



## Virtual tutor support using SMARTHINKING: Preliminary findings

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The University of New England (UNE) has been using a virtual tutoring service called SMARTHINKING since 2007. UNE explored the use of a 'virtual tutor service' to support distance education students in their academic development; to reduce attrition; and to provide academic support 24 hours a day, 7 days a week to all students with access to a computer irrespective of geographical location. A cascading selection of units across different disciplinary areas and cohorts of students were targeted for the virtual tutorial support service over 6 semesters to provide rich data. A survey consisting of 20 questions was developed and implemented at the end of each teaching period. Preliminary analysis of data indicates that SMARTHINKING appears to be making a difference to student learning outcomes. However, while uptake tends to be low in all cohorts but where students select to use the service they are positive about its effects.

Keywords: SMARTHINKING, student feedback, virtual feedback

## Introduction

Tertiary institutions have been continuously making use of new technologies to enhance student learning and to improve student competition and retention rates (Radachy & Ehmann Powers, 2009). To this end, the University of New England (UNE) has been using a virtual tutoring service called SMARTHINKING since 2007 to support distance education students. Research undertaken in the Australian university sector has identified a number of positive benefits associated with online tutoring services including higher student success rates and course completions (DeFazio and Crock, 2009). Similar results have also been reported internationally with students undergoing online tutoring performing better than students who did not have access to such services (Kalfée, 2007). However, despite positive findings of the value of online tutoring services, evidence suggests that often students do not make ready use of such services when they are offered to them (Hewett, 2001). Critically, while there have been a number of articles addressing the growing popularity of online tutoring services, very few studies have actually assessed the effectiveness of such services (Kalfée, 2007). The motivation for the current study was to expand the research base of the use and effectiveness of virtual online support services at the university level.

Since the first pilot in 2008 an evaluation cycle has investigated the use of the virtual tutor support for students called SMARTHINKING. The investigation and evaluation cycle will conclude in 2010. The preliminary findings presented here describe the methodology for the evaluation and an example of the findings at this stage. The research team were interested in how SMARTHINKING is used by students and staff; sentiment towards the use of SMARTHINKING; identification of the reasons for any hesitancy towards the use of SMARTHINKING; best practices examples and evidence of impact for learning; costs and benefits; and any lessons learned. The research will provide recommendations on the investigation of use of tools within about the further use of SMARTHINKING and evaluate use for blockers, issues, and best practices that could be re-used by other groups.

## Background

SMARTHINKING is a provider of online tutoring support. Students connect to live tutors via Internet access. Online tutoring occurs 24 hours a day, 7 days a week. Students can also access the Online Writing Lab where E-structor® Certified tutors critique and return essays within 24 hours. SMARTHINKING services are accessed from anywhere, enabling students to get the help they need when they need it. Students can also work in real-time with a tutor, submit questions or essays for a next day response, or pre-schedule online appointments. Students communicate with tutors using a virtual interactive whiteboard technology. Scientific and mathematical notation, symbols, geometric figures, graphing and freehand drawing can be rendered quickly and easily. Tutors are all required to undertake the E-structors online training program. Many tutors are experienced and highly qualified subject matter experts.

## Methodology

The research was undertaken at the University of New England, Armidale, Australia. The aim of the study was to evaluate the value of the online tutoring service SMARTHINKING across a range of student cohorts in order to assess the potential value of this service for progressing students and in reducing attrition.

## Study design

The study was implemented in four stages across four teaching semesters. For each stage, a different cohort of students was given access to the SMARTHINKING services. This was done to assess student experience of SMARTHINKING in different contexts. The student cohorts were:

- Stage 1 (Semester Two, 2008) Off campus students in high attrition units;
- Stage 2 (Semester One, 2009) International students;
- Stage 3 (Semester Two, 2009) Off campus students in their first year of study at UNE;
- Stage 4 (Semester One, 2010) On or off campus students in units from distinct disciplines.

Students from the respective units were given access to SMARTHINKING for one semester. At the completion of each semester, students were invited to take part in an online survey about their experiences with SMARTHINKING.

## Selection of study sample

In Stage 1 of the study, six key data points were identified in order to provide a valid measure of attrition. These data points identified were:

1. Unit enrolments at start of teaching
2. Unit enrolments at census date
3. Peak unit enrolments
4. Current unit enrolments (where applicable - ie for current or future teaching periods)
5. Unit enrolments at close of teaching
6. Assignment due dates

Based upon the above selection measures, several units were identified as suitable to trial SMARTHINKING. Coordinators of these units were then contacted. A number of units were subsequently considered ineligible as they had undergone major modifications over the previous year

and it would have been difficult to separate out any effects that may have occurred due to SMARTHINKING or by changes in the unit. Ultimately two units, a psychology and an accounting unit were selected to take part in **Stage 1** of the study. Students were restricted to using SMARTHINKING within those particular units.

In **Stage 2**, all International Students at the university were identified using the university's student management database. International Students were free to use SMARTHINKING for any units in which they were enrolled.

In **Stage 3**, SMARTHINKING was trialled for students in their first year of university study. Four units each from a different discipline were selected to take part in this stage of the study. These disciplines were English, Early Childhood Education, Chemistry and Linguistics. As for Stage 1, students were restricted to using SMARTHINKING within those particular units.

In **Stage 4**, units from distinct disciplines were considered for selection. This was done to determine whether students from distinct disciplines would have differing experiences of SMARTHINKING. An English unit and a Chemistry unit were selected for this stage of the study. As for Stages 1 and 3, students were restricted to using SMARTHINKING within those particular units

### **Survey instrument**

The survey instrument was in the form of a web-based survey. This was considered to be the most appropriate format to deliver the survey given that the services offered by SMARTHINKING were also web-based. Web-based surveys have the added advantage that survey data can be easily downloaded and compiled for analysis (Bryman, 2008).

The survey was created and delivered using the web-based survey tool *SurveyMonkey*. Survey questions were designed to elicit responses from two sets of students: first, those students who used SMARTHINKING. For these students, questions were directed towards determining the reasons why SMARTHINKING was used; the consistency, accuracy, and timeliness of the support offered; the impact that the SMARTHINKING had on successfully completing the unit; and the likelihood that students would use the services if they were offered again. The second set of questions was directed towards those students who did not make use of SMARTHINKING during the semester. In this instance, questions were directed to determine the reasons why students decided not to use the services offered by SMARTHINKING.

To allow the two different student sets to use the same survey a function available in SurveyMonkey called "Skip Logic" was used (SurveyMonkey, 2010). The Skip Logic function allows survey respondents to move through different paths of the one survey based upon a response to a previous question (SurveyMonkey 2010). The question used to differentiate between these two different set students was the first question in the survey – *Did you make use of the services offered by SMARTHINKING this semester?* Students then completed those survey questions appropriate to their answer to this question. A complete copy of the survey is provided in the appendix.

Two weeks before the end of semester all students in the units selected to use SMARTHINKING were emailed an invitation to take part in the web-based survey. In the email, particular attention was given to encouraging those students who did not use SMARTHINKING to also complete the survey. Students had one month in which to complete the survey, after which time the survey data was downloaded and analysed.

### **Preliminary results and discussion**

As the evaluation will not conclude until the end of Semester 2, 2010 the data has not been fully analysed. However, preliminary results are indicating that:

- students use the service offered by SMARTHINKING to support them with a particular assessment task targeted by their unit coordinator;
- students surveyed state that they were provided with an explanation that helped them address and understand the problem about which they were asking;

- students believe that the feedback they received from SMARTHINKING tutors either had no or only a few minor inconsistencies compared to the material from their lecturer, unit notes, or text books.;
- some students surveyed believed that SMARTHINKING made ‘little difference’ to their overall performance in the unit, while others said that SMARTHINKING made ‘some difference’, and a smaller group said SMARTHINKING made a ‘big difference’ to their overall performance;
- most students have indicated that they found the support offered by SMARTHINKING either ‘helpful’ or ‘very helpful’;
- More than half of the students said that if they were intending to drop out of the unit the support offered by SMARTHINKING would make them reconsider this action;
- nearly all students indicated that they would be ‘likely’ or ‘highly likely’ to use the service if offered again.

The two questions featured here are extracted from the online survey which was made available to all students enrolled in the targeted units for whom SMARTHINKING was available. The survey, comprised of 20 questions, covers a range of aspects concerning the technology, performance of online tutors and the perceived benefits of this service. Apart from the Chemistry unit, SMARTHINKING was most often used to obtain feedback on a written assessment task through the use of the 30-minute review option, and secondly, to ask a question.

While the survey response rate is relatively low in relation to the number of students who used SMARTHINKING in the five target units, the sample is substantial enough to be indicative of a consistently high overall satisfaction rating. As shown in Table 1, 91 of 106 students who completed the survey thought that SMARTHINKING tutors provided an explanation that helped them understand the question at hand.

On the vexed issue of whether there were contradictions between advice given by SMARTHINKING tutors and that provided by University of New England lecturers and unit materials (see Table 2), surprisingly over half the respondents (63%) said there were no contradictions and another 30% indicated that any perceived inconsistencies were minor.

**Table 1: Understanding feedback**

Which statement would BEST describe the response(s) you received from SMARTHINKING:	Psychology First year	English First year	Education 300 level	Chemistry First year	English 300/400 level	Total
	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
I felt the tutor simply gave me the answer without an explanation.	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (3%)	1 (1%)
I was provided with an explanation that helped me understand what I was asking.	37 (80%)	23 (96%)	3 (75%)	3 (100%)	25 (87%)	91 (86%)
I felt I needed more information than what I was given.	6 (13%)	1 (4%)	1 (25%)	0 (0%)	1 (3%)	9 (8%)
I felt the tutor missed the point about what I was asking.	3 (7%)	0 (0%)	0 (0%)	0 (0%)	2 (7%)	5 (5%)
Totals	46 (100%)	24 (100%)	4 (100%)	3 (100%)	29 (100%)	106 (100%)

**Table 2: Consistency of feedback**

How consistent was the support you received from SMARTHINKING with what you were told by the lecturer, unit notes or textbook?	Psychology First year	English First year	Education 300 level	Chemistry First year	English 300/400 level	Total
	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
Highly consistent – there was little or no contradiction.	33 (75%)	0 (64%)	3 (75%)	2 (67%)	12 (41%)	66 (63%)
Slightly inconsistent – there were a few minor contradictions.	10 (23%)	9 (36%)	0 (0%)	1 (34%)	12 (41%)	32 (30%)
Inconsistent – there were a number of major contradictions.	6 (13%)	1 (4%)	1 (25%)	0 (0%)	1 (3%)	7 (7%)
Highly inconsistent – there were many major contradictions	1 (2%)	0 (0%)	1 (25%)	0 (0%)	5 (18%)	5 (5%)
Totals	44 (100%)	25 (100%)	4 (100%)	3 (100%)	29 (100%)	105 (100%)

## Conclusion

This short paper aimed to provide an overview of the evaluation of the virtual tutoring service that has been conducted at the University of New England over the past three years. An overview of the methodology and preliminary results has been provided.

Our initial findings suggest that SMARTHINKING virtual tutor support appears to be making a difference to the learning experience of students who elect to use the tools and services available. While it is too early to provide categorical confirmation of this, data that has been collected over the past three years indicates that where students elect to use the service they are pleased with the responses of SMARTHINKING e-tutors and claim it has impacted positively on their academic

performance. The varied rate of uptake is not particularly of concern because the evaluation as SMARTHINKING was never intended to be the only academic support for students at UNE but rather to provide an additional choice to students.

However, there remains some concern that those students who might benefit from the service fail to engage early enough to be able to see the benefits. Engagement within the trial over the past three years has been difficult to maintain. The selection of a small number of units and a cascading implementation across different disciplinary borders was and has created some vexing and frustrating moments. The use of the service does need to be promoted by the unit coordinator and where this is done more students tend to engage with the services. When we worked with International Students they were additionally fearful that the service might be viewed by their lecturers as 'cheating', a factor which the researchers were unaware of until the survey results were completed.

The researchers have also learned lessons in the implementation of the service. For example we would recommend that trials at other institutions should open access to the service widely and not limit the number of times students can access the service. We have also learned that student uptake is significantly impacted by coordinators and lecturers encouraging students to take advantage of the support for targeted assessment tasks. Individual unit coordinators must be willing to familiarise themselves with the services offered and explain to their students possible benefits and diffuse misguided student expectations.

The evaluation trial will end shortly and data will be analysed in order to make recommendations to the University as to the usefulness, impact on progressing students positively and the cost benefits of the service for large cohorts of distance education students, amongst others.

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## Appendix - Survey Instrument

1. Did you make use of the services offered by Smarthinking this semester?
  - a. Yes (go to 2)
  - b. No (go to 18) *N.B. decision fork handled by the survey software Skip Logic function*
2. What were the Smarthinking services you used? (Please check all that apply)
  - a. Connect with an e-structor
  - b. Submit your writing
  - c. Schedule personal session
  - d. Submit a question
3. Was the support you received specifically for:
  - a. Aspects of unit content – e.g. understanding a concept or item of content.

- b. Completing the assessment task – e.g. feedback on writing, help on an assignment question.
  - c. Both a. and b.
4. What was the reason(s) that helped you decide to make use of the Smarthinking services?
5. Which statement would BEST describe the response(s) you received from Smarthinking:
- a. I felt the tutor simply gave me the answer without an explanation.
  - b. I was provided with an explanation that helped me understand what I was asking .
  - c. I felt I needed more information than what I was given.
  - d. I felt the tutor missed the point about what I was asking.
6. How consistent was the support your received from Smarthinking with what you were told by the lecturer, unit notes or textbook?
- a. Highly consistent – there was little or no contradiction.
  - b. Slightly inconsistent – there were a few minor contradictions.
  - c. Inconsistent – there were a number of major contradictions.
  - d. Highly inconsistent – there were many major contradictions.
7. Overall, the response times from the online tutors (not the technology) was:
- a. Satisfactory
  - b. Adequate
  - c. Unsatisfactory
  - d. If unsatisfactory, please comment why.
8. In terms of the support you received from Smarthinking and your overall performance in the unit do you think Smarthinking made:
- a. A big difference
  - b. Some differences
  - c. A little difference
  - d. No difference
  - e. A negative difference
9. Knowing the Smarthinking service was available for support in this unit what impact did this have on your confidence in completing the unit successfully?
- a. Large impact
  - b. Some impact
  - c. Neutral
  - d. No impact
10. Overall, how would you describe the support your received?
- a. Very helpful
  - b. Helpful
  - c. Neither helpful or unhelpful
  - d. Unhelpful
11. If this service were to be provided again how would you rate the likelihood of you using it?
- a. Very likely
  - b. Likely
  - c. Not likely
  - d. Not very likely
  - e. Unsure
12. Imagine you were considering dropping out of this unit would the support offered by Smarthinking be likely to:
- a. Absolutely convince you to complete the unit

- b. Convince you to try and stay a little longer before making any decision
  - c. Have no impact on your decision either way
  - d. Have a negative impact on your decision to stay
13. Please list other sources of support you made use of in this unit (Please check all that apply)
- a. Lecturer via email
  - b. Lecturer via bulletin board
  - c. Lecturer via phone
  - d. Other students via email
  - e. Other students via bulletin board
  - f. Other students via phone
  - g. Academic Skills Office
  - h. AskUNE
  - i. UNE Student Centre
  - j. Other (please describe)
14. In regard to your Internet connection is it:
- a. Dial up modem
  - b. Broadband
  - c. Satellite
  - d. Other (please describe)
15. In regard to response times of the technology (not the tutors) was your connection:
- a. Adequate – connections took place in a timely manner
  - b. Barely adequate – connection time could have been better
  - c. Inadequate – I felt frustrated by how slow things took
16. Were there any technical issues you had that you would like to comment upon?
17. If you would be interested in taking part in a focus group with other students who used Smarthinking could you please enter your email in the box below.
- 
18. What was the reason(s) you chose not to use the Smarthinking support?
19. Please list other sources of support you made use of in this unit (Please check all that apply)
- a. Lecturer via email
  - b. Lecturer via bulletin board
  - c. Lecturer via phone
  - d. Other students via email
  - e. Other students via bulletin board
  - f. Other students via phone
  - g. Academic Skills Office
  - h. AskUNE
  - i. UNE Student Centre
  - j. Other (please describe)



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