

Inquiry Oriented Learning in Science

Where is Flinders AFFA activity at in July 2012? Project Summary and a Reflection on the AFFA initiative by Sue Pyke

Project Summary July, 2012

My project is centred on the development of inquiry based resources for use with students from our large and increasingly diverse first year chemistry classes. The intention is for these resources to be used to reinforce and ensure understanding of fundamental chemical concepts which are essential to student success in first year chemistry. This last semester saw an abnormally large increase in the number of students in our Introduction to Chemistry topic (an increase of more than 90 students to 421) while our Chemistry 1A numbers were maintained (234 students). The impact of the extra students in these topics had serious implications on the availability of my time for this project and I found I was not able to develop activities in the timeframe needed for use this semester. Activities involving writing and interpreting chemical formulae and balancing reactions are currently being developed but were not ready to be trialled at this stage. For second semester, activities involving oxidation numbers and balancing redox equations are being developed. Also in week 1 of semester 2 25 – 30 students transitioning from Introduction to Chemistry to the higher level Chemistry 1 will work through a double barrelled “POGIL type” activity covering basics of acid – base chemistry and comparing and reinforcing ways of representing organic structures. These students will complete a short feedback survey at the end of the workshop to assess the effectiveness of the activity. The increased student numbers have heightened my awareness of the need for activities such as these which can be undertaken in groups or individually and which along with improving concept understanding will hopefully lead to group discussions and/or peer mentoring (if done in a group). Students show independence in even attending voluntary sessions and hopefully this independence and confidence in their own learning abilities will be fostered through completion of these inquiry based activities. Discussions with students have shown they would be keen to undertake these types of activities and also willing to be involved in groups such as focus groups to evaluate the activities. So the next step is to develop some activities to trial, run some focus groups in conjunction with this and/or student surveys after completion to assess the impact of the activities. Primarily I have been working on this project on my own (which I am sure contributed to the slow progress) and attempting to recruit more active support of lecturing staff would be beneficial. I plan to have results for dissemination at either the December 2014 RACI Conference, (Chemical Education Division) and/or FYHE (first year experience in higher education conference in June 2013 or 2014).

The AFFA Initiative – A Reflection

Being part of the AFFA Initiative has provided several valuable opportunities. Firstly the opportunity to be mentored by an experienced and passionate scientific educator in Les Kirkup who has been always keen to support our endeavours enthusiastically has been brilliant. His support in many ways, whether with visits, phone calls or emails, provision of links to relevant literature, and most simply as a willing source of advice and feedback with regard to ideas, potential pitfalls and wise decisions or simply by a kindly query about progress. Secondly being part of a national network of inquiry based science education researchers (facilitated by Les) with a range of discipline specific interests but common goals, and the opportunity to both read about the research endeavours within the group, but also to discuss our projects together (by teleconference) and in person at the upcoming inquiry day in September is and will be encouraging and informative. Researching as part of a community helps build momentum and the enthusiasm of others is infectious. It was exciting when common ground within projects was discovered. The interest shown by those outside my University was encouraging personally. The fact that someone outside the my own institution was sufficiently interested in my education based research project to support it both through mentoring and financially, has helped to raise the profile of my work within my own school. This has been particularly helpful as during the course of this project I have transferred into an education focussed role at here at Flinders University. Being part of this initiative has led to many contacts, particularly with Les Kirkup which will continue to be productive into the future.