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'AnyQuestions.co.nz and information literacy revisited'

by

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Submitted to the School of Information Management,
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in partial fulfilment of the requirements for the degree of
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'AnyQuestions.co.nz and information literacy revisited'

(hereafter referred to as 'The MIS Research Project')

being undertaken by

Helen Kerrigan

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Master of Information Studies,
School of Information Management, Victoria University of Wellington.

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Abstract

Research problem: The extent to which AnyQuestions.co.nz currently influences the information literacy development of students and in particular, its effectiveness in teaching good search strategy techniques, is investigated.

Methodology: A quantitative approach involving a survey of 107 school children aged between 9 and 13 years who have had experience using AnyQuestions.co.nz. A study commissioned by the Ministry of Education published 8 years earlier provides a benchmark, and Kuhlthau's ISP model a framework, for the current study.

Results: There has been an increased awareness among AnyQuestions users of the role the service plays in helping develop search skills and improve information seeking behaviour. Satisfaction ratings for the service are substantially higher than they were in 2007 and users report positive learning outcomes. AnyQuestions.co.nz is found to be making a positive contribution to the information literacy of the students who use it.

Implications: Findings indicate that the Ministry of Education should continue to grow the programme as it is a useful educational tool in teaching information literacy to New Zealand children. More research is required to find out how to best increase uptake of the service in schools throughout New Zealand, with particular emphasis on increasing use in the currently under-represented low decile[1] schools.

Descriptors: Children, ISP, information literacy, internet, search skills, search behaviour.

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[1] A decile rating denotes the socio-economic position of a school's community relative to other communities throughout New Zealand.

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1.0   Introduction

Now in its tenth year, AnyQuestions.co.nz is an educational reference service operated by the Ministry of Education. It links primary, intermediate and secondary school students with librarians, in real-time, throughout New Zealand. It is used predominantly by those aged between 9 and 13 years (O'Donovan, 2005, p.6). This research addresses a gap in current knowledge about the effectiveness of AnyQuestions.co.nz as a tool to improve student information literacy by teaching effective search strategy.

There is currently little known about the success of AnyQuestions.co.nz from the participating students' perspective. Results provide an understanding of its success as a tool to improve information literacy and how it can be improved.

1.1 Definition of key terms

Chats: reference interviews that occur between the librarian operators of AnyQuestions and the students they are assisting.

Information literacy: The capacity "to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 1998, para.3).

Information seeking behaviour: The "conscious effort to acquire information in response to a need or gap in your knowledge" (Case, 2002, p.5).

Operators: Librarians from various parts of New Zealand who are selected by the AnyQuestions coordinators at the National Library.

Search strategy: The "possibly partial and implicit plan that a searcher adopts to solve an information problem" (Brajnik, 2002, p.344).

Students: The students referred to in this report will be primary and intermediate school students, studying at a New Zealand academic level of Year 5 - 8 and aged 9 - 13 years

AnyQuestions.co.nz will be abbreviated to AnyQuestions throughout this paper.

1.2 Problem statement

The ability to search for relevant information effectively is an important component of information literacy. The extent to which AnyQuestions currently influences the information literacy development of students (and in particular its effectiveness in teaching good search strategy techniques) is unclear.

All reference interviews (text chats) are monitored and librarians are expected to adhere to strict AnyQuestions Reference Standards. These standards include the procedures which operators are expected to follow, and against which their performance is measured. They state that the service is intended to "provide guidance and advice on search strategy and process as well as assistance with finding quality assured information at the right level for [their] customers' needs" and that AnyQuestions is not intended as "a quick reference service" (AnyQuestions NZ, 2015a, para.2[2]).

Operator evaluations based on these reference standards are conducted annually and these have shown great improvements in operator competency in recent years. While this may have led to an improvement in the information literacy of the students they interact with, little research has been conducted to measure the impact of the service on student search habits since 2007. The service had then been in operation for only two years.

1.3 Limitations and Assumptions

This research was limited by several factors with the potential to impact on the quality of findings. The methodology was limited by time, travel and spending constraints. As the sample was dispersed throughout the country, neither budget nor time allowed for face-to-face interviews. Electronic interviews were not viable as the sample involved young students in school hours and not all of the schools involved had the access or the time to accommodate this.

These limitations and the small scale of the project dictated that the study use quantitative research alone, rather than mixed method, using both a quantitative and qualitative approach, as would have been preferred. The Neilsen/NetRatings research (2007) on which

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[2] Source originates from AnyQuestions operator blog and may be inaccessible to the reader

this study is based used a mixed method approach. The quantitative component is very similar to that used here, while the qualitative component involved interviews with both students and their teachers. Results were also verified by research published in the same year by Wenmoth, Coogan, Derham-Cole & Gibson (2007) using comparative qualitative data. The small scope of this project did not allow the time or resources to acquire comparative qualitative data.

Results from this study would have benefited from triangulation with data obtained from the evaluations of operator chat transcripts, which are held by the Ministry of Education.

Working with children affected the survey's design. As the answers given by young students have the potential to be incorrect or misleading due to misinterpretation of the question, the wording in the questionnaire had to be short, simple and the choices limited.

The study relied on a convenience sample. While a list of high-use schools meant that only schools that were aware of AnyQuestions and used the service extensively were approached, the researcher had no control over which schools would agree to participate in the project. As a result an inherent bias in the sample exists. As high-use schools tended to be those rated in the higher decile areas, convenience sampling has in this case resulted in a limited socio-economic range across the sample.

An assumption has been made that the schools identified as high-users of AnyQuestions are likely to have staff members actively facilitating the service. It was therefore assumed that these schools were more likely than low-use schools to have an interest in participating in this project. There was also an assumption that these schools would provide the broadest sample for this research.

2.0 Literature review

The online environment in which children are searching for information is constantly changing. While there has been a lot of research conducted on how students are searching for information, the focus of the studies have varied considerably. While approaches may differ most have an educational emphasis, whether the objective is to improve youth focused information literacy tools (Jochmann-Mannak, 2014; Nesset, 2013), evaluate teaching methods (Nielsen/NetRatings, 2007; Wenmoth et al., 2007), or highlight variances in internet search strategy between age groups (Miller, & Bartlett, 2012; Nielson, 2010; Nicholas, Rowlands, Clark, & William, 2011).

These studies provide a rich contextual background to the current information seeking behaviour of children and inform this research. They highlight the strengths and weaknesses of the search methods students currently use, and indicate a need for caution when allowing children to use powerful search engines such as Google and Bing.

According to the American Library Association's Presidential Committee on Information Literacy, "information literate people are those who have learned how to learn" (American Library Association, 1989, para.3). Information seeking behaviour which results in an effective information search is an essential component of information literacy. An Information search is "a process that includes multiple stages of question asking and refining, information gathering and evaluating" (Wallace, Kupperman, Krajcik, & Soloway, 2000, p.97). Information professionals and educators have a clear role in teaching students quality search strategy techniques that will result in good information seeking behaviour and ultimately improve information literacy.

In 2007, two years after AnyQuestions launched, CORE Education was contracted by the Ministry of Education to complete impact reports on the service as part of a wider evaluation of web-based learning services available to young New Zealanders (Niesen/NetRatings, 2007; Wenmoth et al., 2007). The current study closely references the findings and recommendations of these reports, particularly those of Nielsen/NetRatings whose work provides a benchmark for this research.

Two other studies involving AnyQuestions have been completed as the research requirement of Victoria University's MIS, but these were not considered relevant to this study. The earlier paper studied the questions most commonly asked of an AQ operator (Weterings, 2006) and the other was inaccessible to the public for ethical reasons (Colling, 2010). In 2009 a two question student poll was conducted by AnyQuestions asking only frequency of use and whether participants agreed with the statement "I learned how to better understand homework and assignment questions". In this poll 58% of respondents agreed with the statement (AnyQuestions NZ, 2015b[3]).

Earlier this year AnyQuestions released an Impact study based on pilot programmes in two Auckland intermediate schools (Department of Internal Affairs, 2015). While the report provided some interesting results, there were serious limitations to the quality of the findings. Data was obtained from surveys measuring search confidence both before and after using AnyQuestions. While the initial sample consisted of 330 students, only 235 completed the second sample. During the few months with which the students were able to familiarise themselves with AnyQuestions, only 393 chats were identified as originating from the pilot schools. Even if it is assumed that all of these chats were completed by the final respondents, it would still only equate to 1.67 chats per student which does not constitute enough interaction by which to measure real change.

This study does however provide a good insight into how a group of New Zealand school children (the initial sample of 330) perceived their search abilities before being introduced to AnyQuestions. The study found that the most popular way (88.1%) to find information was with an internet search engines such as Google (Department of Internal Affairs, 2015, p.4). While the study found no difference in the amount of search engine queries performed before and after the introduction of AnyQuestions, there was an increase (33.8% to 38.4%) in the amount of respondents reporting going straight to known websites in the second survey (p.6). There also appears to be an improvement in the respondents' ability to identify a trusted information source (p.7). This suggests an immediate increase in the awareness of quality websites as a result of using AnyQuestions.

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[3] Source originates from AnyQuestions operator blog and may be inaccessible to the reader

The two studies by Wenmoth et al. (2007) and Nielsen/NetRatings (2007) share similar objectives. Both briefs required the researchers to determine "how web-based services…are currently aligning and integrating with children and young peoples' overall learning experiences and outcomes" (Nielsen/NetRatings, 2007, p.5; Wenmoth et al., 2007, p.1). Nielsen/NetRating's research concentrates on the impact that AnyQuestions has on student learning in order to provide "recommendations to help improve users' online experience and improve the overall effectiveness of [the] online application" (2007, p.6). For this reason the survey questions chosen for this study are closely aligned with those of the Nielsen/NetRatings questionnaire. Wenmoth et al. evaluate the link between the AnyQuestions programme and the curriculum.

2.1 Theories/ models

Several models, theories and frameworks have been developed to help researchers study information seeking behaviour. Wilson's popular nested model of information behaviour (Wilson, 1999, fig.11) creates a subset of information seeking behaviour within the larger context of information behaviour. Within this subset is an even smaller set, information search behaviour. Wilson's model is useful in isolating what is meant by information seeking behaviour in the context of this study.

Information literacy is a broader concept than information seeking. It is usually seen as a fluid process, a series of "linear stages involving 'recognising a need for information – choosing the best sources – accessing information - evaluating information – organising and storing information [and] communicating and using information" (Bawden & Robinson, 2009, p.187). Several models have been developed to help researchers understand information literacy including Eisenberg & Berkowitz's *Big6* (1990), Wray & Lewis's *Extending Interactions with Text* (1995), and Herring's *Purpose, Location, Use, Self-evaluation* (1996) models.

The model that most closely aligns with this study is Kuhlthau's Information Search Process model (ISP) (Kuhlthau, 1991). Although developed in the early 1990's, evaluation of the model in 2008 found that it still had "value as a research tool as well as for practical application" (Kuhlthau, Heinstrom & Ross, 2008, p.45).

The empirical model has been designed from a user's perspective and takes a holistic view that incorporates the affective, cognitive and physical aspects of each stage of the of the search process. The ISP model emphasises the feelings of uncertainty that Kuhlthau defines as "a cognitive state that commonly causes affective symptoms of anxiety and lack of confidence" (Kuhlthau, 1993, p.347).

Within this constructivist framework a six-stage process of information seeking behaviour has been established:

- *Task Initiation* – Recognising a lack in current knowledge and identifying a need for new information. This can involve uncertainty and apprehension. The task is often initiated with an imposed query;

- *Topic Selection* – Deciding on topic and approach. This is often accompanied by an optimistic readiness to proceed;

- *Prefocus Exploration* – Gathering of information and seeking a personal viewpoint;

- *Focus Formulation* – Evaluating the information gathered to form a focus. This focus results in a sense of clarity which is required in order to move on to next stage;

- *Information Collection* – Information is refined by the new sense of clarity that has been established. User is able to define their information need and desired outcome;

- *Search Closure* – Completing the information search, summarising and reporting (Kuhlthau, 2004, p.44-50).

Kuhlthau's model supports guided enquiry and conforms to Vygotsky's Zone of Proximal Development theory (ZPD). The ZPD acknowledges "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance" (Vygotsky, 1978, p.86). Information tasks are divided into those that can be accomplished independently in the lower limit zone and more complex tasks, requiring interaction with experts, in the upper limit zone.

2.2 Children and information literacy

Today's students are all 'digital natives'; those "born after the widespread introduction and adoption of digital technologies" (Miller & Bartlett, 2012, p.41). They are often regarded by adults as having superior web-search skills. Research has shown that this is not actually the case. "Digital natives are not necessarily skilled or critical consumers of digital information. Many are still novices when it comes to searching, selecting, and assessing the meaning and value of the information they find" (Metzger & Flanagin, 2008, p.155).

EU Kids Online, a multinational research network that seeks to clarify children's online risks and opportunities, found that 65% of the 9 -10 year olds they surveyed felt that they did not know more about searching for information on the internet than their parents (Livingstone, Haddon, Görzig, & Ólafsson, 2011 p.17). Despite this they receive little online guidance at home because statistically parents believe their children are more capable internet users than themselves (Miller & Bartlett, 2012, p.47).

Regardless of the methods or designs employed by researchers in the field of information seeking by young people, it has been consistently found that this generation behave very differently than older generations when seeking information online (Bilal, 2012; Miller & Bartlett, 2012; Gossen, Hobel, & Nurnberger, 2014; Nielson, 2010). They are "less confident about their searching prowess… [view] fewer pages, [visit] fewer domains and [undertake] fewer searches" (Nicholas et al., 2011, p.28).

Young internet users have issues with query modification as their "low capacity for abstraction makes it difficult for children to create their own queries" (Gossen et al., 2014, p.23). Children also have "poorer working memories and are less competent at multitasking" (Nicholas et al, 2011, p.28). They have been found to "suffer from a learned path bias" (Nielson, 2010, para.27) that will cause them to determinedly stick to a search approach that has been successful, even though successive attempts prove unsuccessful.

A recurring problem identified by the research is the heavy reliance students place on search engines such as Google when searching for information (Miller & Bartlett, 2012; Nesset, 2013; Nicholas et al., 2013; Zimmerman, 2012). Reliance on these general search engines can negatively affect a child's ability to locate quality information, as they do not have the preselected inventories of kids' sites and therefore in increase "the risk of irrelevant and/or inappropriate content" (Bilal & Beheshti, 2014, p.59).

Children are also more likely than adults to "rush" and " rely on point-and-click, first-up-on-Google answers" and this, "along with growing unwillingness to wrestle with nuances or uncertainties keeps the young especially stuck on the surface of the "information" age, too often sacrificing depth for breadth" (Nicholas et al, 2011 p.44).

While children are likely to pay "more attention to media elements such as pictures and video elements embedded in a search result than adults" (Gossen et al., 2014, p.23), they also have difficulty differentiating between commercial and informational websites and will often trust the first thing they see (Miller & Bartlett, 2012; Nesset, 2013; Nicholas et al., 2011). This can be an issue when using search engines such as Google which are designed for adults and as such leave children exposed to material they may not be able to read or comprehend, and which may contain inappropriate content (Nesset, 2013, p.104).

Miller and Bartlett's study found that on average, teachers rated their students digital fluency as poor and their "understanding differences in the quality of information, recognising bias or propaganda, visiting a variety of informational sources and applying source verification strategies" as below average (2012, p.50). Research conducted by Jochmann-Mannak (2014), Miller & Bartlett (2012), Nesset (2013) and Nicolas et al (2011), all found that young internet searchers lack the informed judgment necessary to use general search engines effectively or safely. With the quantity of material now available online, the "absence of gatekeepers who would be responsible for ensuring information quality" has "led to major concerns (Shenton, Pickard, & Johnson, 2014, p.308).

Jochmann-Mannak's finding that "searching proved to be much more effective and efficient than browsing the categories" (2014, p.178) demonstrates the importance of being able to search successfully. It has also been found that "pupils have little understanding of how information on the Internet should be found or dealt with" (Deursen, Görzig, van Delzen, Perik, & Stegeman, 2014, p.1355). This is something that educators need to be aware of if they want to avoid producing a generation of internet users reliant on browsing sites such as Google for the information they seek.

Research indicates that while there is a need to re-evaluate the information literacy tools available to students to help them navigate the online environment, education is crucial (Miller & Bartlett, 2012; Nesset, 2013; Nicholas et al., 2011; Nielsen/NetRatings, 2007; Wenmoth et al., 2007). Students need guidance if they are to become information literate and "information professionals are of critical importance in helping pupils to exploit the increasingly prevalent virtual learning environments" (Shenton & Hay-Gibson, 2011, p.70). This is why services such as AnyQuestions must be used effectively, and students provided with guidance on how to achieve the best possible outcomes.

2.3 AnyQuestions.co.nz

In their 2007 reports to the Ministry of Education, both Nielsen/NetRatings and Wenmoth et al. found that AnyQuestions was not meeting its "full potential in supporting the development of information literacy to the user base" (Nielsen/NetRatings, 2007, p.3). The three largest contributing factors cited were lack of computer access (Nielsen/NetRatings, 2007, p.9; Wenmoth et al., 2007, p.44), service delivery (Nielsen/NetRatings, 2007, p.4; Wenmoth et al., 2007, p.45) and promotion (Nielsen/NetRatings, 2007, p.4; Wenmoth et al., 2007, p.44).

Issues with computer access were seen as a socioeconomic problem with the poorer schools and pupils placed at a distinct disadvantage. In New Zealand decile ratings are used to measure the "socio-economic position of a school's student community relative to other schools throughout the country" (Ministry of Education, 2015, para.4).

Recent changes in government funding to schools has seen low decile schools receive Information and Communications Technology (ICT) funding to pay for computer hardware

and software. This has seen the student/computer ratio across deciles stabilise (Research New Zealand, 2014, p.91). There is still an issue with less home-based access to the internet available among the lower socio-economic groups. 85% of students from decile 7-10 schools are expected to have internet access from home as compared to 15% of students from decile 1-3 schools (p.6).

Recommendations for improvement include offering better operator training and support (Nielsen/NetRatings, 2007, p.4) and paying more attention to teaching the skills that children need instead of providing direct answers (Wenmoth et al., 2007, p.45). A possible reason given for low satisfaction levels amongst participants was a lack of communication between the service and the schools that use it. It appears that both teachers and principals were often unaware of what the service has to offer (p.44) and it was "viewed by ¾ of educators as a study/assignment help desk" (Nielsen/NetRatings, 2007, p.4).

Despite recommendations for improvement, Wenmoth et al.'s report evaluating the web-based learning services available to young people in New Zealand was largely positive and "highlighted the potential for AnyQuestions to be regarded as having an important role in the 'locating information' stage of the inquiry process" (2007, p.38).

2.4 Conclusions

This literature review indicates that there is a need for young people to be guided by information professionals and educators on their path to information literacy. A clear difference is established between being internet capable, and being information literate. The main obstacle for the younger internet user is their inability to evaluate the material that they access.

The dominance of huge search engines such as Google is problematic as they are not designed for children. Young students have trouble evaluating the material that they find on these sites and can mistake commercially biased or unreliable information for fact. Various cyber safety concerns are associated with these sites, with children being exposed to the dangers of inappropriate content.

Research suggests that services such as AnyQuestions can have a positive influence in teaching quality search strategy in schools. This is a view validated by this study. "In today's world, digital fluency must be put at the heart of education, and toward this end those with a stake in information will play a key, perhaps decisive, role"(Miller & Bartlett, 2012, p.52).

3.0 Research design

3.1 Study objectives

This study evaluates whether AnyQuestions is having any effect on the search strategies employed by children at selected New Zealand schools. The literature indicates that an improvement in information seeking behaviour will result in improved information literacy. This research project assesses the impact that AnyQuestions (independent variable) has on the Information literacy of a selected group of school students (dependant variable).

3.2 Research questions and hypotheses

Specific research questions are as follows:

- Do students understand the role of AnyQuestions as an information literacy tool, rather than an answer service?
- Do students consider AnyQuestions a useful service?
- Do students perceive improvements to their information literacy skills as a result of using AnyQuestions?

Research hypothesis:

AnyQuestions.co.nz will have a positive effect on the information literacy of primary and intermediate school children, by successfully teaching them quality search strategies.

- If the hypotheses is supported it will indicate that the Ministry should continue to grow the programme as it is a useful educational tool in teaching information literacy to New Zealand children.
- If the hypothesis is not supported it will indicate that that the programme needs re-evaluation. The AnyQuestions coordinators will have reason to reassess content and delivery of the service and reconsider future practice.

3.3 Methodology

Both quantitative and qualitative research methods have been used to good effect in the study of children's information seeking behaviour. Miller & Bartlett used the quantitative method in a poll of teachers designed to discover their "views on their pupils' ability to critically engage with online information" (2012, p.36). Nicholas et al. also used it in a televised practical experiment in order to discover the search strategy variants in the different age groups tested (2011 p.28).

The qualitative method allows the researcher to observe the participants and put their responses into context. This can be especially useful when dealing with children as it reduces the risk of erroneous data being obtained due to a lack of understanding of the question on the part of the participant. This method was used successfully by Nesset (2014) to validate the BAT information literacy model she had developed.

Where resources permit, mixed-method research is a good option. Jochmann-Mannak's (2014) research used concurrent mixed methods design involving both exploratory (analysis of data and observation) and empirical (experiment) elements. Two independent, but complementary studies using the two methodologies is also an effective research technique. This was the approach taken by the Ministry of Education in when they commissioned the two independent reports on AnyQuestions in 2007.

This project has employed quantitative research, using data obtained from a survey of the representational group; students aged 9-13 who use, or have used, AnyQuestions. As the participants were school aged children, accuracy of results was maximised by using clarity and simplicity in the choice of survey questions and design.

The research completed by Nielsen/NetRatings in 2007 provides a framework for the study, and Kuhlthau's ISP model of search behaviour a theoretical reference. Comparison with results from AnyQuestions operator performance ratings will provide some validation of findings.

3.4 Methods of data analysis

3.4.1 Data collection

Data has been collected from a convenience sample of students aged 9- 13 years that have used AnyQuestions. Due to difficulty identifying these students individually, they were accessed through their schools. Teachers, librarians, or school administrators facilitated the collection of responses. 167 surveys were requested and sent as hard-copies to the selected schools along with information sheets that explained the study's rationale, the process used, and the protections put in place to ensure the privacy of the participants' responses. Of the 167, 107 completed surveys were returned. These have provided the final sample from which results have been calculated.

This method of data collection was selected over electronic survey methods for several reasons. While electronic collection is a cheaper option and often results in a faster response time, the response rate is usually lower (Hohwü, Lyshol, Gissler, Jonsson, Petzold & Obel, 2013, para.8). In this instance the optimum result would be a high response rate from all the schools approached. An electronic format also provides issues with the limited internet access available in classrooms. Providing all participants time to access an electronic survey may have proven problematic and/or inconvenient for schools, resulting in fewer responses.

Conducting surveys with children is more challenging than it is with adults. It has been found that for them "responding clearly and consistently is more challenging – ambiguities are enhanced, satisficing is more likely, and responses are more sensitive to cognitive burden" (Smith & Platt, 2013, p.13). A pilot test was conducted to ensure that the questions being asked were unambiguous, easily understood and did not cause confusion.

The test sample consisted of ten school children, aged 9-11 years who attended a school local to the researcher. The children were given a week's notice before being asked to fill out their questionnaires independently, but in the presence of the researcher. Those who were unfamiliar with AnyQuestions were encouraged to try out the service in the intervening week. They were also asked to briefly familiarise themselves with the ManyAnswers and Research Tips sections of the site.

As this was a test sample only and not part of the research sample the answers themselves were not important, rather that the questions made sense and that they were interpreted correctly. Interviews were then conducted to ensure that this was the case. As the questionnaire's design was based on an earlier study, the questions themselves seemed to pose no problem for the children involved. It was found however that the children did not always equate the use of "usually" in a question as requiring a single response and they would often check multiple answers. To eliminate this problem an additional prompt was added to each statement clarifying whether one or multiple responses were required.

3.4.2 Sample composition

The sample was taken from primary and intermediate schools throughout New Zealand who were known to be high users of AnyQuestions.co.nz. A spreadsheet of high users in 2014 was provided by the National Library and this list was used as a reference when approaching schools. Only co-ed schools were included in order to reduce the risk of a gender bias. Twenty schools around the country were approached with a request to participate in this study. Of those twenty, five agreed to be involved.

Participants range in age from 9 to 13 years and are able to read and write independently. Nine years is the earliest age at which children can be expected to "answer well-designed questions with some consistency" (de Leeuw, 2011, p.7) and therefore younger children have been excluded from the survey.

Participating schools will remain confidential and students anonymous. The surveys allow students to be grouped according to sex, age, and school (to measure decile rating) in order to evaluate any impact that these factors may have on results. No personal information has been sought. The sample consists of 107 respondents, including 61 females (57%) and 46 males (43%). The age distribution can be seen in Tale 1.

The schools identified as high users of AnyQuestions were predominantly from the higher decile zones around the country. Of the five participant schools, only one is rated decile 7, while the remaining four are ranked in the highest 20% of the country at decile 9 or 10. Low decile schools were underrepresented in the high-use spreadsheet used to select schools. The lower decile schools that were approached failed to respond to requests for inclusion in this study. Despite increased internet access in low decile schools, the user base continues to be disproportionately biased toward students from high socio-economic backgrounds.

3.4.3 Ethical considerations

Formal ethics approval for this study was granted by the Victoria University of Wellington Human Ethics Committee. Although the AnyQuestions coordinators supplied the names of the schools that use the site most frequently, prior approval from the school authorities was also required. Operator competency data was provided by the National Library.

All information supplied by AnyQuestions was released on the proviso that;
- AnyQuestions.co.nz receive and are allowed to use the research and/or findings at the end of the project,
- All student and operator information and identifying details obtained through the AnyQuestions chat process are treated as strictly confidential (personal communication, July 14, 2014)

3.3.4 Approach to data analysis

Many of the questions in the survey were designed to collect ordinal data that could be coded using a Likert scale. Research suggests that providing closed questions with a defined frequency response where appropriate is the best alternative in survey design (Smith, &

Platt, 2013, p.11). Questionnaires present statements to which the respondents are required to answer using a three to four-point scale. This is a very simple version of the scale and was also used by Nielsen/NetRatings in their 2007 survey. While the previous study used a three-point scale, this one uses to the four-point scale where applicable as it has since been found that "offering about four response options is optimal with children as respondents" (Tourangeau, Edwards, Johnson, Wolter, & Bates, 2014, p.328).

The Nielsen/NetRatings survey has provided the framework for the questionnaire used in this study. Questions focus on satisfaction with AnyQuestions transaction and learning outcomes from interactions with AnyQuestions operators. Analysis of the quantitative data collected from the survey will be used in conjunction with operator competency data already analysed by the Ministry of Education. The operator competencies are rated on a scale that is intended to indicate whether AnyQuestions operators are meeting targets designed to promote information literacy.

4.0   Kuhlthau's model in practice

AnyQuestions operators are given training and provided with reference standard guidelines which are regularly updated, and to which they are expected to adhere. These standards are used as measures against which operators are assessed annually. The standards cover:

- Approachability,
- Unpacking (reference interview),
- Engagement in search,
- Searching,
- Follow-up and Customer Satisfaction, and
- Standard Procedures. (AnyQuestions NZ, 2015a[4]).

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[4] Source originates from AnyQuestions operator blog and may be inaccessible to the reader

Operators are provided with a guide sheet which encourages them to follow set steps that help ensure best practice (AnyQuestions NZ, 2015c[5]). Following these guidelines throughout every chat should increase the probability of a successful search outcome. Time constraints and the expectations of the student initiating the chat will also have an effect on the operator's ability to complete all of these steps.

The AnyQuestions reference standards fit well with Kuhlthau's ISP model and uncertainty principle. The role of the operator is to reduce the uncertainty felt by the searcher and to help them find clarity and a more defined focus for their search. The operator is able to do this by helping the student define their search and to then assist them in developing suitable key word searches to use in appropriate databases or websites. According to the ISP model, the clarity of ideas discovered during the search process will led to confidence in future search behaviour, which in turn will have a positive effect on information literacy.

Kuhlthau's model most obviously aligns with queries initiated by students working on projects or assignments, but is still relevant when discussing even the briefest of queries, provided that the student has been guided in their search and not led. Students may enter or quit a chat at any stage of the ISP. While AnyQuestions Reference Standards are designed to be applied to every chat, below is an example of how well they align to the complete search process.

> **Stage 1: Task Initiation**
> - *Query* - Student will often have no clear idea of what information they actually require to fulfil what is often an imposed query. They might directly quote an assignment question.
> - *Operator intervention* - High level of uncertainty requires careful unpacking of questions.
>   - Reference Standards: Approachability, Unpacking.
> - *Successful resolution* - Student understands what is being asked and can begin looking for appropriate information to select a topic.

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[5] Source originates from AnyQuestions operator blog and may be inaccessible to the reader

Stage 2: Topic Selection

- *Query* - Students are seeking help that will enable them to find enough information to select a topic.
- *Operator intervention* - Help finding suitable resources that will give them enough information to narrow their choices. Guidance in selecting a quality key word search.
    - Reference Standards: Engagement in search, Searching.
- *Successful resolution* – Student has found enough general information to select a topic.

Stage 3: Prefocus Exploration

- *Query* - Student is looking for a point of view from which to study their topic.
- *Operator intervention* - Professional guidance can expedite the confusion of negotiating the internet to find relevant websites and a more focused key word search.
    - Reference Standards: Engagement in search, Searching.
- *Successful resolution*- Student is armed with enough information and sources to feel confident going forward.

Stage 4: Focus Formulation

- *Query* – Student is looking to refine their search to fill gaps in their current knowledge.
- *Operator intervention* – Student might require help in recognising what is missing from their search. Refinement of search terms
    - Reference Standards: Engagement in search, Searching, Follow-up & Customer Satisfaction
- *Successful resolution* – Gaps in information need are filled.

Stage 5: Information Collection

- *Query* - Student knows exactly what information they require. They may have been unable to locate it but are confident that the information they seek is available to support their focus.
- *Operator intervention* – Check existing knowledge and introduce new resources.
  - Reference Standards: Engagement in search, Searching.
- *Successful resolution* – Student is equipped for search closure.

As these chats are often taking place at school, it is unlikely that all of these stages can be negotiated in a single session. Unless the information query is of the most rudimentary nature the session need not result in an 'answer' to be judged successful. Assisting students to negotiate the search process effectively is the core objective of AnyQuestions.

5.0   Results

Please note that only percentage figures are available for the 2007 Neilsen/NetRatings survey.

5.1 AnyQuestions user base

The 2007 Nielsen/NetRatings survey found that the AnyQuestions user base was predominantly students with greater than average access to the internet, who were confident and competent in their academic ability and were able to actively engage in their own study processes. Lack of computer access available during class time was cited as the likely reason for this. The majority of use was occurring outside classroom hours and thereby attracting only the self-motivated students (Nielsen/NetRatings, 2007, p.3).

By 2014 the average New Zealand school had a ratio of one school owned computer to every 3 students and computer access by school decile had stabilised (Research New Zealand, 2014, p.91). Socio-economic influences do still effect internet access from home, with less availably amongst the lower socio-economic demographic. While this has the potential to affect the uptake of AnyQuestions among this group, only 19 of the 107 2015 respondents (18%) usually accessed AnyQuestions from home, so it is unlikely to have had the same negative impact on that demographic as it did in 2007.

Nielsen/NetRatings (2007) found that the majority of AnyQuestions users perceived themselves to be doing either 'really well' (47%) or 'well' (38%) in most things. While the majority of users in 2015 still perceive themselves to be academically confident, Figure I shows that the spread is now slightly broader with the 41 students evaluating themselves to be doing 'really well' (38%), outnumbered by the 52 doing 'well' (49%). The current study shows that those students struggling academically are still slow on the uptake of the service with only a small minority of respondents claiming to find some things (12) or most things (2) difficult. This represents only 13% of the sample. It is unfortunate that students who are underperforming academically, and could benefit significantly from the uptake of this service, still appear to be underrepresented.
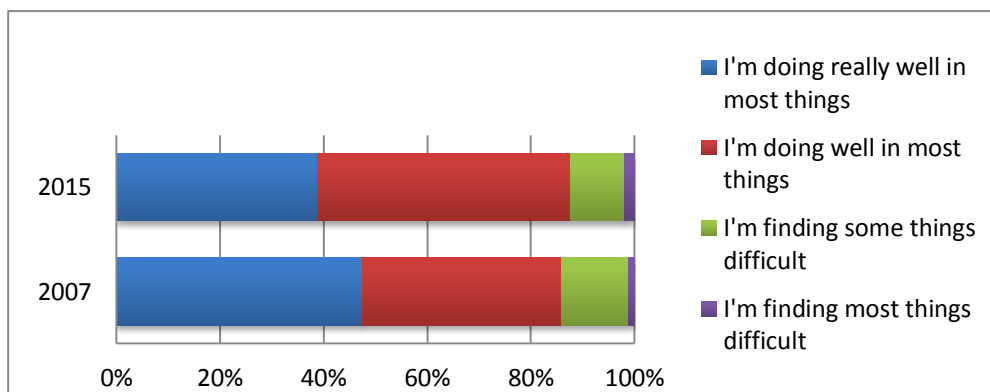

Figure 2. Comparison of student self-evaluation of academic performance 2007 & 2015.

In 2007 a gender bias was identified with boys significantly less likely than girls to use the site in a public place like the classroom, preferring the privacy of the school library at lunchtime (Nielsen/NetRatings, 2007, p.20). As can be seen in Table 2 this bias has disappeared from the modern learning environment.

There is still a clear difference in overall use between the sexes. As Table 3 shows, boys are far less likely to use the service on a regular basis than girls, with only half of those surveyed (23/46) using it more than once a month compared to 80% (49/61) of girls. Of the 28 respondents using the service at least once a week, only 5 of them were male. A tendency for males to give neutral ratings over complete satisfaction more frequently than their female counterparts was also found.

5.2 The role of AnyQuestions

In 2007 slightly more awareness of the AnyQuestions was generated by circulating stickers or bookmarks (25%) than by teachers (24%). Only 38% of the students using the service had initially heard about it from a school representative (Nielsen/NetRatings, 2007, p.22). By 2015, 80% of users (86/107) were being introduced to AnyQuestions by someone at their school. This study has also found that the amount of students most frequently using AnyQuestions at school had increased significantly from 41% in 2007, to 78% (83/107) by 2015.

The perception of AnyQuestions as a learning tool rather than an answer service appears to have increased substantially among users. Findings show that while respondents in both studies were equally happy that they had received the answers they needed (59% in both years) the latest sample were considerably more satisfied with the service overall, increasing from 58% satisfaction in 2007 to 95% (102/107) by 2015 with only 5 neutral and no negative responses (see Figure 2).
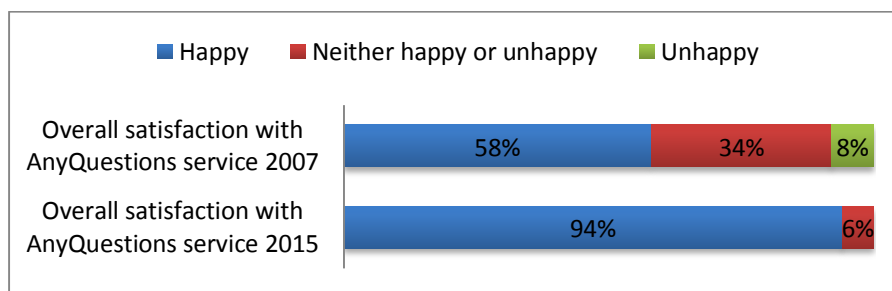
Figure 3. Comparison of overall satisfaction with AnyQuestions.co.nz in 2007 and 2015.

Another indication of this perceptual shift can be seen in the reasons students choose to visit the site. Respondents were able to choose as many reasons for visiting the site as they felt applicable and yet only 32 of the 107 students claimed to use the site to "get answers" (see Figure 3). The most common reason given for visiting the site was because students had "got stuck searching the internet" (58). Other popular reasons cited for visiting AnyQuestions were "to get homework/project ideas" (47) and because they "wanted to know more about something" (42).

Figure 3 also highlights noticeable differences in the reasons chosen to use AnyQuestions by gender. Boys were more likely to use AnyQuestions as part of a class lesson or out of curiosity, while girls appear to be more inclined to use it as a study resource.
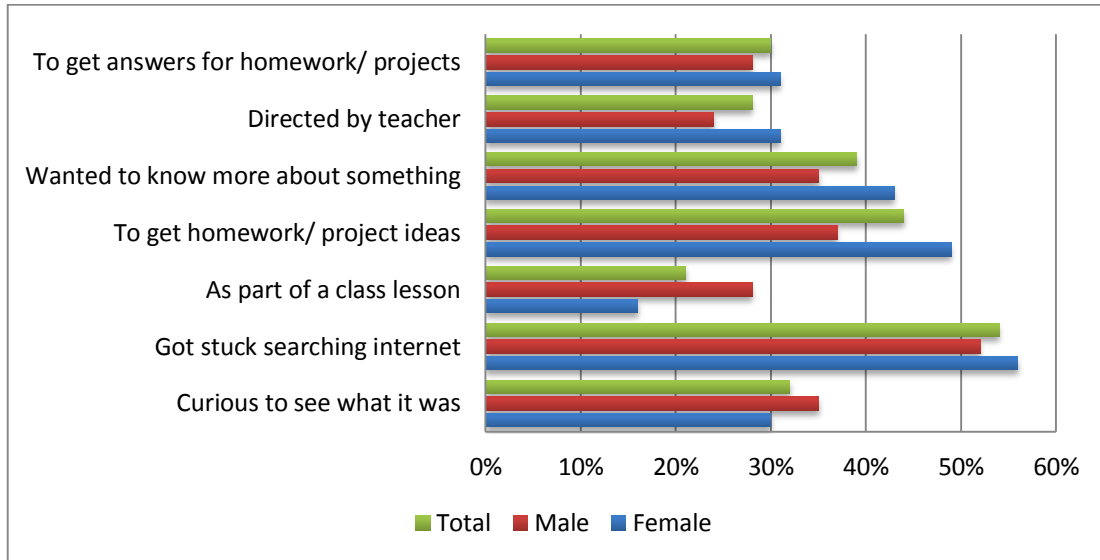

Figure 4. Comparison of reasons given for using AnyQuestions.co.nz by gender. Sample size 107.

5.3 Is AnyQuestions useful?

Results indicate a high level of satisfaction in most aspects of the AnyQuestions service by its users (see Figure 4). While most aspects of the site rated well, ManyAnswers achieved the lowest satisfaction levels with only 71% (40/56) of those who had visited the resource (56/107) claiming satisfaction. ManyAnswers is a website designed to help students find answers to the questions most frequently asked on AnyQuestions. It contains various links to further information and information sources. It was found to be underutilised with almost half of those surveyed (51) unfamiliar with it.

Only 14 respondents had not visited the research tips section, and of those that had, the large majority (79/93) were happy with the help provided there. The lower ratings, given to both ManyAnswers and Research Tips, is not reflected in the high ratings awarded to AnyQuestions overall.
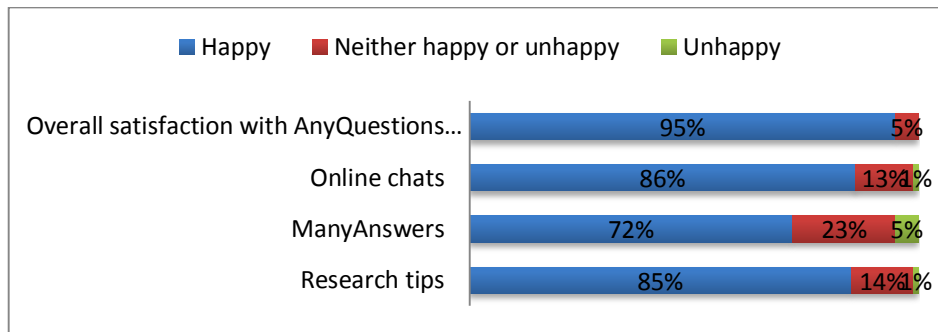
Figure 5. Satisfaction with different components of AnyQuestions.co.nz.

In 2007 poor satisfaction ratings for the AnyQuestions chat process led Neilsen/NetRatings to recommend that operators be "armed with all the training and support materials they need to guide sometimes reluctant students through the journey" (Neilsen/NetRatings, 2007, p.4). The results of this survey would indicate that adhesion to updated reference standards and better training have gone some way to addressing this key failing.

In both studies, students were asked questions about the chat process concerning ease of use, friendliness, helpfulness and the level of interest shown by the operators. This required an emotive response. Figure 5 shows a positive increase in satisfaction in all of these areas. The most marked shift has been the increase from 27% to 86% (92/107) satisfaction in the interest levels shown by operators toward the students' questions.

The 2015 survey also asked students to rate their overall chat experience. This resulted in an 86% positive response rate (92/107). Of the remaining 15 students, 14 answered neutrally and 1 was unhappy with their chat experience. It is interesting to note that although friendliness rated highly at 95% satisfaction (102/107) with no negative responses given (see Figure 5), this was not reflected in satisfaction ratings for the overall chat process.
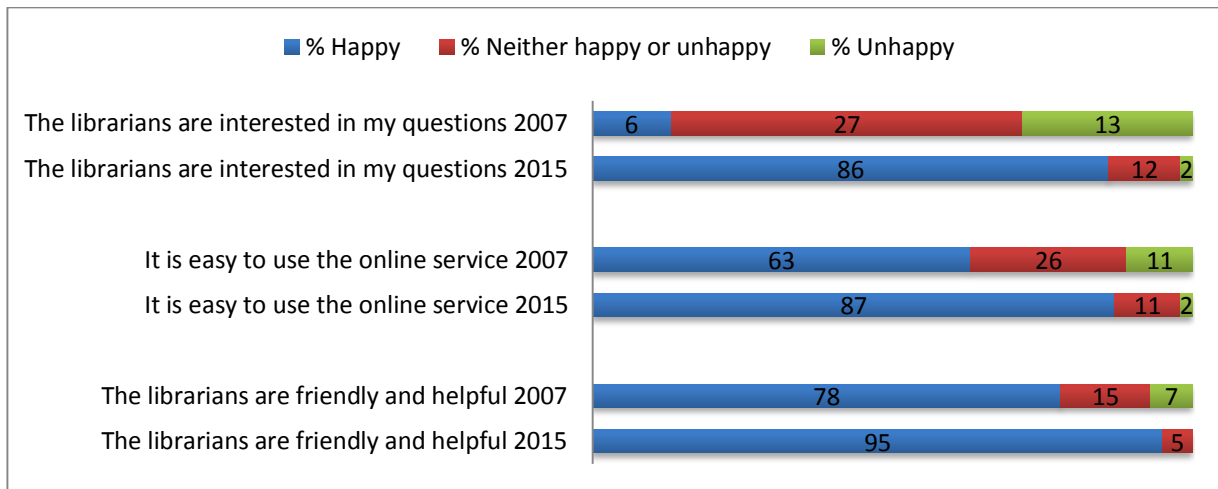
Figure 6. Comparison of satisfaction with chat process 2007 & 2015.

5.4 Student perception and information literacy skills

Operator effectiveness (as rated against reference guideline standards) has seen a sharp increase since 2009. The percentages of operators that received a rating of 'highly effective' rose from 14% to 82% between 2009 and 2014. There has also been significant improvement in searching, follow up and adherence to standard procedures demonstrated by AnyQuestions operators during the last two review periods (AnyQuestions NZ, 2015d[6]).

These improvements are the result of operators following best practice to develop the information literacy skills of the students that they interact with. As the findings of this study indicate, students do perceive an improvement in their information literacy skills that may be attributable to increased operator competency. It is important to note that operator competency scores do not reflect whether students found the answers to their queries, it is the "positive or negative impact of the interaction on the customer" (AnyQuestions NZ, 2015d, para.2[7]) that decides the final rating.

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[6] Source originates from AnyQuestions operator blog and may be inaccessible to the reader
[7] Source originates from AnyQuestions operator blog and may be inaccessible to the reader
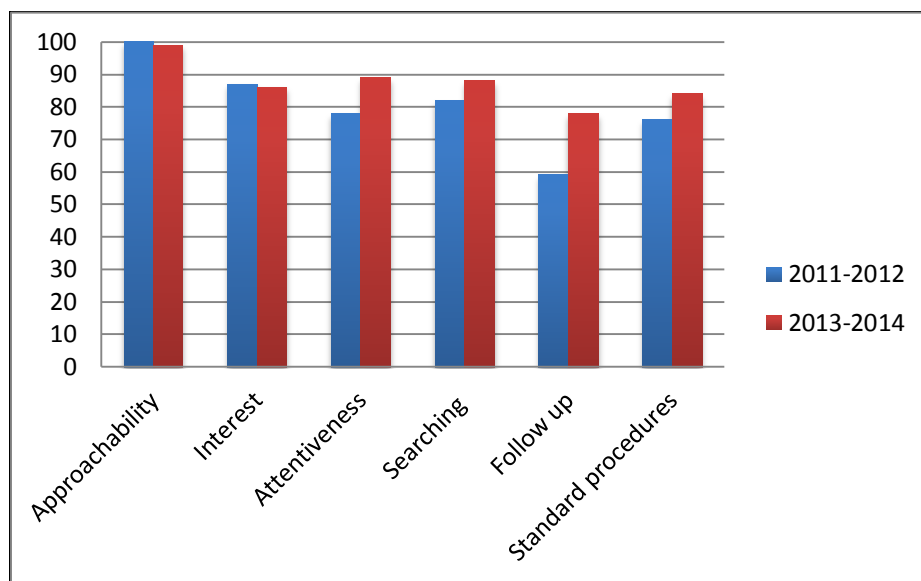
Figure 7. AnyQuestions operators average scores from transcript review data 2001-2014. Obtained from AnyQuestions coaches reports. Reprinted with permission.

Results show substantial improvements in perceived outcomes from using AnyQuestions since 2007, with only 5 respondents perceiving no value in their use of AnyQuestions, compared to 19% in the earlier study (see Figure 7). The biggest improvements in 2015 were:

- Learning how to choose good search words (doubled to 34%);
- Learning how to search for information independently (increased from 22% to 39%);
- Getting links to useful websites (increased from 31% to 54%) and
- Finding out about new sites and resources (increased from 33% to 53%).

It is encouraging to see that the 102 respondents who identified an improvement to their learning as a result of using AnyQuestions checked a total of 297 boxes when asked to identify learning outcomes. That equates to almost 3 responses per student.

In 2009 a poll was conducted which asked AnyQuestions users to agree or disagree with the statement "I learned how to better understand homework and assignment questions". 58% of respondents agreed with the statement. This statement was included as a 'perceived outcome' option in this survey, receiving only 20 responses (19%). While discrepancies may be the result of having more choice, it could also be the result of a growing awareness of the core benefits offered by AnyQuestions.
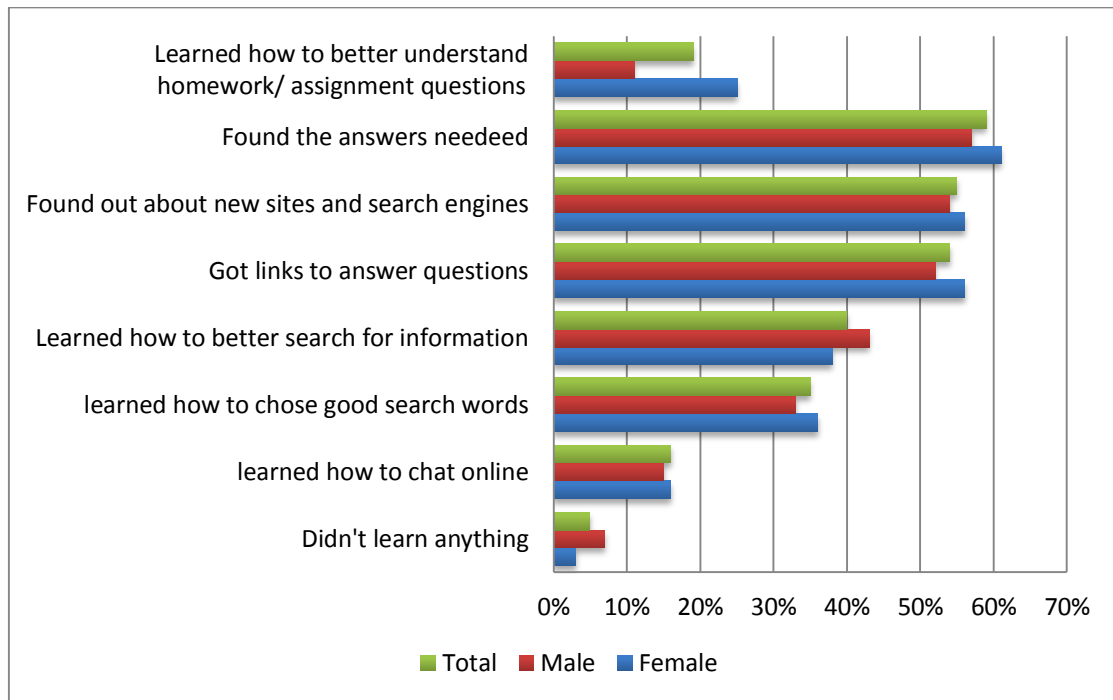
Figure 8. Students perceived outcomes from using AnyQuestions.co.nz.

These figures reflect a growth in the success of the service in meeting its key objective of teaching information literacy skills, rather than providing a standard information service, but there is still room for improvement.

6.0   Discussion

6.1 The role of AnyQuestions

The Nielsen/NetRatings report established that the students' perception of AnyQuestions in 2007 was as an 'answer' service rather a service to provide learning and research assistance. It was suggested that this may have been the cause of low satisfaction ratings given to operators for their "helpfulness". Recommendations were made that this be addressed and become a "communication goal of the site and operators going forward" (Nielsen/NetRatings, 2007, p.17).

This inability to properly convey the key purpose of AnyQuestions may have been the result of schools being unmotivated to introduce the service to their students. Lack of computer access in schools and slow internet connections may have reduced the viability of promoting the service in schools. In 2007 access to AnyQuestions was most commonly from home, with the user base having a slightly greater access to internet at home than the general youth population of New Zealand (Nielsen/NetRatings, 2007, p.21).

Use of AnyQuestions at school has increased significantly in the last eight years with 83 of the 107 users now most often accessing the service from their school. Increased access to fast internet, and promotion by the National Library, including hands on training sessions with classrooms and real-time operators, are possible contributors to this increase.

In order to properly convey any message, delivery is important. Improvements have clearly been made in this area since the last user survey. A positive shift can be seen in student understanding of the role AnyQuestions plays as a service designed to improve information search skills, and so increase information literacy. This is confirmed by a substantial increase in overall user satisfaction, from 58% in 2007 to 95% (102/107) in 2015, despite the amount of students claiming to get answers to their questions remaining constant at 59% (63 responses in 2015). While users in the 2007 survey appear to equate receiving an answer to their overall satisfaction with the service, results of the 2015 survey indicates awareness that this is not the primary aim of the service.

This positive shift in student understanding of the role AnyQuestions can play in increasing information literacy may be attributed to the higher amount of students being introduced to AnyQuestions by a school representative. This substantial increase, from 38% in 2007 to 80% (86/107) in 2015, is likely to have been a key influence in students' perceptual shift away from seeing AnyQuestions as an "answer service" and towards recognising it as a literacy tool. Teachers are in an ideal position to manage student expectations and send the correct message about the core purpose and benefits of AnyQuestions. The fact that only 32 of the 107 of the users sampled cited "to get answers" as one of their reasons for visiting the site is a further indication of this perceptual shift.

6.2 Is AnyQuestions useful?

Although the internet is undoubtedly a valuable academic tool, research has shown that children can struggle to find quality information when searching the internet independently (Gossen, Hobel & Nurnberg, 2010; Miller & Bartlett, 2012; Nicholas et al., 2013; Zimmerman, 2012) and are prone a "learned path bias" (Nielson, 2011, para.27). The fact that 54% (58/107) of the students surveyed cited getting "stuck searching the internet" as a reason for visiting the site makes it clear that children recognise this need for guidance.

The disinterest users showed in using the ManyAnswers section of the site was interesting. It suggests that young students may prefer an individually tailored chat over the more general search offered by ManyAnswers. This would fit with Kuhlthau's guided inquiry model that that proposes that it is uncertainty that initiates an information search, and that guided inquiry is the best way to negotiate the ISP (Kuhlthau, Maniotes & Caspari, 2007, p.2).

The lack of awareness of ManyAnswers site is unexpected when results show that that the clear majority of users were introduced to AnyQuestions by a school teacher, school librarian or other school staff member who should be in a position to recognise its potential value as a study tool. It is unknown whether the 28% of users (16/56) who remained neutral or were unhappy with the service had negotiated the site independently or with guidance, and whether those introducing the students to AnyQuestions were made fully aware of the value of ManyAnswers. AnyQuestions operators are encouraged to use ManyAnswers as primary resource, so it is possible that some of those participants who were unaware of ManyAnswers had been directed to the site during a chat session but did not recognise it by name.

The fact that the lower ratings given to ManyAnswers and Research Tips are not reflected in the overall ratings for AnyQuestions suggests that they are not seen as core features of the service. The value of ManyAnswers as an independent information resource, especially outside of AnyQuestions' operating hours of 1-6pm, needs to be more actively promoted.

Girls were found to be more self-motivated in their approach to using AnyQuestions, and to be more frequent users of the service than boys. They tended to use the service to get

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ongoing help with homework and projects. Boys were more likely than girls to use the service as part of a class lesson and then remain a low frequency user.

Despite this, boys identified the same gains from using the service (see Figure 7). This would suggest that the site is considered useful even if it is not visited regularly and therefore low-frequency use may more closely represent student motivation than perceived value.

There have been vast improvements since 2007 in the way users view the chat process. Results show that ease of use, and the interest levels of the librarian operators, is considered more important by users than general attributes such as friendliness (see Figure 5). It would appear that users prioritise the aspects of the chat process that help them achieve their goal.

While most respondents were happy with the 'chat' component of AnyQuestions (92/107), it should be noted that one third of those students finding some things challenging academically were either neutral or unhappy with its ease of use (see Table 4). This could be affecting the uptake of the service among less confident students.

 AnyQuestions is receiving good levels of regular use, with 26% of respondents (28/107) initiating a chat once a week or more (see Table 3). In 2007 less than half of those surveyed were accessing the service more than once a month. By 2015 this figure was up to 67% (72/107). These results indicate that there has been an increase in student perception of the value of AnyQuestions to build search confidence.

When referring to the search process, Kuhlthau claims that "the affective experience of the user is likely to have a profound effect on the process of construction" (2004, p.25). Improved operator training and the development of transcript processes by the AnyQuestions' coordinators at the National Library clearly show this link. In 2007 only 6% of respondents were happy with the level of interest shown by operators in their questions. The jump to 86% (92/107) in 2015 would indicate that students appreciate the changes in operator responses and that it is having a positive effect on user experience (see Figure 5).

6.3 Student perception and information literacy skills

The majority of respondents in the current study reported an increase in their search skills as a direct result of using the AnyQuestions service, with only 5 of the sample perceiving no benefit from their use of the site.

Teaching students how use the internet to find the information they need, by formulating quality search strings and locating reliable sources, is the goal of AnyQuestions. Results of this survey verify that it has achieved some success in achieving its goal. More than half of those surveyed found new sites, search engines, and information and/or got links to help them find the information they needed as a direct result of using AnyQuestions. A further 40% (43/107) felt that the service had helped them learn to search for information independently, while 35% (37/107) recognised an improvement in their ability to develop a good key word search (see Figure 3).

The students surveyed showed awareness in the value of AnyQuestions, with most identifying multiple benefits from their use of the service. It is possible that the question "as a result of using AnyQuestions I have learned…" was not always answered in full, with some of the young students possibly unaware that multiple answers were permitted. This was a problem identified in the survey pilot, and although a prompt was added to every question stating how many answers were permitted, the large quantity of responses (43/107) choosing only one option for this question suggests that a response error may have occurred which would negatively impact results. No pattern could be established from the single responses given.

While there is still some way to go before AnyQuestions.co.nz can be said to have reached its full potential, it has improved greatly since 2007 and can be seen to be achieving its objective of teaching good search strategy and so increasing information literacy among young New Zealand students.

7.0 Conclusions

In 2007 two reports were commissioned by the New Zealand Ministry of Education (Nielsen/NetRatings, 2007; Wenmoth et al., 2007) to evaluate the success of AnyQuestions as an information literacy tool. Both of these reports made several recommendations that specifically addressed the lack of awareness that then existed for what AnyQuestions had to offer young learners. Results of this study indicate that many of these recommendations have been addressed and improvements made. As a result the service has seen an increase in popularity with higher rates of user satisfaction.

Development of the chat protocol and processes used by AnyQuestions operators appears to have had a positive impact on the service by making the chat process more user-friendly. Chats now more closely resemble the guided inquiry model endorsed by Kuhlthau, Maniotes & Caspari (2007) than a reference service.

Results show a clear perceptual shift away from viewing AnyQuestions as an answer service and toward recognition of the value it can offer in improving search skills and therefore information literacy. Although getting answers is still important to users, they seem aware that it is not the role of the chat operator to provide direct answers. Findings show that students no longer equate being given an answer to their query, to satisfaction in the service as a whole.

Survey responses indicate that students are conscious of the fact that interaction with AnyQuestions has resulted in improvements to their search behaviour. These improvements include an increased awareness of information sources and how to use them, and the development of independent search skills.

Despite the limitations imposed by the small scope of this project, results are consistent enough to conclude that AnyQuestions' users understand its role as an information literacy tool, find it to be a useful resource, and can perceive improvements in their information literacy skills as a result of using the service. There is also enough evidence to support the research hypotheses that AnyQuestions does have a positive effect on the information literacy of primary and intermediate school children, by successfully teaching them quality

search strategies. The Ministry of Education should continue to grow the programme as it is a useful educational tool in teaching information literacy to New Zealand school children.

8.0 Suggestions for future research

It is recommended that Qualitative data, in the form of follow-up interviews be collected from both students and teachers to add depth to the findings. Detailed triangulation of these results with evaluations of chat transcripts as held by the Ministry of Education may also reveal valuable insights into how to improve the service.

While findings indicate that AnyQuestions is a useful information literacy tool and that expansion into more schools around the country is warranted, there is room for research into why certain demographics are underrepresented among the user group. It has been acknowledged that a socio-economic bias may be present in the sample used for this study, but it does appear that a disproportionate amount of the overall users of AnyQuestions attend schools with higher than average decile rankings. Despite increased internet access in low decile schools, a bias still exists against students attending those schools.

There is also a low representation of those students who are underachieving academically. This sample included only two from this category, but as this was self-evaluated it is hard to determine if this is a true representation. Further research would be beneficial to establish the reason for this low uptake and to find methods to increase participation among this sector.

AnyQuestions is currently reaching a gender neutral user base, yet those going on to become high users of the service are predominantly girls. The service would benefit from research to establish the cause. While these results may simply reflect the fact that girls, for various reasons, have been found to report higher levels of engagement in school than boys (Lam, Jimerson , Kikas, Cefai, Veiga, Nelson, Hatzichristou, Polychroni, Basnett, Duck, Farrell, Liu, Negovan, Shin, Stanculescu, Wong, Yang & Zollneritsch, 2012; Hartley & Sutton, 2013), making the service more appealing to boys would have long term benefits.

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10.0   Appendices

10.1 Appendix A: Participant Information sheet

Research Project Title: **AnyQuestions.co.nz and information literacy**

Researcher: **Helen Kerrigan, School of Information Management, Victoria University of Wellington**

My research titled *AnyQuestions.co.nz and information literacy revisited* is focused on understanding the influence that the Ministry of Education's AnyQuestions programme is having on student's learning. AnyQuestions is a valuable tool for students beginning to develop the research skills that will benefit them throughout their academic life. It is important that the service continue to develop and research like this is fundamental to that goal.

[name of school] has been identified as a high user of the service. Participation in this research is voluntary and students may refuse to participate without consequence.

Participation will require the completion of a short multi-choice questionnaire. Eligible participants are any students that have logged on to AnyQuestions.co.nz. The survey should take no more than 10 minutes to complete. Student surveys will be anonymous, with no data collected that will personally identify the respondent. The names of the schools involved will remain confidential. Participants will have until the 3rd July 2015 to complete the survey.

Victoria University requires, and has granted, approval from the School's Human Ethics Committee. Collected data will be stored securely until the research has been completed (no later than 16th October 2015) and then destroyed. Copies of the final report will be lodged in the Victoria University of Wellington library and sent to the coordinators of AnyQuestions.co.nz at the National Library of New Zealand.

A summary of the research results will be sent to all participating schools upon completion, and before the end of the 2015 school year.

If you have any questions or would like to receive further information about the project, please contact me at cardowhele@myvuw.ac.nz or telephone 0274 851 049, or you may contact my supervisor Dr Gillian Oliver (IST Programmes Director, School of Information Management) at Gillian.Oliver@vuw.ac.nz or telephone 04 463-7437.

Helen Kerrigan.

10.2 Appendix B: Participant Consent Form

Research Project Title: **AnyQuestions.co.nz and information literacy**

Researcher: Helen Kerrigan, School of Information Management, Victoria University of Wellington

- I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and had them answered to my satisfaction.

- I understand that participation in this research is voluntary and that I may refuse to allow student participation without consequence.

- I understand the surveys are anonymous, and that no data collected that will personally identify any of my students. The name of my school will also remain confidential.

- I understand that the data my students provide will not be used for any other purpose or released to others without my explicit permission.

- I understand that the data collected will be stored securely until the research has been completed (no later than 16th October 2015) and then destroyed.

- I understand that a summary of the research results will be sent to all participating schools upon completion, and before the end of the 2015 school year.

Signed: _____

Name of teacher: _____

School_____

Date: _____

10.3 Appendix C: Survey form

Thank you for taking the time to complete this survey.

General information

Name of my school:

My age:

My school Year:

I am (please tick one)

- ☐ **male**
- ☐ **female**

At school [academically] (please tick one)

- ☐ I'm doing really well in most things
- ☐ I'm doing well in most things
- ☐ I'm finding some things difficult
- ☐ I'm finding most things difficult

Thinking about the AnyQuestions service

I use AnyQuestions.co.nz (please tick one)

- ☐ less than once a month
- ☐ once or twice a month
- ☐ about once a week
- ☐ more than once a week

I *usually* use AnyQuestions.co.nz (please tick one)

- ☐ At home
- ☐ In my classroom
- ☐ In a computer room at school
- ☐ In the school library
- ☐ Somewhere else at school
- ☐ At the public library
- ☐ Somewhere else

I found out about AnyQuestions.co.nz from (please tick one)

- ☐ My teacher
- ☐ Family or friends
- ☐ Internet search
- ☐ The school librarian
- ☐ Another staff member at school
- ☐ A public library librarian
- ☐ A link from another website
- ☐ TV
- ☐ Somewhere else

I have visited AnyQuestions.co.nz because (please tick all that are true)

- ☐ I was curious to see what it was all about
- ☐ I got stuck searching the internet and needed help
- ☐ I practiced using AnyQuestions.co.nz as a class lesson
- ☐ To get ideas to help with homework or a project
- ☐ I wanted to know more about something
- ☐ My teacher told me to visit the site for an answer
- ☐ To get an answer for a homework question or project

As a result of using AnyQuestions.co.nz (please tick all that are true)

- ☐ I haven't learned anything
- ☐ I learned how to "chat" online
- ☐ I learned how to choose good search words
- ☐ I learned how to better search for information by myself
- ☐ I got links to answer my question
- ☐ I found out about new sites, search engines and other information
- ☐ I found answers I needed
- ☐ I learned how to better understand homework and assignment questions

Thinking about online chats with AnyQuestions' librarians

The librarians are friendly and helpful

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy

It is easy to use the online chat service

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy

The librarians are interested in my questions

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy

Overall satisfaction with the *online chats* at AnyQuestions.co.nz

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy

Satisfaction with AnyQuestions.co.nz

Satisfaction with the *ManyAnswers* service linked to AnyQuestions.co.nz

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy
- ☐ I have never used this service

Satisfaction with the *research tips* section of AnyQuestions.co.nz

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy
- ☐ I have never used this service

Overall satisfaction with AnyQuestions.co.nz

- ☐ Happy
- ☐ Neither happy or unhappy
- ☐ Unhappy

10.4 Appendix D: Table 1. *Ages of Sample Surveyed*

Age (years)	Total quantity	Percentage of sample
9	7	6.5%
10	20	18.7%
11	39	36.5%
12	33	30.8%
13	8	7.5%

Note: Ages of survey participants from sample of 107.

10.5 Appendix E: Table 2. *Place AnyQuestions.co.nz is Usually Accessed*

I usually use AnyQuestions.co.nz (please tick one)	I am (please tick one)		
	Male	Female	Total
At home	7 36.84% 15.22%	12 63.16% 19.67%	19 100.00% 17.76%
In my classroom	31 44.93% 67.39%	38 55.07% 62.30%	69 100.00% 64.49%
In a computer room at school	3 60.00% 6.52%	2 40.00% 3.28%	5 100.00% 4.67%
In the school library	1 12.50% 2.17%	7 87.50% 11.48%	8 100.00% 7.48%
Somewhere else at school	0 0.00% 0.00%	1 100.00% 1.64%	1 100.00% 0.93%
At the public library	1 100.00% 2.17%	0 0.00% 0.00%	1 100.00% 0.93%
Somewhere else	3 75.00% 6.52%	1 25.00% 1.64%	4 100.00% 3.74%
Total	46 42.99% 100.00%	61 57.01% 100.00%	107 100.00% 100.00%

Note: Comparison of location of AnyQuestions.co.nz use by gender.

10.6   Appendix F: Table 3. *Frequency that AnyQuestions.co.nz is Accessed*

		I am (please tick one)		
		Male	Female	Total
I use AnyQuestions.co.nz (please tick one)	Less than Once a Month	23 65.71% 50.00%	12 34.29% 19.67%	35 100.00% 32.71%
	Once or twice a month	18 40.91% 39.13%	26 59.09% 42.62%	44 100.00% 41.12%
	About once a week	4 22.22% 8.70%	14 77.78% 22.95%	18 100.00% 16.82%
	More than once a week	1 10.00% 2.17%	9 90.00% 14.75%	10 100.00% 9.35%
Total		46 42.99% 100.00%	61 57.01% 100.00%	107 100.00% 100.00%

Note: Comparison of frequency of AnyQuestions.co.nz use by gender.

10.7   Appendix G: Table 4. *Chat Service Usability*

		At school [academically] (please tick one)				
		I'm doing really well in most things	I'm doing well in most things	I'm finding some things difficult	I'm finding most things difficult	Total
It is easy to use the online chat service	Happy	36 87.80%	47 90.38%	8 66.67%	2 100.00%	93 86.92%
	Neither Happy nor Unhappy	4 9.76%	5 9.62%	3 25.00%	0 0.00%	12 11.21%
	Unhappy	1 2.44%	0 0.00%	1 8.33%	0 0.00%	2 1.87%

Note: Comparison of academic achievement and satisfaction with the chat service of AnyQuestions.co.nz.