# Action Research

ACTION RESEARCH: REFLECTIVE PRACTICE AND PROFESSIONAL DEVELOPMENT'

Tom Lyons

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# The use of Wikis to improve students' learning

**Tom Lyons**

## INTRODUCTION

### Aim

The aim of this action research project was to see if using wikis with my AS Physics groups would improve their understanding of concepts within the course, and improve the way in which they learnt these concepts. The primary task set for the students would involve writing their own study guide for the course. In order to be able to write content for the wiki, students require a good understanding of the topic they are writing about. The level of understanding of the material that they include would hopefully be deeper than if they had simply revised from class notes or another study guide, and they would need to think critically about the content that they chose to include. The wiki would also act as a shared resource – a valuable pool of knowledge. Other possible benefits could include increased collaboration between students, improved writing and presentation skills and a sense of pride and satisfaction in creating the wiki.

### Who was involved?

The study focussed on two classes taking AS Physics. The students were all 16 or 17 years old, with a male to female ratio of about 7:1. I taught both classes for the duration of the study.

None of the students were aware that their work with the wiki was part of an action research project. The reason for this was that I did not want to bias the students either for or against the wiki because they knew it was part of some research. For example, they may have been biased against the idea, if they thought that I had set up the wiki simply for my own ends, rather than for their benefit.

This is my fourth year of teaching A-level physics and electronics.

### What is a wiki anyway?

The word wiki comes from “wiki-wiki” which is Hawaiian for “quick”.

According to the University of Leeds, “A Wiki is a web technology that allows a web site to be collaboratively constructed and edited with no specialist tools and very little technical know-how”, (UNIVERSITY OF LEEDS, 2008). The idea of a wiki is to allow users to change or update information on a website, normally without restriction. In this way information can be developed and refined by a large body of people and the content will ideally be regulated by the users themselves. For example, if a user were to post erroneous or inappropriate content on the website, other users would be able to change or remove this information. The main advantage of wikis as a resource is that they can draw from a wide body of knowledge in real-time. The main disadvantage is that if incorrect information is included on the site then wikis rely on this information being spotted and dealt with before many users are given the wrong information.

The largest and most commonly used wiki is www.wikipedia.org. As of 14/05/09, there are over two and a half million articles in English on Wikipedia and hundreds of thousands in other languages. As a resource it is larger than the Encyclopaedia Britannica. Information included in the Encyclopaedia Britannica must be vetted and peer reviewed by experts. This is not the case for Wikipedia, however there are now a number of experts in various fields that do check information posted on Wikipedia. A study performed by the scientific journal, Nature, found there to be as many serious errors in the Encyclopaedia Britannica as there are in Wikipedia (BBC NEWS, 2006), suggesting that they may be equally as accurate, at least in terms of scientific information.

### Blogs or wikis or what?

The key difference between wikis and blogs or discussion forums is that the content of a wiki is refined, updated and improved by the users. With blogs and discussion forums the information builds

up like a historical record, which can become large and unfathomable, especially for a new user to the site.

**Wiki technology**

There are a great number of different types of software used to create wikis. Some are more user friendly than others. Probably the most commonly used is MediaWiki (http://www.mediawiki.org/wiki/MediaWiki) . MediaWiki is a free software wiki, originally for use on Wikipedia but now used by many other wikis. This project uses Wetpaint (http://www.wetpaint.com/) – a free and very user friendly wiki with a special Education section (see Methods Used below for more information). A good comparison site for wikis, which includes a wizard to help you choose, is provided at http://www.wikimatrix.org.

**Why use wikis in teaching?**

Duffy and Bruns (2006) list the following educational uses for a wiki:

"

- Students can use a wiki to develop research projects, with the wiki acting as ongoing documentation of their work.
- Wikis can be used for students to add summaries of their thoughts from the prescribed readings, building a collaborative annotated bibliography.
- In distance learning environments, the tutor can publish course resources like syllabus and handouts, and students can edit and comment on these directly (for all to see).
- Wikis can be used as a knowledge base for teachers, enabling them to share reflections and thoughts regarding teaching practices and allowing for versioning and documentation...
- Wikis can be used to map concepts: they are useful for brainstorming, and authoring a wiki on a given topic produces a linked network of resources.
- A wiki can be used to facilitate a presentation in place of conventional software, like Keynote and PowerPoint, and (given a suitable working environment) students are able to directly comment on and revise the presentation while it takes place.

- Wikis are tools for group authoring: often groups collaborate on a document by sending it on to each member of the group in turn, emailing a file that each person edits on their computer, and some attempt is then made to coordinate the edits so that everyone's work is equally represented; using a wiki pulls the group members together and enables them to build and edit the document on a single, central wiki page. "

These ideas outline ways in which wikis can be used as a tool to allow easy collaboration and as a way of presenting information. Perhaps more important to students' learning is the process of contributing and editing information on a wiki. Bloom's taxonomy identifies a hierarchy of educational objectives: Knowledge; Comprehension; Application; Analysis; Synthesis; and Evaluation (ATHERTON, 2005). To include information on a wiki that is not just copied from elsewhere, a student not only needs to understand that information but they have to be able to analyse it (the fourth level in Bloom's taxonomy) so that they can confidently include new information on the site. Editing the content of a wiki requires the student to assess the current content and make a decision to improve upon it, which requires Bloom's highest level, Evaluation.

**Case studies in education**

Wikis are currently more widely used in higher education than in schools or colleges. This may be because universities require students to be more independent in their learning and also because wikis lend themselves well to distance learning. Paul Schacht (2006), at the State University of New York,

used a collaborative writing wiki as part of an undergraduate course in English. Contribution to the wiki in the course was assessed individually. At first, it may appear to be an impossible task to assess students individually for a combined piece of work such as this – however, one of the tools available to the administrator of a wiki is the ability to track individual contributions to the work. This allowed Schacht to grade the work according to individual content. The students engaged well in the task and the only negative comment from the students was that late contributors to the site had little left to write about.

A notable case study from a school environment is the Westwood Schools Wiki Integration (westwood.wikispaces.com). The wiki, managed by its teacher Vicki Davis, is used with 9$^{th}$ to 12$^{th}$ grade classes at Westwood Schools, Georgia, USA. Davis uses the wiki as “the virtual hub” of her classroom activity (DAVIS, 2008). Uses of her class wikis include: lesson summaries generated by the students; collaborative notes on a subject of their choice; concept introduction, where students generated content on new concepts in the subject; dissemination of learning to other students outside the classroom; and a wiki Hall of Fame as a reward to acknowledge significant individual or group achievements. Davis says, “Like anything, some students “moan and groan” about wikis. They are also the same ones who moan about anything requiring effort. What I have seen, however, is that grades on tests have improved, participation in class discussion has improved, and knowledge of the subject matter has improved”. Davis went on to found the award winning Flat Classroom Project (Davis and Lindsay, 2006) which involved students from schools in Bangladesh, USA, Austria, Australia and China collaborating to produce wiki pages.

## METHODS USED

### The wiki site

I decided to use a 'private wiki' on a Wetpaint site (www.wetpaint.com) for this project. I chose Wetpaint because they had a WYSIWYG (What You See Is What You Get) format and they had an education section which allowed all adverts to be removed from the site.

The site was hosted externally but was only viewable by those invited to join the site. In this way, only myself and the two groups involved could access and edit the site.

WYSWIWYG is a user friendly format for editing the pages that looks much like any word-processing program. Many types of wiki software still require the use of some mark-up language, like HTML: I thought that having an easy way to edit the pages was very important, so that students be required to learn any new IT skills to use the site.

An advert-free site was also important to me, as I thought that the students should not be exposed to advertising in an educational context. There are sites that allow the administrator to restrict advertising to certain types, but I thought it best for this project to remove the advertising altogether.

At the start of the academic year I set up a basic wiki site, with some instructions on to use the site and the main objectives of the site. Students were sent e-mails from the Wetpaint site inviting them to join. Once they had joined, they could use their login and password to access and edit the site. The students were given tasks to complete which involved using the wiki, these are discussed in Findings, below.

Monitoring the content on the site was one of the methods to assess whether there was an impact on students' learning.

### Questionnaires

Two main questionnaires were used during the project: the first addressed to the students from the two teaching groups; and the second addressed to teaching staff within The Sixth Form College Farnborough.

The first questionnaire (see Appendix 1) was handed out to the students in class, about two months into the research. The main objective of this questionnaire was to assess how many students had used the wiki and what their attitudes towards it were. I decided to have the students complete the questionnaire on paper, rather than electronically, to make sure that all students were surveyed.

The second questionnaire (see Appendix 4), was an online questionnaire using Quia (www.quia.com). All teaching staff within the college were invited to complete the survey. The main objective of this questionnaire was to assess the current knowledge and use of wikis within the college, and see whether there was any interest in staff attending workshops to learn about wikis.

### Informal questioning

I was able to make some assessment of the attitudes of the students towards the wiki through informal questioning and sometimes by listening to comments they made about the wiki to one another.

## FINDINGS

### In the beginning

The initial objective for the students was to use the site as a revision resource for their AS Physics course. They were supposed to post material on the site based on what they had learnt in lessons, or read in the textbook. The benefit for them would be that they would have a revision resource, written by themselves and for themselves that covered all areas of the course. My hope, at the outset of the project, was that some keen students would start populating the site with information, without much need for me to push from my end.

Other areas of the wiki included: a discussion board section, which allowed students to post and answer questions; and a user profile area, where the students could post information about themselves and include photos.

After the first week, most students had joined the site but there was no physics content posted. Some students had posted information about themselves and some photos on their profile area. It was clear that some focussed tasks were needed to generate some content for the site.

### The first task

The classes were divided up into groups of 3 or 4 to generate some revision notes for a section of the course. Each group had an assigned leader, who was tasked with making sure that the topic allocated to the group was properly addressed, and they also had the responsibility of adding the content to the wiki site. The groups were given about 40 minutes to complete the activity, and most students engaged well in the task. After one week, 5 out of the 8 leaders had posted the information on the site. An example wiki page from this task is given in Figure 1.

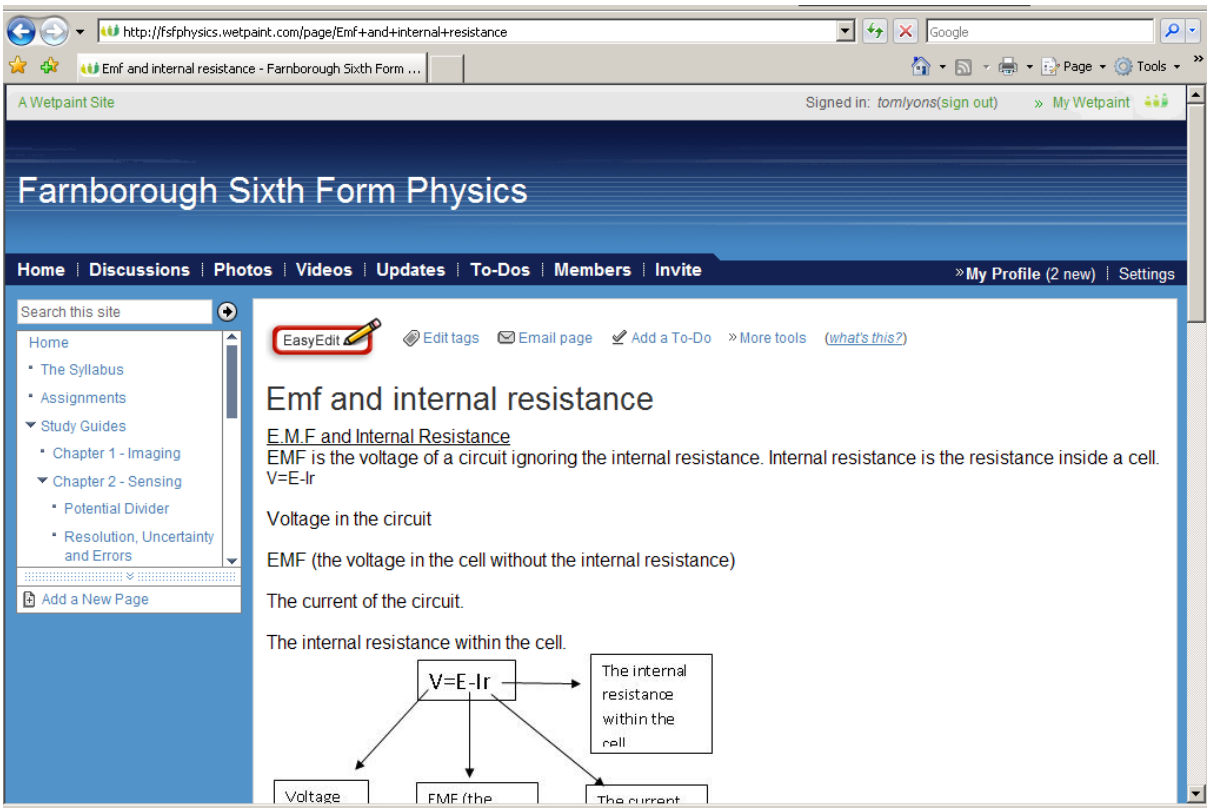


**Figure 1**

**The student questionnaire**

A couple of weeks after the first task had been completed, the questionnaire was given to the 35 students. The questionnaire and full results from the questionnaire can be found in Appendix 1 and 2 respectively. The following questions were asked of the students:

1. Have you registered on the wiki site?
2. Have you posted anything on the site?
3. Did you know the idea of the site was for you to create your own study guide and/or ask and answer questions about the course and physics in general?
4. Do you think there is currently any benefit to using the site?
5. Did you find the group exercise to produce revision material for the site was useful?
6. Do you think the inclusion of revision material in the study guide section has encouraged you to look at the site?
7. Would you encouraged to use the site if there were more discussions about physics topics?

The responses for questions 1 to 7 are summarised in Figure 2.

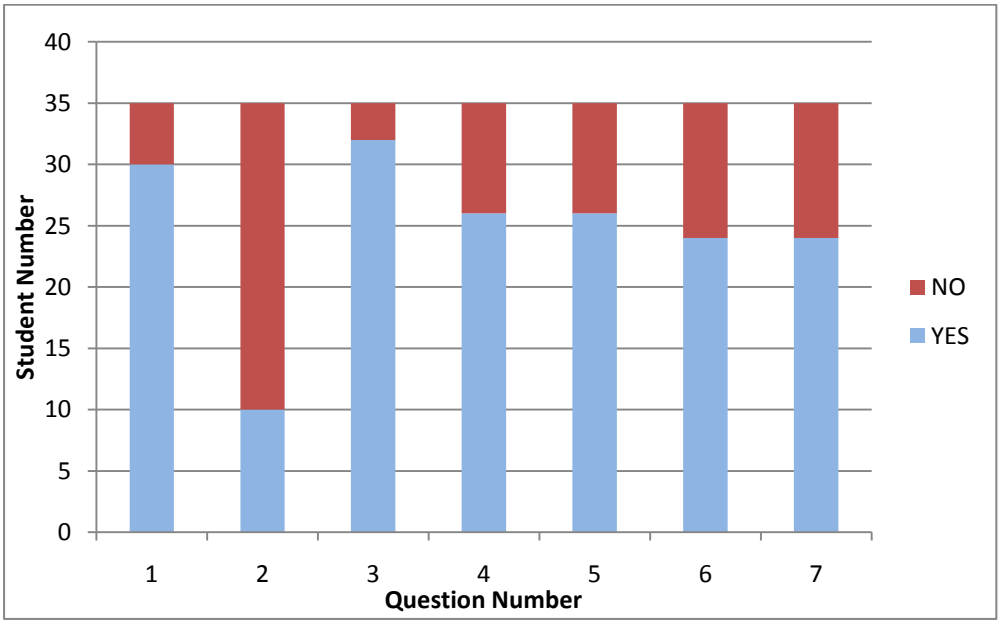


**Figure 2.**

The results show that less than one third of the students surveyed had posted anything on the wiki site, at that time. The majority of students thought that the activity to produce the revision material for the site was useful and encouraged them to use the site more.

Question 8 was a more open ended question: “What, if anything, would encourage you to use the wiki site? “

A selection of answers to question 8 are:

“Nothing new as the site will become more developed over time”

“Videos”

“Things for tests helpful hints etc.”

“Maybe include putting things on to the site as part of private study”

“More teacher generated content as students could be wrong”

“maybe include more notes on subjects covered in class”

“more revision guides”

“sample exam questions and how to answer them”

“if it had been running for longer rather than just starting out”

**Second activity**

The first activity was repeated for a different section of the course, but this time only with one of the classes. The students were still very slow at posting information on the site afterwards. After a test on this section of the course, I compared the average test scores of the two groups: there was no significant difference between the groups for tests after activity one or activity two. Appendix 3 shows the stats analysis for this.

**Third activity**

This activity involved creating a glossary of terms for a section of the course (see Fig 3).

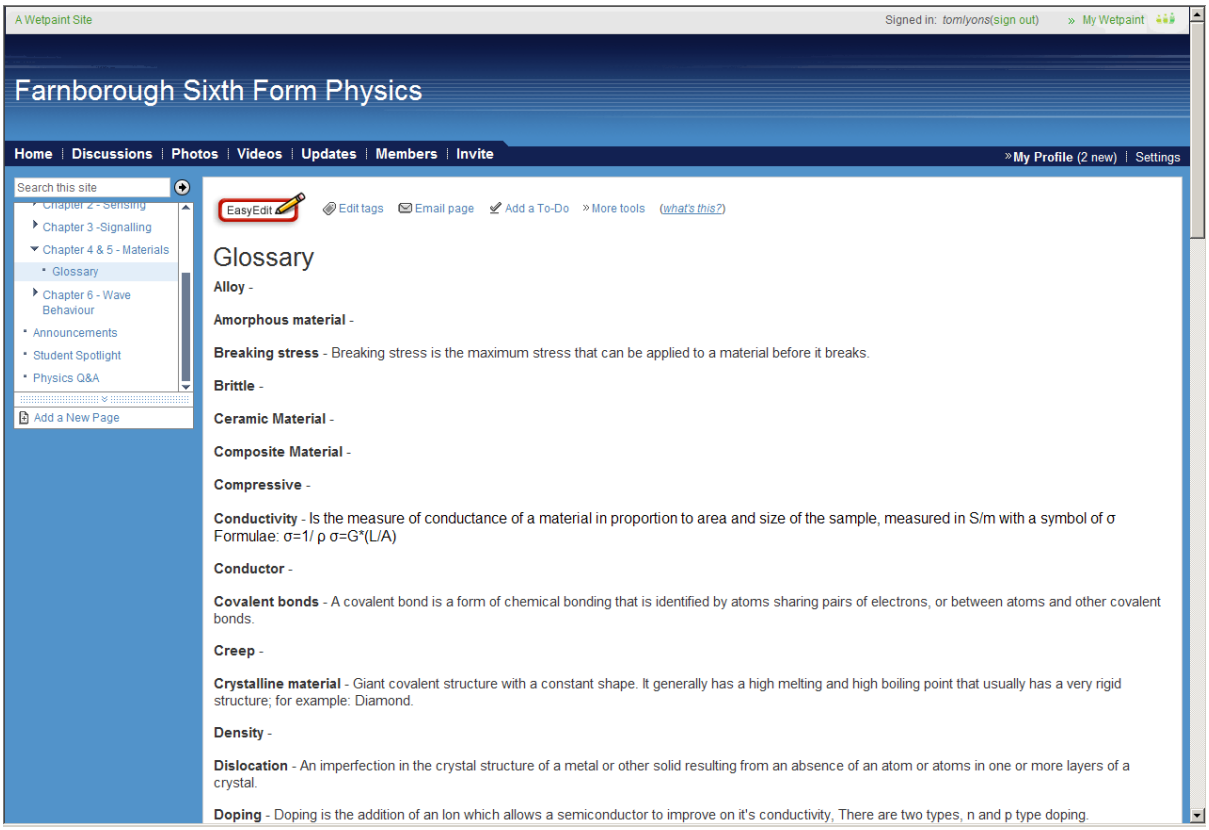


**Figure 3**

Each student was given one or two terms that they had to write a definition for and post it on the wiki page, as part of their private study. This enabled me to look at how what proportion of students would complete an individual task using the wiki. On the date of the deadline for the private study, one third of the students had posted information on the site. The biggest issue from the students point of view, was that they had either forgotten their login or did not know how to use the site.

**Is the wiki being used for revision?**

In a quick poll, after their January module, only 3 students said that they had used the wiki for revision. This compares to 25 students using the AS level CGP revision guide.

**The staff questionnaire**

It was at this point I decided to take a different angle in my research, to look at staff perceptions and interest in wikis. The questionnaire and results summary can be found in the appendix 4 and 5 respectively.

135 members of teaching staff responded to the survey. Around one quarter said that they had used wiki sites in their teaching. On further questioning, only 3 respondents said that their classes had posted content to a wiki site as part of class activity. Two members of staff had used the wiki within the virtual learning environment, Moodle (www.moodle.org). The other member of staff used wiki pages within history lessons to look at fear in the Nazi state; she said the following "…time and access to computers are a problem. Students need prompting /standing over in my experience – expecting them to do it in their own time and independently has patchy results. I have no lessons this year in classrooms with computers."

Figure 4 shows positive responses to the question, "If you were given training in the use of a wiki site would you be interested in using wikis with your classes for any of the following?"

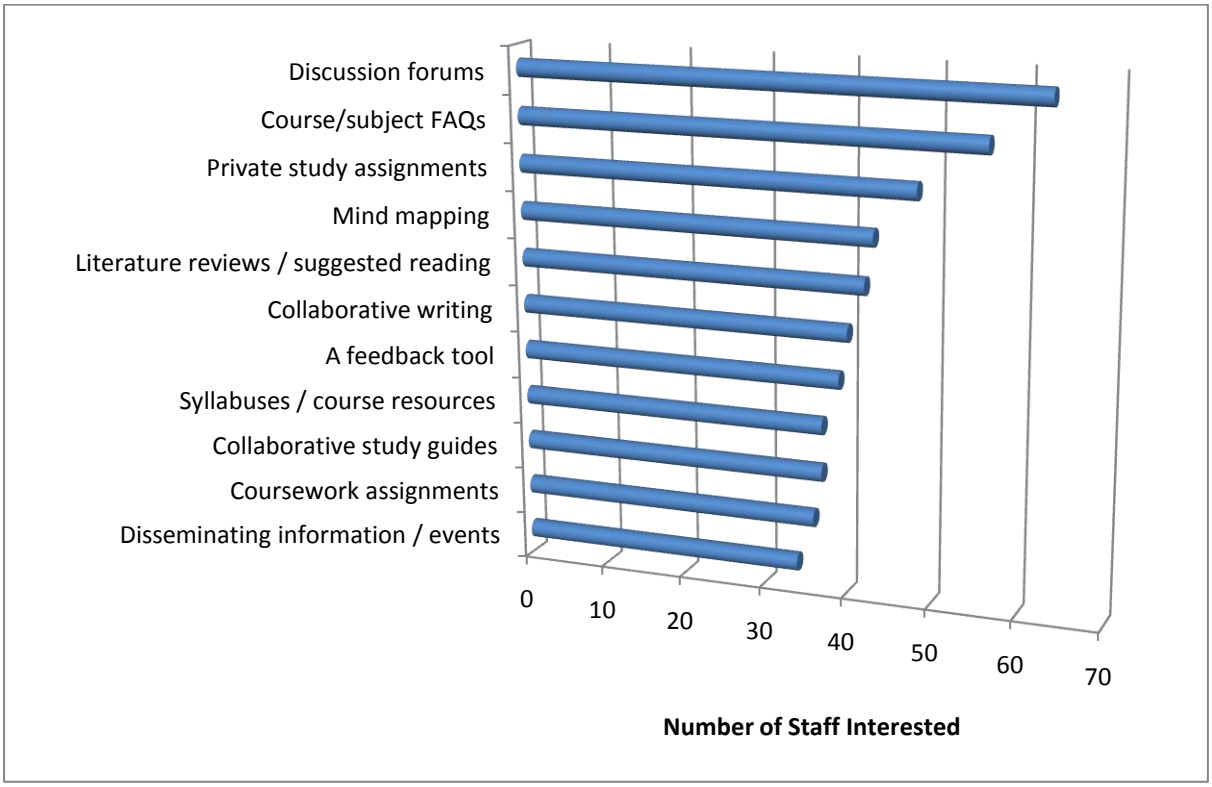


**Figure 4**

The questionnaire showed that the main concerns in the use of wikis are their accuracy and reliability and the possible misuse of the site.

68% of the staff surveyed wanted to find out more about using wikis in education, and 62% expressed an interest in attending a workshop on wikis.

## DISCUSSION

### Lessons learned

In the introduction, I touched on the idea of Bloom's taxonomy in relation to wikis. In the tasks set, the students engaged in analysis of information, the fourth level in Bloom's classification, to enable them to generate content for the site. Working in groups enabled detailed notes to be produced, which could be shared with the rest of the class when posted on the wiki site. However, the real beauty of wikis is that the information included can be updated, improved and refined. To make the jump to Bloom's highest level, the students have to have the confidence to change or add to information already posted on the site.

It is clear that structured activities, that enable the students to input the content during the lesson, are needed to effectively engage students in the wiki. The idea of the wiki and the tasks set were generally welcomed by the students but work must be done to enable the students to see a benefit to posting new material on the site. It is, perhaps, difficult for students to see that the main benefit of contributing to a wiki site may be the act of contributing itself. The content in which they have the deepest understanding will surely be that which they have written themselves. Where they did engage in activities to generate content for the site, the majority of students found it useful, but very few took the next step of using the site as a resource afterwards. A comment made by one member of the staff in their questionnaire is very apt: "If this wiki site use is integrated into lesson delivery, students will be more inclined to see it as a supportive tool, rather than an additional task."

### Will wikis work for us?

The most striking result from the staff survey is that so many of us are interested in the possibilities for their use. There are many possible uses of a wiki, from a one-stop shop for course information and documents, to a site for free discussion. The technology is no more difficult to grasp than e-mail and word-processing; and if integrated into a virtual learning environment, such as Moodle, teachers and students can use a system that it consistent across subject areas.

Concerns about accuracy and reliability are important. Students should feel confident that the information on their wiki is not incorrect. Of course, students can moderate their peers' contributions but it may be that it is a requirement of the teacher to check that information posted is correct, if not necessarily complete. Incorrect information on the site can actually be used as a discussion point in class, as long as this does not discourage students from posting contributions.

Concerns about abuse or misuse of a wiki site are also important to consider. However, students are unlikely to post inappropriate content on the site, once they are aware that you can check who posted what and that you do check the site regularly.

## CONCLUSION

### Tips for teachers

There were some issues that effected how the students viewed and used the wiki site:

- There was no session booked in a computer room at the beginning of the year for the students to become familiar with logging in and using the software. This meant that some lacked the confidence to use it for the tasks set.
- For the many students, there was little perceived benefit for them to use the site. Why write revision material when there is a perfectly good revision guide that they can buy?
- Fear of being wrong. Many students were concerned that if they posted information on the site that it might be incorrect.
- Many of the students saw the wiki as 'Tom's thing' and not theirs

If I were to run the wiki site again with new groups of students then I would want immediate access to networked computers so that input to the site would be regular and in class time. I would also incorporate some dedicated lessons, using the wiki, in to the schedule for the year. I would hope that with more structured input, the students would begin to take ownership of the site and see the benefit of the site as a shared resource. I may also introduce a tick box on the each page to show it was 'teacher checked' so that students were not concerned that the content was incorrect.

### What did I get out of action research?

Embarking on an action research project gave me the impetus to investigate something that I was interested in and the incentive to carry it through. Discussing the research with colleagues was a valuable and enjoyable part of the process. I liked the freedom, within an action research project, that allows the focus of the research to change as the project develops.

I learnt how others have successfully used wikis in education and how I might use wikis as a teaching tool in the future.

In their discussion about Donald Schőn's work on the reflective practitioner, Campbell et al. (2004) argue that the reflective practitioner is by definition a researcher, acting on their research as they practise. Teachers reflect on their work and take action to modify their approach accordingly. Action research can provide a formal setting for this, in a particular context.

The process of action research is an iterative loop, which involves reflection on the research carried out and then asking the question, "Where do I go from here?"

### Where *do* I go from here?

I plan to run some workshops on wikis, for staff and set up a staff wiki to share ideas. I have set up a newsletter wiki page for staff and students within the physics department which we trial run next year. I plan to look at other Web 2.0 tools, such as video-casting and twittering to see how they could be used in teaching.

**REFERENCES**

ATHERTON J S (2005) *Learning and Teaching:* Available from: http://www.learningandteaching.info/learning/about.htm [Accessed: 14 May 2009]

BBC NEWS, 2006. *Wikipedia study 'fatally flawed'*. Available from http://news.bbc.co.uk/1/hi/technology/4840340.stm [accessed 14/05/09]

CAMPBELL et al., 2004. *Practitioner Research and Professional Development in Education*. SAGE Publications Ltd, London.

CHURCHES, A, 2007. Available from http://edorigami.wikispaces.com/file/view/wiki+editting+rubric+v2.pdf [accessed 14/05/09]

UNIVERSITY OF LEEDS, 2008. *Using wikis in learning and teaching*. Available from: http://www.sddu.leeds.ac.uk/online_resources/wikis/ [accessed 14/05/09]

DAVIS, V (2008) *Using Wiki in Education: Case Studies from the Classroom*. Edited by Stewart Mader.

DAVIS and LINDSAY (2006) *Flat Classroom Project*. Available from : http://flatclassroomproject2006.wikispaces.com/ [accessed 15/05/09]

DUFFY and BRUNS, 2006.*The use of Blogs, wikis and RSS in education: A conversation of possibilities*. Queensland University of Technology. Available from https://olt.qut.edu.au/udf/OLT2006/gen/static/papers/Duffy_OLT2006_paper.pdf [ accessed 14/05/09]

SHACHT, P (2008) *Using Wiki in Education: Case Studies from the Classroom*. Edited by Stewart Mader.

**APPENDICES**

**Appendix 1**

Physics Wiki Questionnaire 04/11/08

| **QUESTION** | **YES** | **NO** |
|---|---|---|
| Have you registered on the wiki site? | | |
| Have you posted anything to the site? | | |
| Did you know that the idea of the site was for you to create your own study guide and/or ask and answer questions about the course and physics in general? | | |
| Do you think there is currently any benefit to using the site? | | |
| Do you find the group exercise to produce revision material for the site was useful? | | |
| Do you think the inclusion of revision material in the study guide section has encouraged you to look at the site? | | |
| Would you be encouraged to use the site if there were more discussions about physics topics? | | |

What, if anything, would encourage you to use the wiki site? (Continue of reverse if necessary)

**Appendix 2**

**Questionnaire 1 Analyses**

Group 12

| **Question number** | **1** | | **2** | | **3** | | **4** | | **5** | | **6** | | **7** | | **8** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | |
| | 1 | | | 1 | 1 | | | 1 | | 1 | | 1 | | 1 | |
| | | 1 | | 1 | 1 | | | 1 | | 1 | | 1 | | 1 | |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | More involvement with topics etc. |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | | 1 | |
| | 1 | | 1 | | 1 | | 1 | | 1 | | | 1 | 1 | | Nothing new on it, just if everything was more developed. Such as higher forum activity. |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | Nothing new as the site will become more developed over time |
| | 1 | | 1 | | 1 | | 1 | | 1 | | | 1 | | 1 | |
| | 1 | | | 1 | 1 | | | 1 | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | | 1 | | 1 | | 1 | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | | 1 | 1 | | 1 | | Videos |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | 1 | | | 1 | 1 | | Things for tests helpful hints etc. |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | | 1 | |
| | | 1 | | 1 | 1 | | 1 | | 1 | | | 1 | | 1 | A link to it somewhere on cristalweb |
| | 1 | | | 1 | 1 | | | 1 | | 1 | 1 | | | 1 | |
| | | 1 | | 1 | | 1 | 1 | | 1 | | 1 | | 1 | | |
| | | | | 1 | | | | | | | | | | | |
| TOTALS | 14 | 3 | 6 | 1 | 16 | 1 | 12 | 5 | 12 | 5 | 10 | 7 | 10 | 7 | |

Group 6

| **Question number** | **1** | | **2** | | **3** | | **4** | | **5** | | **6** | | **7** | | **8** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | **Yes** | **No** | |
| | 1 | | | 1 | | 1 | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | Maybe include putting things on to the site as part of private study |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | more material |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | | 1 | |
| | | 1 | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | Games. Not me personally but an idea |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | More teacher generated content as students could be wrong |
| | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | maybe include more notes on subjects covered in class |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | cash incentives? More balloons. Men with beards. Lots of photos |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | more revision guides |
| | 1 | | | 1 | 1 | | | 1 | | 1 | | 1 | 1 | | sample exam questions and how to answer them |
| | 1 | | | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | | 1 | if it had been running for longer rather than just starting out |
| | | 1 | | 1 | 1 | | 1 | | | 1 | | 1 | 1 | | |
| | 1 | | | 1 | 1 | | | 1 | | 1 | | 1 | | 1 | |
| | 1 | | | 1 | | 1 | 1 | | 1 | | 1 | | 1 | | |
| | 1 | | | 1 | 1 | | | 1 | 1 | | 1 | | | 1 | |
| TOTAL | 16 | 2 | 4 | 14 | 16 | 2 | 14 | 4 | 14 | 4 | 14 | 4 | 14 | 4 | |

**Appendix 3**

**Stats Analysis**

both groups scored an average of 11 out of 20 for chapter 2 test results
group 6 who did the activity for chapter 3 scored an average of 9.6 and group 12 who did not do the activity scored 9.3
is this statistically significant?
what is the standard deviation for both groups?

| group 6 | group 12 |
|---|---|
| 15 | 7 |
| 15 | 13 |
| 11 | 11 |
| 13 | 10 |
| 9 | 7 |
| 7 | 6 |
| 10 | 11 |
| 10 | 15 |
| 9 | 9 |
| 6 | 9 |
| 8 | 8 |
| 9 | 6 |
| 8 | 12 |
| 4 | 10 |
| 6 | 8 |
| 13 | 7 |
| 3.203514 | 2.600481 |

A difference of 2 standard deviations would show a 95% confidence in the data being statistically significant

These standard deviations are much larger than the 0.3 difference in the average group score and therefore the difference is not statistically significant

**Appendix 4**

Staff questionnaire – Tom Lyons' action research project

Name:

Have you ever used Wikipedia or another wiki site? Yes/no

Have you ever used any web-based discussion forums or other websites where you contribute to the content? Yes/no

Have you ever used any web-based discussion forums with your classes? Yes/no

Do you know what the principle behind wiki sites are? Yes/no

A wiki site is a collection of web pages designed to enable anyone who accesses it to contribute or modify content. Have you ever used any wiki sites with your classes? Yes/no

Are you confident enough with your IT skills to consider wikis with your classes? Yes/no

If you were given training in the use of a wiki site would you be interested in using wikis with your classes for any of the following? :

| | |
|---|---|
| Discussion forums | yes/no |
| Collaborative writing | yes/no |
| Course/subject FAQs | yes/no |
| Private study assignments | yes/no |
| Coursework assignments | yes/no |
| Collaborative study guides | yes/no |
| Literature reviews / suggested reading | yes/no |
| A feedback tool | yes/no |
| Syllabuses / course resources | yes/no |
| Mind mapping | yes/no |
| Disseminating information / events | yes/no |

Do you have any concerns about the using wikis in education? [free question]

Would you be interested in finding out more about the use of wikis in education? Yes/no

Would you be interested in attending a lunchtime workshop on wikis? Yes/no

Are there any further comments you would like to make? [free question]

**Appendix 5**

**Staff Results Summary**

Number of respondents
133

1 Have you ever used Wikipedia or another wiki site?

| | Count | Percentage |
|---|---|---|
| Yes | 127 | 95.49% |
| No | 6 | 4.51% |

2 Have you ever used any web-based discussion forums or other websites where you contribute to the content?

| | Count | Percentage |
|---|---|---|
| Yes | 48 | 36.09% |
| No | 85 | 63.91% |

3 Have you ever used any web-based discussion forums with your classes?

| | Count | Percentage |
|---|---|---|
| Yes | 20 | 15.04% |
| No | 113 | 84.96% |

4 Do you know what the principle behind wiki sites are?

| | Count | Percentage |
|---|---|---|
| Yes | 96 | 72.18% |
| No | 37 | 27.82% |

5 A wiki site is a collection of web pages designed to enable anyone who accesses it to contribute or modify content. Have you ever used any wiki sites with your classes?

| | Count | Percentage |
|---|---|---|
| Yes | 32 | 24.43% |

| | | |
|---|---|---|
| No | 99 | 75.57% |

6 Are you confident enough with your IT skills to consider wikis with your classes?

| | Count | Percentage |
|---|---|---|
| Yes | 75 | 56.82% |
| No | 57 | 43.18% |

7 If you were given training in the use of a wiki site would you be interested in using wikis with your classes for any of the following?

| | Count | Count Percentage | Respondent Percentage |
|---|---|---|---|
| Discussion forums | 63 | 13.26% | 47.37% |
| Collaborative writing | 40 | 8.42% | 30.08% |
| Course/subject FAQs | 56 | 11.79% | 42.11% |
| Private study assignments | 48 | 10.11% | 36.09% |
| Coursework assignments | 36 | 7.58% | 27.07% |
| Collaborative study guides | 37 | 7.79% | 27.82% |
| Literature reviews / suggested reading | 42 | 8.84% | 31.58% |
| A feedback tool | 39 | 8.21% | 29.32% |
| Syllabuses / course resources | 37 | 7.79% | 27.82% |
| Mind mapping | 43 | 9.05% | 32.33% |
| Disseminating information / events | 34 | 7.16% | 25.56% |

8 Do you have any concerns about the using wikis in education?

| | Count | Percentage |
|---|---|---|
| Accuracy | 1 | 1.47% |
| accuracy - Conservative Party altering history to suit their needs for example! | 1 | 1.47% |
| Accuracy of information. | 1 | 1.47% |
| Authenticity, reliability and validity. | 1 | 1.47% |
| Being confident in the accuracy of the info | 1 | 1.47% |

| | | |
|---|---|---|
| content origins can sometimes be dubious this means that students have to be aware of potential problems with Wki info. | 1 | 1.47% |
| Credibility and reliability of the information | 1 | 1.47% |
| Don't know enough about them to know what I should be concerned about. | 1 | 1.47% |
| Don't know enough about wikis or their possible uses to make comment really. | 1 | 1.47% |
| Don't know enough to have an opinion. | 1 | 1.47% |
| Don't think so | 1 | 1.47% |
| God bless Wikipedia - The saviour of my teaching career. | 1 | 1.47% |
| I am comfortable with students using Wikipedia as a source for reference, wider reading and research but feel that for history the core course resources need to be explicitly focused on the needs of the specification. | 1 | 1.47% |
| I am concerned about the quality of the scientific information on many of the online wikis as it is not requlated or edited | 1 | 1.47% |
| I am concerned that the content is able to me added to or altered by anyone, therefor the information isn't totally reliable. | 1 | 1.47% |
| i don't fully understand them but it seems there is overlap in function between these and for instance, subject based websites. What i would not want to see is a fragmentation of locations for different information/activities | 1 | 1.47% |
| I don't know enough about them to be able to judge. | 1 | 1.47% |
| I follow the debate and at present think that If its limitations are understood it can be used effectively, to support student learning. | 1 | 1.47% |
| I have been told before that they seemed to be unprotected and because they can be changed, they are unreliable? It sounds as though you have much better ideas? | 1 | 1.47% |
| I haven't been hugely impressed with Wikipedia. For Politics research, I much prefer students to access news or newpaper websites such as BBC News, Times Online, which is of far more use to them. I find students tend to go straight to Wikipedia whenever they research on Google, rather than browsing a variety of websites. Overall, I suppose I remain unconvinced about the value of Wikipedia. | 1 | 1.47% |
| I suppose I might be concerned about the potential for prank messages and information being inserted by students. I'm also worried about how much other students would respect the quality of the resourse. I find that my students hate getting and giving feedback to each other for the same reason. | 1 | 1.47% |

| | | |
|---|---|---|
| I suppose my concern would be that I could invest a lot of time in setting something up that gave me an outcome that could be achieved in other, more time-efficient ways. Also, I believe strongly in dragging them over to a more book-based way of learning, as this may well not be something that they would gravitate towards themselves otherwise. | 1 | 1.47% |
| I use Wolfram Maths rather than wiki as the maths is more reliable and rigorous | 1 | 1.47% |
| If this wiki site use is integrated into lesson dellivery, students will be more inclined to see it as a supportive tool, rather than an additional task. | 1 | 1.47% |
| Information presented in wikis might not be very reliable. | 1 | 1.47% |
| Just the editorial enormity of the resource swamping the more in-experienced. | 1 | 1.47% |
| lack of verification of facts | 1 | 1.47% |
| Many are inaccurate or wrong. One must corroborate articles with published material. | 1 | 1.47% |
| Must be 'inclusive' somehow. Could it be seen as not worth participating in by weaker or less-confident students if the content is dominated by contributions from a clique? | 1 | 1.47% |
| no | 5 | 7.35% |
| no - could be a very useful tool potentially | 1 | 1.47% |
| not neccesarily accurate and have always maintained that it is not an academic reference. | 1 | 1.47% |
| not really | 1 | 1.47% |
| Obvious reliablilty issue - tendency for students to be uncritical with content | 1 | 1.47% |
| of course the usual concern is the issue of cross referencing to ensure that wiki sources are not relied upon solely. | 1 | 1.47% |
| Propagation of misconceptions. | 1 | 1.47% |
| Reliability of information for academic essays. | 1 | 1.47% |
| Reliability of information. | 1 | 1.47% |
| some conerns re misuse of publilc sites | 1 | 1.47% |
| Some initial training/discussion is needed about different forms of knowledge ie the difference between a peer reviewed academic article and a wiki page produced by US High School students. With my classes we looked at the theories behind wikipedia and the differing views of knowledge ie accumulative and collaborative compared to the thesis/antithesis/ synthesis model. We also explored how far it is possible to distinguish fact and opinion ie the wiki pages on the Armenian genocide are permanently locked due to the contentiousness of the knowledge whereas the rule of Henry V11 in England is | 1 | 1.47% |

| | | |
|---|---|---|
| rarely altered. A further concern is about quotation from sources and the whole issue of ownership of knowledge. This sounds like a really interesting project - good luck with it. Diana | | |
| Some students use information from wikipedia in an uncritical manner e.g. cutting and pasting content into essays without evaluating (or sometimes even reading!) the material. This might happen less if students had better knowledge of how wikis work. | 1 | 1.47% |
| Sometimes it can be confusing for students with misleading information, however in Art specifically sometimes it can be the only resource for little known artists. | 1 | 1.47% |
| Students are over reliant on wikipedia and do not cross reference what they read and check its accuracy. I'm unsure how they work. So yes, I would be concerned about other people accessing the student forums. | 1 | 1.47% |
| students using it for inappropriate comments | 1 | 1.47% |
| The academic value of wikipedia itself is so incredibly low that i am always fighting to keep students focused on academic articles, books etc which give such depth and quality of information in comparison. Also feel this is a better prep for uni. | 1 | 1.47% |
| The accuracy of the information. | 1 | 1.47% |
| The content may not be correct / may not use the terminology required for the exam | 1 | 1.47% |
| The information on musical analysis in particular is not always accurate | 1 | 1.47% |
| the level of supervision required | 1 | 1.47% |
| The over reliance of students on easy access, sometimes misleading web- based information. | 1 | 1.47% |
| The reliability of information. | 1 | 1.47% |
| The use of unreliable sources and acessing other material/ non -topic discussions | 1 | 1.47% |
| The validity of the information posted. | 1 | 1.47% |
| Time in front of computers is not always well spent. | 1 | 1.47% |
| Time spent in setup as compared to educational value. | 1 | 1.47% |
| Tom's test | 1 | 1.47% |
| Wikipedia and other user generated content is often inaccurate, or biased written be people with strong opinions. | 1 | 1.47% |
| Wouldn't use if inappropriate/inaccurate | 1 | 1.47% |
| Yes - less about its reliability on factual matters (though that is obviously an issue) but on an unconscious bias that will generally simply reinforce the 'correct' currently percieved | 1 | 1.47% |

| | | | |
|---|---|---|---|
| | wisdom in more contentious areas. | | |
| | yes dumbing down | 1 | 1.47% |
| | Yes it is often not accurate so I tell students not to use it. | 1 | 1.47% |
| | Yes, I am concerned about the veracity of the information posted. | 1 | 1.47% |
| | Yes, the content of the website and the information it's posted on the website have not always be verified. How can we use it as an information data base and suggest it to student for research purposes, if we can't verify if the source of the information is accurate? | 1 | 1.47% |
| | Yes. Due to the democratic nature of wikis there is scope for misuse and abuse. There is also the habit forming nature of student study patterns and the possibility that they will continue to use wikis at university as reference material which would not be considered a reliable source. | 1 | 1.47% |

9 Would you be interested in finding out more about the use of wikis in education?

| | Count | Percentage |
|---|---|---|
| Yes | 90 | 68.18% |
| No | 42 | 31.82% |

10 Would you be interested in attending a lunchtime workshop on wikis?

| | Count | Percentage |
|---|---|---|
| Yes | 81 | 60.90% |
| No | 52 | 39.10% |

11 Are there any further comments you would like to make?

| | Count | Percentage |
|---|---|---|
| The open source 'freedom to innovate' message does not appear to be a strong feature of our colleges IT strategy. Much of the success of wikipedia is using this collaborative principle. | 1 | 3.45% |
| A workshop scheduled at a better time, perhaps in industrial week, or after college would be better | 1 | 3.45% |
| Although interested it is not high in my priority at the moment. So attendance would depend on when. Summer term would be better. | 1 | 3.45% |

| | | |
|---|---|---|
| am at the very elementary stages of this - would be interesting to see the wider potential - good luck with your project! | 1 | 3.45% |
| As above | 1 | 3.45% |
| As an Art teacher I think that the use of these sorts of sites is of limited use in my subject. | 1 | 3.45% |
| As I don't teach, you might wish to ignore this entry. | 1 | 3.45% |
| Count me in - always wanted to start a wiki! | 1 | 3.45% |
| I am a part-time teacher, so could a workshop run on Tues, Wed or Fri. Thanks. | 1 | 3.45% |
| I don't feel qualified enough to make extra comments! | 1 | 3.45% |
| I find the concept interesting but may be my limited knowledge of their potential restricts how I view them as useful in the classroom. | 1 | 3.45% |
| I have used wikipedia with classes but only to show information - I think you mean 'use wiki sites' in a slightly different sense? | 1 | 3.45% |
| Initial thoughts only: Would there be an optimum cohort size for collaborative work? ...cohort too small: content builds too slowly, so others are not drawn into the project; ...cohort too large: each student represents such a small fraction of the cohort, so can only contribute a small fraction of the work. | 1 | 3.45% |
| N/A | 1 | 3.45% |
| No | 8 | 27.59% |
| not all that helpful in maths | 1 | 3.45% |
| Not trying to be negative about 9 and 10. It's not that I'm indifferent to training opossibilities, it's just I don't want to commit myself to something which might be useful to me but I can prioritise it at this point in the year. | 1 | 3.45% |
| Possibly interested in attending lunchtime, however i usually can't attend as I have 2 four lesson days and a day off - Mondays and Fridays are the only possibilities. Would be really interested if we could have an IT training day possibly during industrial week - which would give people time to develop resources using their new found skills. | 1 | 3.45% |
| Possibly would attend a workdhop but would like to know a bit more about uses first. | 1 | 3.45% |
| Tom's test 2 | 1 | 3.45% |
| We have many sites that are more appropriate for maths. I use wiki for brief interesting points mainly | 1 | 3.45% |
| workshop would be good! | 1 | 3.45% |

# Action Research

www.farnboroughsfc2.ac.uk/research/arp.aspx