lit & Num	61.90%	Com. Social Studies	22.22%
Com. Technology	60.98%	Com. Lit & Num	19.23%
Com. Gov/Man	56.63%	Com. Arts	17.95%
Com. Maori Ed	42.47%	Com. Gifted & Talented	17.72%
Com. Gifted & Talented	40.74%	Com. Health & Phys Ed	13.58%
Com. School Innovation	33.77%	Com. NESB	13.16%
Com. NESB	25.00%	Com. Digital Opps	10.13%
Com. Curriculum Stocktake	23.68%	Com. Curriculum Stocktake	9.09%
Com. NCEA	17.11%	Com. School Innovation	9.09%
Com. Digital Opps	13.70%	Com. Maori Ed	8.97%

Data from the survey confirm such focussed patterns of use. Indeed, Table 5.14 indicates that much of the total Secondary usage of the site is explainable in terms of teachers accessing NCEA materials, and, to a lesser extent, resources for their particular subject Community. 94% of users of TKI from secondary schools had accessed the NCEA Community and 57 % had accessed the Assessment Community. The most frequently visited Communities among primary respondents were Essential Learning Areas such as Mathematics and the Arts, as well as the Assessment Community. The eclectic nature of primary teaching is probably reflected in the closeness of the relative popularity of the different Communities among that group.

Summary (Usage)

More users are visiting the site more often, and for longer periods.

The greatest use of the site occurs during the school week and within the working day.

Usage of TKI tails off significantly during the December/January school break, but not during the other breaks in the student year.

Taken as a whole, the available figures on frequency and duration of visits, especially when put alongside the figures for *repeat* visiting, paint a picture of a proportionally small but growing number of teachers who visit often and stay for quite long times (over 20 minutes), alongside a much larger number of visitors, still the vast majority, who visit the site infrequently and take only a glimpse. For both the Day 1 and the Day 2 Sites, there appears to have been a tendency for users to be either fanatics or phobics, regulars or reluctants, with relatively few in the middle ground.

Users of both the Day 1 and the Day 2 Sites were quite focussed in their travels through the sites, and have tended to go back to the few areas that they know, rather than explore widely throughout the sites. They seem to have had quite finely focussed reasons for visiting the site which centre most around the collection of curriculum related teaching resource materials and/or official reference information.

A substantial proportion of the increase in secondary teachers' usage of TKI is explained in terms of their use of the NCEA and Assessment Communities.

Usage of the more interactive public features of the site, which involve collegial communication and active contribution, was restricted to a very small minority of users who visit these sections rarely.

Even those users who stayed online at the site for a long time, or who visit very regularly, apparently strayed little from their previously well-worn, and quite narrow paths.

5.3 Usability

Usability refers to the ‘user-friendliness’ of the site, the attractiveness of its interface design and the ease and efficiency with which users are able to navigate and move through the site.

The site’s usability was assessed largely on the basis of usability tests conducted at the end of 2001, and question items within the 2000 and 2001 survey questionnaires. TKI itself also produced two reports on user feedback during 2001, one summarising feedback from a series of teacher focus groups, and one summarising the views of several ‘critical friends’, all of whom who are prominent and knowledgeable in the field of ICT in education and frequent users of TKI. Since the Ministry has already received these reports, it is not the intention of this one to repeat their findings. Rather it is to report the findings of our own separate user enquiries, which may then be triangulated against what TKI’s own informants had to say.

The key parameters investigated with regard to usability were:

- ⇒ reported and observed success rates achieved by searches within the site;
- ⇒ the reported aesthetic appeal of the interface;
- ⇒ the reported and observed ease and efficiency with which users were able to navigate their way round the various parts of the site.

Usability of the Day 1 Site

In the survey of teachers on the Day 1 Site, one question item (which asked them to rate the navigation of the site in terms of finding information) directly related to its usability, while other, less direct feedback on usability issues was provided in teachers’ responses to open ended questions asking for suggested improvements to the site and other comments.

Table 5.15. Ease with which Information could be found on the Day 1 & Day 2 Sites

Navigation 2000	Total	%
Very easy to find info.	7	3.3%
Easy to find info.	39	18.1%
Satisfactory	88	40.9%
Occasionally unable to find info.	61	28.4%
Often unable to find info.	20	9.3%
Total	215	
Navigation 2001	Total	%
Frequently able to access information	34	16%
Usually able to access information	114	55%
Occasionally able to access information	53	26%
Never able to access information	6	3%
Total	207	

As can be seen in Table 5.15, users in 2000 were reasonably evenly spread on the issue, with perhaps a tendency towards the neutral and just below neutral ratings. 38% of users found the navigability of the Day 1 Site less than satisfactory; 41% satisfactory; and 21% better than satisfactory. Only 3% reported that they found information ‘very easy to find’.

Many of the responses to questions asking for suggestions for improvement to the site to make it more useful to teachers focussed on the content or purposes of the site, but some also made suggestions related to the site’s interface, structure and general ‘ease of use’. A number of the respondents, for example, noted technical difficulties such as slow access and download times, broken or blind links, and difficulties finding particular resources of interest through keyword

searches. More prominent, however, were suggestions to simplify the interface visually (eliminate the 'entry' page, fewer graphics, reduce 'clutter', etc), and, most prominent of all, to provide a clearer overview of what was in the site. The impression given by these comments is that teachers were aware of the comprehensiveness of the Day 1 Site, but often did not have a clear overview of the structure that would enable them to navigate easily through it. Many suggested that a site structure based around subject areas would be the most useful.

Usability of the Day 2 Site - Searchability

The 2001 survey on the Day 2 Site had a similar question item about ease of navigation to that in the 2000 survey, albeit using a different scale. The second survey, however, also included several other questions specifically designed to look in more detail at how users tended to navigate the site, as well as how familiar users were with the overall structure of the site and what to find where within it. These issues were also the main focus of our usability tests.

In the 2001 survey, 71% of users responded that they were 'usually' or 'frequently' able to find what they wanted, and 29% of users found what they wanted only 'occasionally' or 'never'. This was a more favourable response than for the Day 1 Site (Table 5.15) which seems to indicate that users generally found at least something of what they were looking for rather more often in the Day 2 Site than in the Day 1 Site.

The responses to open ended questions about the searchability of the site, however, indicate that failed searches and a perceived lack of comprehensiveness in the database persisted. In this respect it should be noted that the TKI search engine only searches the metadata repository of TKI, and returns only the content, links, resources and so on that have been quality assured and have had a metadata file created for them. All of the external links on TKI have been 'found' by the TKI online editors, or by contributors to other ministry sponsored websites such as English Online. The search engine does not (yet) search anywhere else on the web for resources, though many of the end-users seem to think that it does.

As, and if, more external sites adopt the Dublin Core metadata cataloguing system in the future, the potential exists for greatly increasing the volume and ease of collection of such resources on the TKI database without increasing the need for more online editors and evaluators. In the meantime there is something of a tension between a user desire for resources on all conceivable topics and subjects, and the time necessary to seek out and/or generate, a resource, then evaluate it, catalogue it and present it.

In the usability tests, the time taken for searches varied considerably from an average of one minute to an average of 6 minutes, with most of the searches being successful in finding at least something that met the search criteria, if somewhat slowly. The usability test teachers were unclear about, and confused by, the difference between searching within the Communities pages, using the Find (eg. Social Science) Material area on the right of the screen, and searching using the Search button at the very top of the screen. The search within the Communities pages did not operate the same way, nor give the same results, as using the Search button at the top. Searching via the Search button was the way recommended by some of our participants to find information. They felt that greater use of this facility, and therefore ease of use within TKI, would be enhanced by placing Search more often, and more prominently, within pages. Several suggested that having the main Search facility within the Communities pages would be very beneficial, especially as the Search button at the top is obscured once the user has scrolled only slightly downward.

Usability of the Day 2 Site - The User Interface

In the open ended survey questions about the interface there were fewer complaints about the 'cluttered' nature of the interface or other visual/aesthetic aspects of the site than there had been for the Day 1 Site. There were also fewer complaints about blind links. In 2001 there was a similar level of criticism about movement through the site being slow and searches failing to produce results as for the Day 1 Site. Users were divided on the effectiveness of the colour coding in the Day 2 Site, but many wanted a simpler entry point to the main home page, and a simplified rather than complicated layout.

The key recommendations about the interface to come from our usability tests were:

- The use of one-line headings, as on a contents page, would reduce the need for a lot of scrolling and would reduce the visual bombardment of information on the Home Page.
- By eliminating repeated information on sidebars, the screen on the Home Page would become more succinct and clearer to read at first glance. This would also eliminate the need for users to scroll sideways.
- The Communities pages would be enhanced by the use of a list of contents at the top, therefore reducing scrolling time through the large amounts of information.
- The Schools site, although well liked by our participants, could be easier to use with the use of a search mechanism once the user was inside the geographical search, whether by the use of an alphabet at the top or a full Search option.
- Greater use could be made of links from certain obvious places within the TKI website, for example links to the ERO, NZ Education Review, and NZ Government websites, from the Education News page. A link could also be made from the Education News site to the School Daily.Com site where similar information is to be found.

Usability of the Day 2 Site - Navigability and the Structure of the Site

The most prominent set of interface/navigation difficulties related to the Day 2 Site, however, this related less to the aesthetic appearance or layout of the interface than to the overall structural navigability of the site. This was usually expressed as a perceived lack of logic in the general structure of the site, and a frustration felt by many users because the overall structure or plan of the site was not immediately clear to them. To some extent this related to relatively simple issues of where labels for particular parts of the site appeared on screen (eg: Communities are among the main section headings at the top of the homepage, but the Commsites are in a submenu off to one side), or using more meaningful labels. Mostly, however, it related to a perceived lack of clarity or logic in the headings used in the site, and confusion about what might or might not be expected within each of the site's main sections. In short, many users found it difficult to develop a mental 'site map' or overview of the site and difficult to maintain their sense of where they were on that map while moving through it.

To test the generality of users' knowledge of the structure of the site, we incorporated questions in the 2001 survey in which users were asked to identify what sorts of things they would expect to find in the main sections of the site, and in which section they would look for a few specified resources. The results are summarised in Table 5.16.

Table 5.16. Users' Knowledge of the Contents of Major Sections of the Day 2 Site

What would you expect to find in...?	No. correct responses	Both correct & incorrect*	Incorrect	'Don't know'	Tot.	No response
Schools	33	23	24	12	92	139
Communities	65	2	20	9	96	135
Interact	11	21	15	16	63	168
News	68	6	6	3	83	148
About	20	8	7	18	53	178
Shopping	77	0	0	5	82	149
Search	36	24	7	12	79	152
In which section would you find...?	No. correct responses	Both correct & incorrect*	Incorrect	'Don't know'	Tot.	No response
Times Educ. Supplement	44	0	6	30	80	151
Up-coming science events	22	5	40	25	92	139
School email addresses	81	1	5	20	107	124
NZ Education Gazette	28	2	29**	27	86	145

* includes additional expectations which are not part of that section & answers which are so vague as to imply lack of first hand knowledge.

** Includes 8 users who said they would go direct to the Gazette website, not through TKI.

The often high levels of non-responses, 'don't knows', incorrect response and responses which contained both correct and incorrect elements, indicate relatively high levels of uncertainty among many users about what was to be found where in the site. Users were clear about what was in News and Shopping, and knew that school email addresses were to be found in the Schools section. But they were less clear about the other sections of the site. For example, just under a third of users could not accurately say what was in the Communities section, despite this being the most visited section of the site, and many did not know that information on up-coming (Science) events was to be found in the relevant Communities page rather than on the News page.

To some extent this was a labelling issue, and perhaps the most obvious of the confusions due to labelling was the use of the word 'Communities' to refer, among other things, to school 'subjects'. For example, none of our usability test participants intuitively looked for subject information in that section, even though subject areas were their primary focus of interest. The participants in the usability tests were also clear that an understanding of the website and its form could be enhanced to some extent merely by the use of more simplified headings. Hot Topics, Communities, and Interact, were all seen as ambiguous and stalled our participants in their searches. Frustration at not finding these headings to be easily decipherable led to more general complaints about TKI's ease of use. In the survey, too, several of the comments complained about the lack of obvious meaning in the section headings ("[Communities should be] more aptly named learning ideas, new users find this difficult to find", "Is this school communities? Funny heading, doesn't really give a clue as to what it's about" etc).

More often, and more significant in our view, however, was the evidence in both the usability tests and the survey that users found it difficult to develop a conceptual 'map' of the site and its various sections. This was most evident in the survey in the frequency with which users referred to a sense of not knowing what fitted where in the site. These expressions were quite specific in the case of the section labels and headings, but more often they expressed their lack of sense of the structure of the site in more general terms such as: "[It was] very hard to navigate", "categories not always clear", "don't know the whole site", "access to specific areas not clear", "K.I.S.S", "instruction point and complete box explaining navigation [is needed]", "sometimes get lost...", "if only finding

one’s way was simplified”, “had trouble locating NCEA”, “that horrible feeling of going round in circles”, “still quite difficult to find your way around. A clear index, please”, and so on.

Usability -The bilingual aspects of TKI

In terms of the language that teachers preferred to use when reading the site, in the 2000 survey 15 of the 21 ‘users’ from bilingual classes preferred to use the English version of the site, while 4 of the 5 users from Maori immersion schools read the site in Maori and 1 in both languages.

In the 2001 survey there were no respondents who taught only in Maori, but 14 of the 17 respondents from bilingual classes preferred to view the site in English. There may be a preference for teachers of Maori immersion classes to use the Maori version of the site, but again the very small numbers in the respondent sample make it inappropriate to draw conclusions on this (Table 5.17). What is clear from responses to other questions, however, is that teachers generally, and those in Bilingual or Maori Immersion schools in particular, really valued the efforts being made to build bilingualism into the site, even if they themselves tend to use the English version.

Table 5.17. Respondents’ Language of Instruction and Preferred Language within TKI

Language of Instruction	No. Users 2000	Proportion of language			No. Users 2001	Proportion of language		
Bilingual	21	57%			17	65%		
English	193	33%			214	47%		
Maori	5	100%			0	0%		
Preferred language in TKI	Language of Instruction 2000			Language of Instruction 2001				
	Bilingual	English	Maori	Bilingual	English	Maori		
Both/Either	3	1	1	1	0	0		
English	15	187	0	14	210	0		
Maori	3	3	4	1	1	0		

On the subject of the Maori language in relation to the site, it is also interesting to note the responses to a question in the 2000 survey asking what respondents understood by the Maori name for the site: *Te Kete Ipurangi*. Suggestions here ranged from the poetic (“shared knowledge from the sky”) to the pejorative (“a ridiculous title in a useless language”) and the humorous (“a bag of tricks”). A small number of respondents wanted an English name to have equal or greater precedence, though an equal number suggested that it was not relevant or important to know the translated meaning anyway.

Most respondents did not know the literal meaning of *Ipurangi*, but made educated guesses which revolved around the notion of ‘baskets of knowledge’, ‘storehouse of information’, ‘store of learning’, ‘kit full of resources’, and so on. Interestingly, the very name of the site itself may emphasise its conceptualisation among users as a content repository, rather than as a reference portal or a virtual community.

Summary (Usability)

Users rated the Day 2 interface more user-friendly than the Day 1 Site, especially its organisation around curriculum content areas.

Most users came with a specific task in mind rather than to browse or ‘window shop’.

Most users had been able to find what they were looking for through the site, and the Day 2 Site proved more ‘searchable’ than the Day 1 Site. However, for a significant minority failed ‘searches’

within the site were still a problem. The reason for this may well be in the still limited numbers of site references and resources that were catalogued according to the site's meta-data system.

The greatest difficulties users had with the site related to navigation and structure. This is partly due to what they saw as confusing labelling and icons, but even more it was due to a frequently reported lack of a sense of where they were in the site at any given time. It would appear that users of the site did not have a clear concept of its varied purposes and roles and thus had difficulty developing, on the basis of the way it was presented to them visually, a coherent mental map of the structure and operation of the site which would make it more easily navigable.

5.4 Usefulness

It is, of course, one thing to detail the ‘usage’ of TKI, in terms of the frequency of visits to the various parts of the sites, or its ‘usability’ in terms of user-friendliness of the interface, but it is another to assess its consequential ‘usefulness’ to teachers or school managers in their daily lives. Having visited the site, to what extent did teachers subsequently, and consequently, ‘use’ the resources, ideas and contacts found there in their professional practices? How effective was the site in its tripartite goals of providing teachers and managers with useful, high quality resources, of enhancing their professional understandings, and of providing a venue to further their collegial relationships?

One possible measure of the practical usefulness of particular parts of the site came from the patterns of items most often downloaded by users onto their own computers. An analysis of the downloads from the Day 1 Site Statistics shows that official documents were the most downloaded materials (eg: ICTPD Reports and updates, Te Whariki Objectives, etc), along with social science and language teaching resources. A similar focus on downloads of official documentation was seen over the first 16 months of the Day 2 Site, when the most frequently downloaded documents related to the NEGS, ICT Curriculum, the Curriculum Stocktake, Assessment Two-Reviews, NCEA, Te Hiringa i te Mahara, and the Maths, Technology and Health Curriculums.

The download statistics, however, may not provide an ideal measure of the usefulness of the site for teachers during these periods. This is partly because most of the documents available for downloading tended to be of the ‘official information’ kind. Also, any of the useful materials on the site may have been printed or copied rather than downloaded, or have derived from other sites to which TKI had merely provided links. Similarly, many of the uses to which the site may have been put involved communication with colleagues, or the mere reading of ideas that might have stimulated later action, rather than the physical downloading of a particular file. To address the issue of subsequent usefulness more directly from the consumer perspective, therefore, we incorporated some question items in the surveys about the ‘usefulness’ and subsequent uses of materials or information from different sections of the sites. These questions consisted of a general rating of the ‘usefulness’ of each major section of each site, as well as open-ended questions (in the 2001 questionnaire only) about the ways in which TKI had contributed to their daily professional practice.

Clearly, the overall frequency with which the site was accessed, and the sections/features of the site users visited most, are in themselves some indication of the extent to which users also found those features ‘useful’. Teachers presumably will not return to online resources they have found of limited use or relevance on previous visits. In this respect, dramatically rising rates of access, and, more importantly, rising rates of return access since the launching of the Day 2 Site, would indicate that the perceived usefulness of TKI in teachers’ eyes increased with time and familiarity.

Reported usefulness of particular sections or features of the sites

Beneath the general trend of more users coming back more often, there were nevertheless clear indications from the survey that some parts of the site were felt to be more useful than others. Respondents' general comments, for example, highlighted the usefulness of the curriculum specific resources and resources on assessment. The emailed newsletters also featured in these general comments as a useful adjunct to the site. More significantly, when users were specifically asked in the surveys which particular features or sections of the site they found the *most* useful, some clear trends emerge.

Table 5.18a. Reported Usefulness of Sections of the TKI Day 1 Site

Information & reference	PD	% of Users	News	% of Users	Gov & Mgmt	% of Users	Events	% of Users	Futures	% of Users
1 Not at all useful	12	8.5%	14	13.5%	13	14.0%	15	18.8%	15	28.8%
2 Sometimes useful	32	22.5%	34	32.7%	22	23.7%	31	38.8%	12	23.1%
3 Useful	54	38.0%	35	33.7%	30	32.3%	20	25.0%	21	40.4%
4 Very useful	28	19.7%	14	13.5%	16	17.2%	9	11.2%	3	5.8%
5 Extremely useful	16	11.3%	7	6.7%	12	12.9%	5	6.2%	1	1.9%
6 Never accessed	40		53		69		73		94	
total responses	182		157		162		153		146	
total users of feature	142		104		93		80		52	
Teaching Resources	T&L		General Res		ICT		Lit & Num		Student Res.	
1 Not at all useful	6	3.0%	10	7.2%	10	7.6%	10	7.6%	15	28.3%
2 Sometimes useful	44	22.2%	23	16.5%	26	19.8%	25	18.9%	15	28.3%
3 Useful	61	30.8%	49	35.3%	47	35.9%	49	37.1%	16	30.2%
4 Very useful	54	27.3%	48	34.5%	32	24.4%	33	25.0%	4	7.5%
5 Extremely useful	33	16.7%	9	6.5%	16	12.2%	15	11.4%	3	5.7%
6 Never accessed	9		38		40		43		93	
total responses	207		177		171		175		146	
total users of feature	198		139		131		132		53	
Interaction / contribution	Review a Site		Discussions		Misc.		Just up		Shopping	
1 Not at all useful	16	22.5%	18	36.0%			17	32.1%	15	28.3%
2 Sometimes useful	21	29.6%	21	42.0%			12	22.6%	15	28.3%
3 Useful	23	32.4%	7	14.0%			15	28.3%	16	30.2%
4 Very useful	8	11.3%	3	6.0%			6	11.3%	4	7.5%
5 Extremely useful	3	4.2%	1	2.0%			3	5.7%	3	5.7%
6 Never accessed	80		94				97		93	
total responses	151		144				150		146	
total users of feature	71		50				53		53	

The most useful features/sections of the Day 1 Site were felt to be those on 'Literacy and Numeracy', 'Teaching, Learning & Curriculum', 'ICT', 'General Research', 'Professional Development', 'Governance/Management'¹. In all of these cases over 30% of the users of those features rated them as either 'extremely useful' or 'very useful', and under 15% rated them as 'not at all useful', the rest being in the neutral response zone of 'sometimes useful' or 'useful' (See Table 5.18a).

¹ The section headings or labels used in the surveys for features of the two sites were the section headings as used in the sites themselves.

Table 5.18b. Reported Usefulness of Features of the TKI Day 2 Site

Information & reference	School	% of Users	News letter	% of Users	News	% of Users	Futures	% of Users
1 Not at all useful	14	12.5%	16	22.5%	14	16.1%	13	24.1%
2 Sometimes useful	48	42.9%	28	39.4%	36	41.4%	23	42.6%
3 Useful	30	26.8%	25	35.2%	28	32.2%	14	25.9%
4 Very useful	15	13.4%	2	2.8%	8	9.2%	4	7.4%
5 Extremely useful	5	4.5%	0	0.0%	1	1.1%		0.0%
6 Never accessed	54		102		90		119	
total responses			173		177		173	
total users of feature	112		71		87		54	
Teaching Resources	Communities		Web guides		Hot Topics		What's on Box	
1 Not at all useful	15	10.9%	14	14.9%	15	17.4%	17	28.3%
2 Sometimes useful	36	26.3%	36	38.3%	33	38.4%	21	35.0%
3 Useful	41	29.9%	26	27.7%	24	27.9%	16	26.7%
4 Very useful	25	18.2%	15	16.0%	12	14.0%	5	8.3%
5 Extremely useful	20	14.6%	3	3.2%	2	2.3%	1	1.7%
6 Never accessed	50		82		86		113	
total responses	187		176		172		173	
total users of feature	137		94		86		60	
Interaction / Contribution	Interact		Message Board		Private Areas/Commsuites			
1 Not at all useful	19	38.8%	18	31.6%	21	58.3%		
2 Sometimes useful	16	32.7%	20	35.1%	9	25.0%		
3 Useful	12	24.5%	14	24.6%	4	11.1%		
4 Very useful	2	4.1%	5	8.8%	2	5.6%		
5 Extremely useful		0.0%		0.0%		0.0%		
6 Never accessed	9		119		131			
total responses	58		176		167			
total users of feature	49		57		36			
Misc.	Search		Shopping					
1 Not at all useful	14	8.8%	24	55.8%				
2 Sometimes useful	58	36.2%	16	37.2%				
3 Useful	49	30.6%	3	7.0%				
4 Very useful	28	17.5%		0.0%				
5 Extremely useful	11	6.9%		0.0%				
6 Never accessed	28		132					
total responses	188		175					
total users of feature	160		43					

By far the most useful feature/section of the Day 2 Site was felt to be the Communities pages, which was the only section to have over a third of its users rate it 'very useful' or 'extremely useful' and under 15% rate it as 'not at all useful'. Other features of the Day 2 Site to get a relatively high ratio of 'useful' or better ratings compared with 'not at all useful' ratings, were the Webguides, the Schools section and Hot Topics (Table 5.18b).

There was even greater consensus among respondents about the features which got the *lowest* ratings for usefulness - i.e.: these sections tended to get higher ratios of 'not at all useful' ratings compared with 'very useful' or 'extremely useful' ratings. In the Day 1 Site these were the 'Events', 'Student Exemplars', 'Futures', 'the Shop', 'Discussion' and 'Reviews' sections. The majority of users of these features rated them below the middle or neutral rating of 'useful'. In the cases of the Shop and the Discussion centre, 78% and 81% respectively of the users of these features rated them as less than 'useful' (Table 5.18a). In the Day 2 Site, the least useful sections were reported as being the 'Private Areas-Commsuites', 'Interact', the 'Message Board', and 'What's on the Box'. In all these cases a third or more of those who had accessed the section rated it as 'not at all useful' and under 10% had rated it as either 'very useful' or 'extremely useful' (Table 5.18b). 98% of Day 2 Site users had never posted a message or responded to a message on the site.

It should be noted that the absolute numbers of users who had been to many of these sections of the site was sometimes very small, which distorts the percentage figures somewhat. However, the low number of visitors itself, the high proportion of users of the sites who had never accessed these sections of the site, and the high non-response rates among users for these features, when considered alongside the ratings of those few who had gone there, all reinforce the generally negative response of teachers to these features. Not only, it seems, had visitors not anticipated any *likely* use of these sections, (ie: they had never even looked at that part of the site), but most of those few who had gone to them had not generally found them very useful in practice either. This is particularly interesting in view of the high hopes held by the producers of the site for the more collegial and interactive features of the site.

Finally, it should be noted that there were statistically significant differences between primary and secondary users in the reported usefulness of all but one section of the Day 2 Site. Primary users clearly tended to rate the usefulness of the site more highly than secondary users. The only section of the Day 2 Site which both groups rated similarly was the Communities section, which got relatively high usefulness ratings from both groups.

Relative usefulness of specific Communities in the Day 2 Site

While both primary and secondary teachers rated the usefulness of the Communities section of the Day 2 Site quite highly compared to other sections, there the consensus between them ends. With regard to which *particular* Communities the two sector groups found most useful there were significant levels of difference.

Two measures of the relative usefulness of particular Communities were available from the survey. The first is the proportion of regular, compared to only occasional, usage made of particular Communities by primary and secondary users; and the second is the users' responses to a question item asking respondents to rate the relative usefulness of each Community. Both indicate that the materials then available in most of the Communities were seen as much more relevant and useful to primary users than to secondary, the only exception, understandably, being the NCEA Community.

Users came back to Communities they had found useful in the past, but were less likely to return to Communities pages that had proven not useful. Accordingly, we calculated the proportion of users of each Community who were regular users, (that is, they returned to that Community on at least a weekly basis) and the proportion who were only occasional users (that is, they visited the Community on average less than once a week). High proportions of 'weekly usage' were taken to indicate a relatively high perceived 'usefulness' of the materials, and low proportions of 'weekly usage' would indicate relatively low 'usefulness'. Notable differences were found between primary and secondary respondents with regard to the Communities they most and least **revisited**.

The Communities with the *highest* ratios of regular to occasional users (ie: 'most useful') were:

<i>Primary (in order)</i>	<i>Secondary (in order)</i>
Governance and Management	Technology
Literacy and Numeracy	NCEA
Assessment	Assessment
Mathematics	Health & PE (NB. few users)
Language and Languages	ICT

The Communities with the *lowest* ratios of regular to occasional users (ie: ‘least useful’) were:

Primary (in order)

NESB
Curriculum Stocktake
Maori Education
Digital Opportunities
Science

Secondary (in order)

Governance and Management
Literacy and Numeracy
Gifted and Talented

Clearly the Communities that attracted the most, and least, regular primary visitors were not necessarily those that attracted their secondary counterparts. This is understandable in the case of NCEA, for example, which was not likely to be of much use to primary teachers, but the appearance of Governance and Management and Literacy and Numeracy in *opposite* lists for primary and secondary respondents exemplifies a distinct sector imbalance in the perceived usefulness of many of the Communities.

The responses to question items directly asking users to rate the relative ‘usefulness’ of each Community provide the most compelling evidence of such a sector-based difference. Table 19 shows that primary users found all except the NCEA Community more useful than did secondary users. The majority of secondary respondents, for example, rated all the Communities less than ‘useful’, except NCEA, on which they were divided more or less equally among less than ‘useful’, ‘useful’ and better than ‘useful’ ratings. Both groups tended to find the Assessment and Science Communities quite useful, and both tended to find the Curriculum Stocktake, Curriculum Integration, Digital Opportunities, NESB, and Gifted & Talented Communities less than useful. There was, however, little consensus, and sometimes contradiction, between the two groups about the relative usefulness of the other Communities.

In some cases, of course, this is to be expected given the different interests of the groups. For example, Curriculum Integration was inherently likely to be of interest to primary rather than secondary users, and NCEA was of inherent interest to secondary and not primary users. One would also expect a greater number of primary teachers to visit several subject Communities given their eclectic content responsibilities, and for secondary teachers to visit only the few they teach. Nevertheless, the proportional data in Table 5.19 still suggests that in relation to those Communities where there should be a similar level of interest, and especially the seven Essential Learning Areas, the developers of the site might do well to review the content of those Communities with a view to balancing the sector interest therein.

Table 5.19. Percentages of Users of Each Community rating it Lower than ‘Useful’, ‘Useful’ and Higher than ‘Useful’

Primary	% of users '< useful'	% of users 'useful'	% of users '> useful'	Secondary	% of users '< useful'	% of users 'useful'	% of users '> useful'
Gov/Man	28%	28%	43%	NCEA	30%	40%	30%
Science	27%	36%	37%	Science	51%	26%	23%
The Arts	30%	33%	37%	Technology	51%	26%	23%
Assessment	23%	40%	37%	Assessment	58%	25%	18%
ICT	25%	39%	37%	Language(s)	63%	20%	17%
Lit & Num	25%	41%	34%	Curric Stocktake	83%	0%	17%
Social Science	36%	34%	29%	The Arts	68%	16%	16%
Technology	38%	34%	29%	Maori Ed	79%	5%	16%
Curric Integration	44%	28%	28%	Mathematics	62%	24%	15%
Health & PE	38%	35%	27%	Gov/Man	71%	14%	14%
Language(s)	27%	47%	27%	ICT	72%	14%	14%
Mathematics	33%	41%	26%	NESB	86%	0%	14%
Maori Ed	40%	35%	25%	Social Science	70%	17%	13%
School Innovation	39%	36%	24%	Health & PE	62%	25%	12%
Gifted & Talented	42%	37%	21%	Lit & Num	71%	17%	12%
NESB	64%	16%	20%	School Innovation	84%	5%	11%
Digital Opps.	55%	30%	15%	Digital Opps.	83%	11%	6%
Curric Stocktake	57%	29%	14%	Curric Integration	89%	5%	5%
Com. NCEA	75%	15%	10%	Gifted & Talented	95%	5%	0%

Subsequent and consequent use of materials and ideas sourced from TKI

The final indicators of ‘usefulness’ investigated in the study, other than frequency of downloads, return visits to particular parts of the site and users’ own usefulness ratings, relate to the specific classroom activities teachers subsequently undertook using materials or ideas from the site, and the professional benefits they reported as being a direct result of visiting the site.

In the survey users were asked to identify:

- a) the ways in which their use of the site had contributed generally to teaching and learning, and
- b) to identify some particular resources that they had actually used or adapted for classroom use.

All of the 49 users who replied to the two questions on the learning benefits they had observed as a result of the use of resources from TKI, reported improvements related to students’ attitude, higher motivation levels and enthusiasm. Only 8 reported higher achievement levels in the form of better scores in formal assessments.

However, although these two questions were intended to relate to benefits in terms of student learning, many users nevertheless responded more in terms of benefits to them as teachers/administrators. Among the *teaching/management* flow on benefits of the use of TKI reported by users were:

- ⇒ Greater variety in classroom activities. (eg: “Added variety to my programme”, “Provided variety to develop a concept”)
- ⇒ Improved teacher knowledge, understanding, ‘uptodateness’. (eg: “Better knowledge about NCEA”, “ Better understanding of expectations of NZCE”)

- ⇒ Easier/better planning , less preparation etc. (eg: “Easier planning, [more] time to prepare”, “Less work for me, I don’t have to reinvent the wheel each day”, “Teacher more informed, planning more focussed”)
- ⇒ Greater teacher confidence/enthusiasm. (eg: “More ideas for myself which leads to increased enthusiasm and motivation”)

About half the users in the survey (106), in equal proportions primary and secondary, were able to identify specific resources or ideas that they had obtained through TKI and then used in their classrooms or administrative practices. These were:

- ⇒ Assessment ideas and exemplars (esp. users from secondary schools). (eg: “ARBs & NCEA information and matrix”, “NCEA Geography examples”, “NCEA trial assessments”, “Maths assessment ideas”)
- ⇒ Teaching ideas, units of work and pedagogical concepts. (eg: “curriculum integration [ideas]”, “Integrated templates”, “Creative ideas”, “Class planning”, “NESB models”, “NZ maths to plan maths units”)
- ⇒ Ready-made student learning activities/resources. (eg: “Ancient Egypt website link”, “Level 1 History assignment”, “Visual unit”, “Electronics, hard materials”, “Hot Topic - ancient Egypt & Olympics 2000”, “The virtual wharenui”)
- ⇒ Resources on strategic planning & policy issues.(eg: “Website policy for students”, “Policy examples”, “Examples of strategic plans”)

Finally in assessing the overall ‘usefulness’ of the Day 2 Site, it should be noted that the results reported above are also consistent with the balance of opinion expressed in responses to open ended questions about what the users were ‘most impressed with’ or found ‘disappointing’ in the site. Their responses to these questions confirm that users most appreciated the Day 2 Site’s structure being based around curriculum subject areas. For example, most responses by far about what impressed them in the Day 2 Site referred to the ‘Communities’ section, either in general or in praise of particular subject Communities. Users also referred positively to the variety and breadth of available links to other sites. Open ended responses about what disappointed them related mostly to usability issues (dealt with elsewhere in this report), and to some extent to a perceived lack of *quantity* of material or links in their particular areas of interest.

Summary (Usefulness)

Teachers found the sites most useful as a source of specific classroom resources and ideas, and least useful as a place to locate professional readings or to make collegial connections. Consistent with their view of TKI as a ‘repository for quality teaching resources’, users used it almost exclusively as a place to visit for ideas and resources ‘for tomorrow’s lesson or test’, and, to a lesser extent, as the place to go for official curriculum documents and news.

Moreover, users seemed to go to the site only with the *expectation* of locating and possibly downloading teaching resources, and had neither sought out, nor made much use of, the other features and information that the site offered. In this regard, users in secondary schools were even more focussed than users in primary schools.

For the end users, the most used, and most useful, general sections of the sites were:

<i>Day 1 Site</i>	<i>Day 2 Site</i>
Literacy and Numeracy	Communities
Teaching, Learning & Curriculum	Webguides
ICT	Schools
General Research	Hot Topics

Professional Development
Governance/Management

The least used, and least useful, general sections of the sites were:

Day 1 Site

Events
Student Exemplars
Futures
the Shop
Discussion
Reviews

Day 2 Site

Private Areas-Commsuities
Interact
Message Board
What s on the Box

The most used, and most useful, Communities in the Day 2 Site were:

Primary

Gov/Man
Science
Assessment
ICT
Lit & Num
The Arts

Secondary

NCEA
Science
Technology

The least used, and least useful, Communities in the Day 2 Site were:

Primary

NCEA
Curriculum Stocktake
Digital Opps.
NESB
Gifted & Talented

Secondary

Gifted & Talented
Curriculum Integration
Digital Opps.
NESB
School Innovation
Curriculum Stocktake

Except in respect of NCEA, primary teachers found the various Communities more useful than secondary teachers.

About half of the users of the site had used specific resources in their classrooms. These were mostly assessment ideas and exemplars, or classroom teaching ideas and ready-made plans for units of work. To a lesser extent users also found and used specific learning resources for students, and resources related to policy issues.

For teachers, the direct classroom benefits of their use of TKI related more to improved 'teaching' than to improved 'learning', but within the latter, the perceived benefits related more to improved student motivation and attitude than to improved student achievement.

6. Conclusion

This Report outlines the findings of an investigation of the first two years of the TKI website's operation from an end-user perspective. Overall, we conclude that to the end of 2001 the site was more successful in achieving the goals of providing access to online teaching resources and keeping teachers up to date with official information, than it has in achieving the goal of encouraging collegial interaction, contribution and communication.

The contributions of the 23 ICTPD Clusters to the site were relatively low in number, especially in the first two years, and variable in quality. This probably reflects the higher priority given to other PD goals among the clusters in their first year or so of operation, and relatively low levels of ICT knowledge and ability among the participants in the cluster programmes. In 2001 submissions increased in quantity and generally improved in quality, largely as the result of the development and publication of clear criteria for submission.

For the population of users generally, TKI has established itself in its first two years of operation as an educational website of first recourse among a significant number of New Zealand school teachers and school managers. Awareness of the site has somewhat outstripped actual usage, but both awareness and usage significantly increased over the two years of the study. Usage has consistently been concentrated, especially for secondary users, on the very focussed collection of particular teaching ideas and resources in particular topic areas, and to a lesser extent on keeping up to date with official policy developments. Teachers and school managers have varied in their views of the relative usefulness of particular aspects of the site, with users from primary schools generally finding TKI more useful than users from secondary schools.

The direct classroom benefits of the use of TKI were largely defined in terms of more varied or interesting teaching, and it would seem that at least half of the users of the site have been able to find resources or ideas which they have subsequently applied to their daily professional lives. Both primary and secondary sector groups, however, expressed some significant reservations about its 'user-friendliness' and searchability, and in our view these reservations have their origins in a sense of confusion about how the site was basically structured, how to navigate through it and, indeed, what to expect of it.

Finally, it is perhaps noteworthy that this apparent lack of clarity among end-users about the core purposes of the site and its overarching structure was also a major critique of the site made in the Critical Friends Report commissioned by the TKI developers themselves. That internal Report suggests that the origins of such confusion about structure may lie in a more general lack of consensus among stakeholders as to whether or not the site's main purpose is to be a 'portal', or a 'repository', or a 'virtual community', or, indeed, in a lack of real conceptual consensus about what 'portal', 'repository' or 'virtual community' websites should be, should do, and should look like. We would tend to agree. When the site was first commissioned, such dissensus was probably understandable, as there was little precedent on which to base a robust, shared definition of what a 'portal' site should be, and the database-driven, 'interactive library' concept of the developers was innovative and internationally untried. Three years on, however, it may now be timely for the developers, users and the Ministry to jointly review such basic issues on the basis of their relative experiences.

According to our study the great majority of users go to TKI with a specific objective in mind rather than casually browsing or routinely surfing with no specific aim in mind. Two thirds of users

said they seek information within the site using the Search option, and about one third by following promising or known links. Such finely focussed reasons for using the site imply that, whatever 'advanced' features may be put on the site, and whatever additional goals and ambitions the producers may have for the site, the end-users are still judging it in the meantime according to two simple criteria: the simplicity and clarity of the user interface, especially the search feature, and the size and comprehensiveness of the database of metatagged resources held on the site. While it is not the purpose of this Report to attempt to (re)define either the purposes or the structure of the site, its findings suggest strongly that, at least from an end-user perspective, there is still a need for greater stakeholder agreement and clarity about what a 'portal' site is intended to look like and to do, and for greater coherence between those purposes and the overarching structure of the site as it is presented to the world through its interface.

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Appendix

Survey Questionnaires, 2000 and 2001