

# Autumn 2010

# Wavelength

## This issue...

The first article in this issue concerns this year's Departmental Representatives meeting. In it are examples of how working with the Centre, attending events and using its resources, has impacted on the working practise of individuals in universities around the country, and then gone on to influence their colleagues and departments.

The Centre's open educational resources (OER) project Skills for Scientists has reached its successful conclusion. Along with details of its achievements there is information on how others can get involved by accessing the resources or producing OER of their own. See pp 4-5.

The winning entry from the Student Award 2010 competition can be found on pp 6-7. This year, physical science students were invited to submit essays on the topic of 'What will the Learning Experience of Physical Science Students be in 2020?' and offered a fascinating insight into what could be in store for the student of tomorrow.

'Promoting Mathematics in Mumbai' on pp 8-9 details a visit made to a college in India to lecture on the importance of mathematics to other disciplines.

Sadly, this year sees us bid farewell to one of the longest serving members of the Centre, Steve Walker, as he retires. The article on p 10 highlights just some of his outstanding contributions and expresses something of how much he will be missed.

We have an important update from our Director, Tina Overton, regarding the future of the UK Physical Sciences Centre in regard to changes in the structure of the Higher Education Academy. Please take a moment to read this.

We are funding seven new Development Projects this year, details of which can be found on the back page. Information on our new 'More Effective...' series of workshops and our other events can also be found there.

If you have suggestions for future articles or comments on this or any of our other publications, please contact the Centre <psc@hull.ac.uk> or editor, Tracey Madden <t.madden@hull.ac.uk>. ■



The newsletter is free of charge to academics in UK higher education institutions. The material is also published electronically on our web site. Subscriptions are available for those outside the UKHE sector who wish to receive the paper version. Contact the Centre for details.

## Inside this issue...

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## Identifying Impact

At the recent Departmental Representatives Meeting organised by the Centre we asked the participants for some 'vignettes' showing where interaction with the Centre had produced a significant impact on the teaching and learning (T&L) activity of their departments. The following are highlights from their responses under a number of headings with some quotations.

### Colleagues have become involved in... Centre activities... and are now more actively involved in T&L

#### Departmental penetration

Here responses indicated a positive culture change and included the adoption of new ideas and approaches to T&L. Colleagues are seen as more actively involved in T&L, new lecturers are better equipped and Centre supported resources are being used more extensively. More recently of note, the Centre has had a very positive influence on the success of Forensic Science education.

*"Colleagues have become involved in PS Centre activities (and those in other SCs) and are now more actively involved in T&L."*

*"Significant changes to, in particular, assessment and feedback process have resulted directly from information from the centre and discussions at centre-organised events."*

*"The use of 'pre-lab' has percolated into the department and this can only have come from the centre."*

#### Awareness of T&L innovation

The Centre continues to disseminate effective practice in T&L in order to raise awareness in the community. Responses indicated an openness to considering

alternative teaching methods/approaches, the focus on educational research, the appreciation of different learning styles, the opportunities to hear about and to contribute to the literature via our publications and the emphasis on raising the profile of teaching (vs. Research).

*"Opportunities to hear good practice (and bad) in teaching during discipline-based activity of the centre – workshops and small meetings particularly. These meetings also make me question what I'm doing myself."*

*"Articles in New Directions provide evidence for making changes that colleagues accept – support that I needed as first University Teacher in the Department."*

*"Personally I have used electronic voting in lectures to inspire students and enhance their understanding. This was as a result of attending a workshop put on by the Centre."*

*I have attended various meetings organised by the centre. The people I have met and heard have influenced me in my own developments in teaching.*

#### Centre support

The Centre is clearly recognised as a centre of excellence, an essential focus for teaching and learning activities and for supporting a discipline-focused community. It has developed a community of practitioners to share effective practice, supports special interest groups and provides support to try new approaches to teaching and resolution of problems for the community.

*Articles in New Directions provide evidence for making changes that colleagues accept ...*

## Identifying Impact

*"The Physical Sciences Centre is the only body that works on and disseminates ideas and good practice in educational ideas in the sciences for HE."*

*"I have attended various meetings organised by the centre. The people I have met and heard have influenced me in my own developments in teaching. Also I was funded to develop resources in teaching and the experience has now led to my developing a pedagogical research programme."*

*"Development funding – led to production of resource and series of talks at different HEIs. This is very positive evidence for promotion case to University of 'external recognition for learning and teaching'."*

### Resources for T&L

The Centre is known as a producer of high quality resources which can be trusted. These include the Centre publications and outputs from development projects. Of particular regard recently have been the resources for supporting students with Asperger's Syndrome (development project), the quality of articles in our journal - *New Directions* - and the uptake of the molecular modelling resources from the ChemTube3D development project.

*"The resources selected for employability and careers (especially Forensic) have been used as part of change in the way the topic and subsequent PDP is taught/developed in our programmes."*

*"Deployments of aspects of development projects in modules. Specifically organic chemistry MCQs... and ChemTube3D. I use these on first year and foundation year chemistry modules. High quality resources – relevant to course content and produced by people I trust."*

*"Publications from HEA-UKPSC used to support grant application for development of e-Assessment at Coventry University."*

*I have used electronic voting in lectures to inspire students... This was as a result of attending a workshop put on by the Centre.*

### Events

Centre workshops, conferences, Special Interest Groups meetings and other events continue to support our community and they are highly regarded providing information, case-studies, resources etc for practitioners to use in their departments and essential networking for like-minded academics. Of significant note is the New Lecturers series of workshops.

*"Attended a meeting on teaching labs a number of years' ago. Many useful ideas, discussed which I subsequently used in our labs."*

*"PSC organised event allowed me to meet colleagues I'd otherwise never have met. Colleagues I then collaborated with on education work."*

*"Several new lecturers from my university have attended workshops for New and Aspiring Lecturers. One was very interested in 'Just in time' teaching, heard about at a workshop. As a result he arranged for our Teaching and Learning Development Unit to invite the speaker to hold a seminar in our university." ■*

*Significant changes to, in particular, assessment and feedback process have resulted directly from information from the centre and discussions at centre-organised events.*

*The resources selected for employability and careers... have been used as part of (the) change in the way the topic and subsequent PDP is taught/developed in our programmes.*

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## Skills for Scientists

There are many instances of practitioners sharing teaching and learning resources across higher education. However, there are issues which can make others reluctant to do so, particularly the matter of copyright. The Centre has been working on a project to enable more practitioners to be able to share their materials, by supporting them in creating *open educational resources* or OER, teaching and learning materials specifically licensed for sharing.

### Project Background

'Skills for Scientists' is the Centre's open educational resources (OER) project, one of a number funded by HEFCE as part of the Higher Education Academy/JISC Open Educational Resources Programme<sup>1</sup>. The aim of the programme was to support projects which released teaching and learning material suitably licensed such that reuse and, where possible, repurposing, would be permitted, and in the process discover more about how the production and reuse of OER could be supported.

### Project Members and Project Partners

The Skills for Scientists project comprised a consortium of over twenty individuals, our Project Members, from fifteen UK universities, with an international partner based in Spain and two major professional bodies representing physics and chemistry: our Project Partners<sup>2</sup>. Having such a large and varied consortium was an obvious advantage as it let us discover more about the process of creating OER from a wide variety of experiences.

### Turning Resources into OER

In order to better understand the process of creating OER from the practitioner's viewpoint, all the work was undertaken by the Project Members themselves or their colleagues under their supervision. Though the resources themselves had already been created, each had to be taken through a process to ensure its suitability to be published as an OER:

- **Accessibility**  
Like all educational material, OER need to be accessible. Prior to sharing, creators of OER need to consider the accessibility of the format and the file size (would it be too large to download?)
- **IPR (intellectual property rights)**  
Material can only be shared if the owners of the IPR of every part of that material (including, for instance, any graphics) have given their permission. If permission cannot be obtained, that part of the material must be removed and/or replaced.
- **Licensing**  
An open license is selected or with the permission of the IPR owner. The license stipulates how the OER can be used, for instances, if making changes is permissible.
- **Metadata**  
Information about the OER (for instance, the author's name, keywords to describe its contents) is added to the work. This helps the potential user find the OER on the web.
- **Sharing**  
There are many options for sharing OER, including repositories specifically designed for educational material and Web 2.0 sites. Many potential users search the web for resources using a search engine<sup>3</sup> so it is important that wherever it is, popular search engines can find it.

### Outputs and Outcomes of the Project

The Skills for Sciences project has resulted in a range of outcomes and outputs, including:

- **Released OER**  
Together, the consortium has released high quality teaching and learning material, equivalent to over 600 credits, in the form of OER. These resources support the physical sciences disciplines of chemistry, physics and forensic science, though a number of the resources have the potential to be used in a wider range of disciplines. All the resources are publically available worldwide after being deposited in the JorumOpen repository<sup>4</sup>, the University of

*Having such a large and varied consortium was an obvious advantage as it let us discover more about the process of creating OER from a wide variety of experiences.*

## Skills for Scientists

Hull's repository, eDocs<sup>5</sup>, and a range of Web 2.0 services. They are all licensed for reuse and most are licensed for repurposing (see the license on a particular OER for details.) OER released by this project can be found simply and easily by typing *sfsoer* into the search box in JorumOpen, eDocs or any major search engine.

- Culture Change

Skills for Scientists has been a successful project in promoting culture change, not only amongst its Project Members but also the broader physical sciences community and related professional bodies. Through a range of dissemination activities, the project has aimed on one level to promote the benefits of open educational resources to UK higher education institutions, but on another level to show it can support the individual who wants to know more about creating or using OER in their teaching.

- Sustainable Support for OER Creation

The experiences of the Project Members have been used to inspire highly practical guidance material on the production of OER. This comprises a briefing paper from the Centre<sup>6</sup> and a website, the STEM OER Guidance Wiki<sup>7</sup>, which was created by a number of OER project teams, including that of the Centre. These resources are freely available as OER, hence what has been learnt can be carried forward to the wider community beyond the lifetime of the project.

The Project Members are now fully able to produce and share OER without further support from the Centre. They are also able to support their colleagues or other members of the community, should they choose, to produce and use OER; some are already doing so. The project wiki<sup>2</sup> can be updated by the Project Members should they wish to inform visitors of further developments, and visitors can leave comments for Project Members should they wish to offer feedback on their work.

### The Future for OER

In the long term the Centre will be the primary contact for the Skills for Scientists project. All outputs, including the OER themselves, are available through the project website<sup>8</sup>. Those who wish to, can contact individual Project Members about their OER via the project wiki<sup>2</sup> or through the Centre.

Those who are awarded funding from the Centre for development projects are being supported to release their project resources as OER. The Centre is also releasing its new, and past, publications and resources as OER wherever possible.

Support for the production and use of OER has become part of the existing support from the Centre. Those interested in knowing more or getting involved can find a range of resources to help them on the project website<sup>8</sup>.

### References

1. Higher Education Academy/JISC OER Programme:  
<[www.jisc.ac.uk/whatwedo/programmes/elearning/oer](http://www.jisc.ac.uk/whatwedo/programmes/elearning/oer)>
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<[skillsforscientists.pbworks.com](http://skillsforscientists.pbworks.com)>
3. Davies D, 'What do people look for when they search online for learning resources?',  
<[david.davies.name/weblog/](http://david.davies.name/weblog/)> (accessed 15/04/2010)
4. JorumOpen: <[open.jorum.ac.uk](http://open.jorum.ac.uk)>
5. eDocs: <[edocs.hull.ac.uk/muradora/](http://edocs.hull.ac.uk/muradora/)>
6. Turning Resources into Open Educational Resource  
<[www.heacademy.ac.uk/assets/ps/documents/briefing\\_papers/oer.pdf](http://www.heacademy.ac.uk/assets/ps/documents/briefing_papers/oer.pdf)>
7. STEM OER Guidance Wiki:  
<[stemoer.pbworks.com](http://stemoer.pbworks.com)>
8. Project website:  
<[www.heacademy.ac.uk/physsci/projects/skillsforscientists](http://www.heacademy.ac.uk/physsci/projects/skillsforscientists)>

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### What will the Learning Experience of Physical Science Students be in 2020?

UK Physical Sciences  
Centre Student Award 2010

Here is the winning essay for 2010 to the UK Physical Sciences Student Essay Competition, by...

Frederik Floether

University of Cambridge  
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Frederik also won the previous two years' competitions, and these entries can be found at: [www.heacademy.ac.uk/physsci/home/students](http://www.heacademy.ac.uk/physsci/home/students).

## What will the Learning Experience...?

50 years ago, speculations about what the learning experience of Physical Science students would be in 2020 would conceivably have ranged from absorbing knowledge by swallowing pills to simply memorising a recently completed Theory of Everything. Being a third year student of physics, I can attest that these scenarios are still as removed from our world nowadays as they were during the last century. Nevertheless, the learning experience of Physical Science students is likely to change in three interconnected areas over the next ten years: Technology's role will continue to expand, courses will become more intense and diversified, and degrees will become globalised (students will be more connected with other students and degree requirements will become increasingly standardised).

*I no longer get exam results on a sheet of paper but only online...*

Before describing the three areas in detail, it will be helpful to outline on what basis future changes in (Physical Science) education may be predicted. Clearly, one possibility is to look at past and current trends and to extrapolate those forward in time. Although this approach does not yield definitive answers and cannot take into account innovative, unforeseen developments, it does have the advantage of giving a good indication of what is likely to happen and what is not; hence, I will base my analysis on this reasoning.<sup>1</sup>

When projecting how (Physical Science) education will change in the next decade, the increasing importance of technology is one of the first thoughts that comes to mind. Already during my first three years of studying physics, I have witnessed several such changes: I no longer get exam results on a sheet of paper but only online; one of my lecturers recently told me that he was reluctant to give out hardcopies of his handout since many people exclusively learn from online notes; an increasing number of lecturers are trying smart boards and tablet PCs, in particular to illustrate mathematical steps (even though the blackboard stubbornly refuses to go away). At the same time, the number of students completing (science) degrees online continues to rise (a website by Nobel laureate Gerardus 't Hooft even promises

students that they can teach themselves to be good theoretical physicists, perhaps on their path to Nobel glory<sup>2</sup>). Physical Science students in 2020 are likely to spend even more of their study time in front of a computer. As laptops continue to become lighter and more user-friendly, students may even begin to type mathematical answers to practice problems (so far, writing these by hand has been the convention). In fact, not only will students spend more time using their computer's programs, but they are also likely to spend more time writing their own programs in order to solve scientific problems (my department is currently considering how computing can become a more central part of the physics course for all students). All technological developments at universities should have one common goal though (which is not achieved by, for example, too many overlapping online systems for a single course) – to make it easier for students to acquire information.

*...more of my fellow students can now imagine doing a further degree or pursuing a career in the energy sector.*

Next to becoming more technology-focused, degrees in the Physical Sciences will probably also tend to become more intense during the next 10 years. Because of the difficulty of finding a job in the current economic climate and because of the increasing value that is placed on expertise and knowledge in our 'information society', obtaining further degrees has become an increasingly attractive option for many students. In fact, alternating periods of education and working (carried out by MBA students, for example, nowadays) may become commonplace. Furthermore, due to the scientific challenges that face humanity in the 21st century (in particular, with regard to energy usage and climate change), universities are likely to restructure their Physical Science courses and expand their units on these topics (to produce the generation of scientists which will finally save the world). At the beginning of my course, I got the impression that most of my fellow students wish to stop studying after three or four years and are not

## What will the Learning Experience...?

interested in interdisciplinary research areas such as climate change. Still, even during the last three years I have noticed changes – compared with one year ago, many more of my fellow students can now imagine doing a further degree or pursuing a career in the energy sector.

*It may become possible to not only routinely switch universities after completing a degree, but also while in the middle of studying for one.*

Finally, degrees in the Physical Sciences are likely to become more globalised. This means that, firstly, students will exchange more information with students at other universities (which is also a direct consequence of the increasing roles technology and the internet play in education). Online study groups and Q&A forums will be an important part of most students' learning routines. This new approach to learning with others, even with people who are thousands of miles away, could be quite different to what most students are used to nowadays. Although we do work on problems together and consult with supervisors, the majority of time, for many people, is still spent on independent studying and research – for instance, trying to follow a detailed derivation in a library book. Despite this general change, all students should continue to have the freedom to choose their favourite routines. Secondly, universities will try to align their courses and promote exchange programs. The

Bologna Process is the best example of such an attempt to make education uniform in a large region. It may become possible to not only routinely switch universities after completing a degree, but also while in the middle of studying for one.

Ultimately, Physical Science students in 2020 are likely to use technology extensively, be enrolled in demanding and diverse programs, and follow more globalised degrees. These changes will probably occur at universities in all parts of the world, particularly though at universities in developed countries. Whether or not these adjustments will improve the student learning experience remains to be seen (although I hope I will not witness them firsthand in 2020 as that would imply repeatedly failing my exams during the current decade). What should be clear, though, is that the value placed by our society on the expertise and analytical thinking skills of Physical Science students will very likely continue to rise, which would certainly be a positive development.

### References

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2. 't Hooft, Gerardus. "How to Become a Good Theoretical Physicist." *Universiteit Utrecht*. 2009. (Accessed on the web: 22 March 2010.)

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## Promoting Mathematics in Mumbai

This article describes my visit to G.N. College of Arts, Science and Commerce, Mumbai, India where I was invited by the Principal Dr. Punjabi to give a lecture on 'The Relevance of Mathematics to Business, Management Sciences, Accountancy, Economics and Commerce related degree courses'. The lecture was very well received and I found the whole event personally rewarding.

I met Dr. Punjabi along with several other academics from the UK and India at the UK-India Education and Research Initiative (UKIERI) conference held in the UK on 9 October 2009. We all engaged in discussions on various issues in education including undergraduate students' negative perception of mathematics. The majority of us agreed on how important it is to get the message across to students that it is a fascinating subject, not only in its own right, but also because of its relevance to several worthwhile professional qualifications, degree courses and careers. Further, that it is central to almost everything in today's world.

*The majority of us agreed on how important it is to get the message across to students that it is a fascinating subject...*

We compared notes on how students in the UK and India often opt for certain career paths thinking that this will help them avoid mathematics because of their misconceptions about the subject. I shared my tried and tested ideas and teaching approaches to motivate students to read Mathematics and Statistics and to create

interest in the subjects. Dr. Punjabi asked me if I would give a lecture on this theme at her college which I accepted enthusiastically because it offered me the opportunity to contribute to promoting mathematics.

G. N. College is a Higher Education institution affiliated to Mumbai University, as are other colleges in Mumbai, and offers bachelors' degree programmes such as BA, BSc and BCom. The academic standard of degrees awarded by such institutions is uniform throughout the city with all the examinations set by the University of Mumbai. My lecture was scheduled for 11.30 a.m. on Saturday 19 December 2009.

I entered the lecture hall to be pleasantly surprised to see how packed it was, considering the theme of the lecture and the fact that it was a Saturday morning. The audience consisted of about 200 students, the Principal, the Vice Principal and all the faculty members.

I began with how mathematics increases employability and helps develop those transferable skills highly desired by potential employers. I then talked about the central role of mathematics in a variety of gadgets and luxuries that are both taken for granted and play a major part in our daily lives. I went on to discuss some major contributions by mathematicians to improving the quality of our lives before moving on to the actual theme of the lecture. My rationale behind this order of sub topics was to create general interest in mathematics and work constructively on their negative perceptions of the subject before relating it to their degree courses.

*I began with how mathematics increases employability and helps develop those transferable skills highly desired by potential employers.*

## Promoting Mathematics in Mumbai

They listened with interest as I spoke and seemed to enjoy my lecture. I invited students to ask questions as I concluded my lecture. There was initial silence which was soon replaced by several interesting questions and lively discussions, once I put the students at ease.

I received several interesting and relevant questions and comments from students as well as academics from both the Mathematics and other faculties. Everybody stayed until 1.30 p.m. which

*It is crucial for the lecturer to make a conscious effort not to allow the complexity of the subject to overwhelm the audience.*

was rather impressive considering they had already listened to my 45 minutes lecture and had their lunch delayed! The Principal commented that the students are usually very quiet and never ask any questions and added that it was good to see them ask questions and engage in discussions with such interest.

This highlights the fact that whilst the actual lecture in such situations is important and must be prepared thoughtfully; this is just an initial trigger. A well planned thoroughly prepared lecture could be forgotten once the lecture is finished. It is important for lecturers to create an atmosphere that is conducive not only to the free exchange and expression of ideas but also to promote further curiosity in the subject. It is equally important to be empathetic to those that believe they lack the aptitude for mathematics. It is crucial for the lecturer to make a conscious effort not to allow the complexity of the subject to overwhelm the audience.

Feedback on such lectures is another important aspect of such events which could show if the objectives were fulfilled and also help plan future presentations. The comments I received included:

1) *"Your presentation on [the] relevance of mathematics to Business Management has created my interest towards Mathematics which I had lost considering it to be quite complex and difficult. Your lecture will always be remembered."*

Vinid Venugopalan (Student)

2) *"The lecture was interesting and enlightening at the same time. It has not only inspired students to learn mathematics in diverse ways but it has also directed teachers from different streams of knowledge to integrate it with life. This lecture has encouraged me to explore a research initiative in the area of value based education."*

Dr Priya Vaidya (Faculty Member)

I have agreed to deliver more lectures on themes related to Mathematics because it would give me the opportunity to make a positive contribution to the future careers of so many students by positively influencing their perceptions of mathematics. ■

[Also published in Mathematics Today, April 2010, 62.]

*It is important for lecturers to create an atmosphere that is conducive not only to the free exchange and expression of ideas but also to promote further curiosity in the subject.*

*... students... often opt for certain career paths thinking that this will help them avoid mathematics because of their misconceptions about the subject.*

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## End of an Era

At the end of July 2010 our consultant at the University of Liverpool, Steve Walker, finally said 'Farewell' to the Centre. This is very much 'the end of an era' both for Steve and for the teaching and learning community in the UKHE physical sciences in general.

Since 1985 Steve has been active in the promotion of education being instrumental in bringing to the University of Liverpool the first Computers in Teaching Initiative (CTI) project, then moving on to the Directorship of the next phase, the CTI Centre for Chemistry, in 1989. It was during this period that Steve was awarded a Higher Education Prize by the Royal Society of Chemistry for his work on using computers in teaching chemistry.

### *Other international recognition... included a long-term collaboration with the University of Nice...*

The success of CTI Centre meant that it was the obvious choice of the funding bodies when the Teaching and Learning Technology Programme (TLTP) was initiated in 1992. This project gave the community the Chemistry Tutor software package which was used extensively in UKHE chemistry departments. Several of the packages and most of the utilities were developed solely by Steve. In addition, the success of this package was noted by and further developed into a browser-based version by the US-based publisher, Houghton-Mifflin – The Chemistry Tutor II CD. Funding from the publisher meant that the work of the project was sustained for nearly five years beyond the original timescale. Other international recognition during the CTI Centre period included a long-term collaboration with the University of Nice and through them contributions to the French biannual conference on using computers in chemistry education, ERASMUS funding to collaborate on

chemistry teaching software with universities in Romania and being funded by UNESCO to set up a Centre for Chemistry Education in Europe.

In 2000 the CTI phase of development ceased but through a close relationship with the Fund for the Development of Learning (FDTL) project, Improve, based at the University of Hull (and others in CTI Physics and the Physics Network) he contributed to the establishment of the original Physical Sciences Centre as part of the Learning and Teaching Support Network (now the UK Physical Science Centre - part of the Higher Education Academy). Now in retirement from the chemistry department at the University of Liverpool, Steve decided he no longer wanted the responsibility of the Directorship of this new Centre but as he was still committed to teaching and learning he elected to continue to support the Centre as a part-time consultant - a role he has undertaken tirelessly. Recently many of you will know his contributions have included the Chemistry Box and Science Box resources and he has been very active in the Centre's work on Outreach and Widening Participation within the community.

Personally, for me, it has been a pleasure and privilege to work with Steve for all these years (I joined the CTI Centre in 1989). He has been a pathfinder, developer and champion of education in the physical sciences and he will be missed both in the Centre and more widely.



All the best, Steve! ■

*He has been a pathfinder, developer and champion of education in the physical sciences and he will be missed both in the Centre and more widely.*

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## The Future

As many of you will be aware, the Higher Education Academy is currently reviewing its focus and organisational structure in light of cuts in funding of 30%. This review is being led by its new Chief Executive, Professor Craig Mahoney. The most recent development in this process has been an external consultation of the views of Vice-Chancellors and other stakeholders, such as the funding councils.

The consultation document states the current vision of the HEA as being “*for students in UK higher education to enjoy the highest quality learning experience in the world*” and its mission being to “*support the sector in providing the best possible learning experience for all students*”. The HEA’s new vision as laid out in the consultation document is “*to be a nationally and internationally renowned organisation that leads and helps shape learning and teaching in higher education*”. The HEA’s new mission is “*excellent teaching, flexible learning, graduate impact*”.

*The staff of your subject centre will work within the new structure... to try to ensure that as many of the services that you value as possible are rolled over into the new system.*

The HEA has expressed a commitment to maintaining support at a discipline level, but the model under which that support is provided will certainly be different from the current network of 24 Subject Centres. Three models have been presented in the document, one of which will be chosen by the HEA Board soon after you read this newsletter.

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### Model 1

The HEA’s work would be led, managed and delivered from a main central office in York, plus smaller offices in Scotland and Wales.

### Model 2

A ‘cluster’ structure with 4-6 sites located within (or associated with) HEIs, retaining a central office in York and smaller offices in Scotland and Wales. These clusters could be organised either geographically or by related discipline groups e.g. Humanities, STEM.

### Model 3

A geographically dispersed structure with 13-15 sites located within (or associated with) HEIs or other HEI related bodies, retaining a central office in York and smaller offices in Scotland and Wales. These sites would be broadly based on current geographical location and/or groups.

Whichever model is finally selected will have an impact on how discipline-focussed support is provided. The staff of your subject centre will work within the new structure, whatever that is, to try to ensure that as many of the services that you value as possible are rolled over into the new system. We face challenging times ahead, both professionally and personally, but we will endeavour to keep the physical sciences well informed and look forward to your continued support. ■

## New Development Projects 2010/11

'Green chemistry: development of an educational board game' by Dr Mike Coffey, Nottingham Trent University.

'Research informing teaching: Developing a Context-Based Laboratory - Applying skills in realistic scenarios' by Dr Katy McKenzie, University of Leicester.

'Web-Based Interactive 3D Simulations of Stereo- and Enantioselective Organic Reaction Mechanisms' by Dr Neil Berry and Dr Nick Greeves, University of Liverpool.

'The development and implementation of a pedagogic 'toolkit' for creating Multiple Choice Questions (MCQs) for use within a Forensic Science Teaching environment and to support forensic practitioner work-force competency testing' by Dr Claire Gwinnett, Staffordshire University

'Enhancing literature review skills within forensic science undergraduate project work' by Dr Craig Adam, Keele University.

'Peer Assisted Learning in Physics – Do students think it works?' by Dr Peter H. Sneddon, University of Glasgow.

'Effectively engaging forensic science students and employers in developing graduate employability' by Dr Anthony Cowell, University of Lincoln.

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*The UK Physical Sciences Centre is funded by the Higher Education Academy ([www.heacademy.ac.uk](http://www.heacademy.ac.uk)) and is part of the Academy's Subject Network. The Centre is supported by the Universities of Hull, Liverpool and Surrey.*

*Offers to contribute to the newsletter are welcomed. Please contact the Centre.*

*The views expressed by invited authors in this publication do not necessarily represent the views of the Centre.*

*We welcome comments on this publication.*

## Events -2010/11-

## More Effective... series of workshops

As we start the new academic year most of us will be facing the challenge of increased student numbers. This is a welcome problem to face after the years of difficult recruitment to the sciences but, coupled with the decrease in funding faced by many institutions, it does stretch scant resources.

To help colleagues to meet these challenges we are offering a series of workshops entitled 'More effective.....'. These workshops bring together colleagues who have devised effective approaches to teaching and learning in the key areas of lectures, laboratories, tutorials, workshops, graduate attributes and retention.

These may be effective in terms of enhancing student learning and/or in making efficiencies in staff time.

For a full list of dates and venues for this series of workshops, and the opportunity to book a place, visit:  
<[www.heacademy.ac.uk/physsci/events/forthcoming/centre](http://www.heacademy.ac.uk/physsci/events/forthcoming/centre)> ■

- More Effective Learning in Laboratories, 17th November 2010, Nottingham
- New and Aspiring Lecturers and Teaching Fellows Workshop, 19th/20th November 2010, York
- More Effective Lectures, 15th December 2010, Edinburgh
- More Effective Tutorials/Workshops, 12th January 2011, Loughborough
- More Effective Assessment and Feedback, 16th February 2011, Leicester
- More Effective Physical Science Graduates, 16th March 2011, Paisley

Contact us or visit our web site for details.