

Centre for Bioscience Professional Development

Getting published – writing papers for pedagogic research journals

Dr Chris Willmott

Dept of Biochemistry,
University of Leicester
cjr2@le.ac.uk



University of
Leicester

Overview

- 7 reasons why papers get rejected
- Why publish education papers?
- Top tips for getting published - FAQs
- Some suggestions about suitable journals

7 reasons why papers get rejected

- Inadequate engagement with existing literature
- Poorly written
- Show and tell, i.e. only done once
- Little or no evaluation
- Not original
- Too obscure, not transferable
- Content good, but not for specific journal

Why publish education research?

- RAE2008? This was more hindrance than help. Line managers generally underwhelmed by the impact factors of education journals
... therefore must be other motivations!
- Growing recognition of importance of PedR
'Evidence-based practice'
- Desire to share 'something that works' with others
- **Extrinsic rewards** include: peer recognition, institutional recognition, enhanced networks
- **Intrinsic rewards** include: new and exciting ways to approach your own teaching, security of knowing your teaching underpinned by scholarship

"I'm not sure what to study/publish"

- May have a project arising naturally from things that you are doing – ideal for subject-specific paper
- Starting a new project?
More than one discipline?
More than one institution?
Golden rule = choose something that interests YOU
Second rule = identify a 'hot topic'

J Biol Ed
37:139-140 (2003)



Interactive Learning

An exercise to teach bioscience students about plagiarism

Chris J R Willmott and Tim M Harrison

Department of Biochemistry, University of Leicester, Leicester, UK

Plagiarism is an issue of increasing concern to educators, yet students are not always clear about the boundaries between acceptable and unacceptable practice. An exercise to help bioscience students make this important distinction is described.

Key words: Inappropriate use of source materials, Plagiarism.

Broader research priorities (1)

TLRP Tavistock Report (2002) noted general absence of 'evidence-based practice'.

Specific issues identified included:

- relevance and effectiveness of VLEs
- effects of performativity* and student-centred teaching on the learning process
- the role of 'peer groups' and 'peer interaction' in shaping expectations about learning
- how to measure "the student experience"

* **Performativity** = *approaches that focus on assessment and outcomes, and the relationship between teaching and skills needs in modern economies*

Broader research priorities (2)

Could add the following:

- Widening participation
- Distance learning
- Web 2.0 technologies
- Educational value of 'social' interaction between students and/or with staff
- Links between neurobiology and learning

"I haven't got any evidence"

- Likely that you are actually already sitting on a gold-mine of potentially interesting data, e.g.
 - Exam performance?
 - Module review and feedback forms?
 - Completion rates? First destination data?
- Quantitative data?
- Qualitative data?
- Triangulation?*

* **Triangulation** = synthesising evidence of different types and from different sources, in order to arrive at conclusions



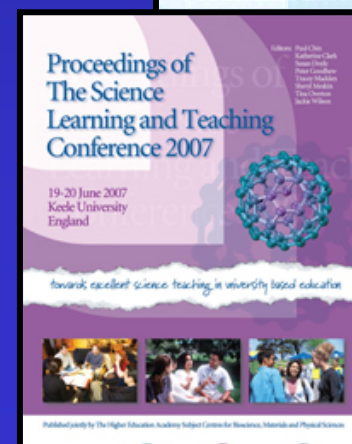
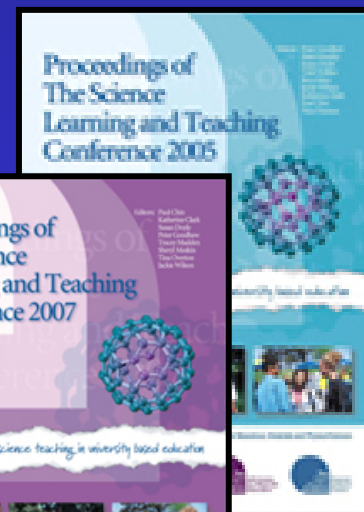
"I'm worried about my data"

- Started evaluation?
- Spotted how you may have done something better?
- Don't panic, it may not be fatal
- Can't 'do that extra experiment'
- Be honest, be self-critical
- "Warts and all"



"I'm still not sure"

- Can you repeat another year (with improvements?)
- Can you offer anything else?
e.g. Can you make the activity itself available as supplementary material or via a web link?
- Consider conference presentation, but pick event with meaningful *Proceedings* document
e.g. Science Learning & Teaching Conf.
- Start now, ready for SLTC 2009?



"I'm not familiar with the literature"

- Inadequate discussion of background *can* be a killer
- Pedagogic articles not as well served by search engines as scientific/biomedical papers
- Follow the scent from other people's reference lists
- Google Scholar <http://scholar.google.com>



Search for poster assessment

- Assessment and Evaluation in HE (3 articles)
- Innovation in Education and Teaching International (2)
- Journal of Biological Education (1)
- Nurse Education Today (1)
- Review of Educational Research (1)
- Studies in Higher Education (1)
- Journal of Chemical Education (1)
- Learning Environments Research (1)
- Journal of Pediatric Nursing (1)

...but turns out author called Poster!



"I don't know what writing style to use"

- In general, same advice as per science research articles
- Decide on the intended Journal *before* writing the paper, not after
- Check their *Instructions for Authors* and obey the rules on formatting! Read some other papers published in your target journal
- Think "brevity and clarity" – tell as much of the story as necessary, but tell it concisely

Writing checklist (after Joy *et al*)

- Is the message *clear*?
 - *what? why? context? findings?*
- Is the message *interesting*?
 - *novel?*
 - *appropriate for the journal?*
 - *appropriate for the section of journal?*
- Is the message supported by *appropriate evidence*?
 - *quantitative?*
 - *qualitative?*
- Is the English of sufficiently *high quality*?
- Are the references *up to date*?
- Is the *formatting* correct?

"I'm not sure where to submit my work"

- Education articles in 'mainstream' science journals?
 - **Science Education Forum** – last issue every month
<http://www.sciencemag.org/sciext/educationforum/>
 - **Nature Reviews Molecular Cell Biology**
- Realistically, need to develop reputation via other journals
- Generic v Subject-specific?
- Deliberations website

NRMCB 7:290-296 (April 2006)

ESSAY

Cell biology should be taught as science is practised

Stephen E. DiCarlo

Abstract | Over the past 20 years, there has been a dramatic transformation in the goals of science teaching at all levels and within all disciplines. The emphasis has moved from students obtaining a base of scientific facts to students developing a deep understanding of important concepts. This transformation requires a significant shift in the approach and attitude of the instructors and students, as well as in the procedures and techniques that are required to teach cell biology.

The American Association for the Advancement of Science (AAAS)¹ strongly recommends that "...science be taught as science is practised..." because the traditional 'lecture-then-test' format and accompanying 'cook-book' laboratories are falling short of their educational goals. The AAAS encourages a transformation from instructor-led courses to dynamic student-centred experiences that engage students in research-orientated learning^{2,3}. However, many

teachers are apprehensive of making this transition and are unconvinced of the need for change. Furthermore, many are not familiar with the specific strategies that could be used to achieve the goals. This article presents a review of the literature and evidence supporting the need for reform, as well as specific practical examples and resources for faculty who are considering incorporating student-centred learning into their teaching strategies.

"I'm not sure where to submit my work"

- Deliberations website

www.londonmet.ac.uk/deliberations/journals/



The screenshot shows the 'deliberations' website interface. At the top left is the site name 'deliberations' in a large, bold, black font. To its right is a search bar with the text 'Search' and a double-right arrow icon. Below the site name is a navigation menu with links: '| home | news | forum | feedback | about |'. A breadcrumb trail reads 'You are here: / Deliberations / Education Journals'. On the left side, there is a sidebar with a grey background containing the text 'Education Journals' and 'In this section:' followed by three menu items: 'Education Journals', 'Educational Journals: General', and 'Educational Journals: Subject-based'. The main content area is titled 'Education Journals' and contains the following text: 'Deliberations maintains two lists of educational journals:' followed by a bulleted list: '■ General Educational Journals' and '■ Subject-based Educational Journals'. Below this, it states: 'Additional listings of educational journals relevant to higher education are available from the following sites:' followed by another bulleted list of five external resources: '■ The British Education Index provides a general listing of all the 300+ education and training journals published in the British Isles.', '■ Ingenta Journals has a listing of international educational journals and links to their publishers.', '■ ultiBASE provides a useful annotated listing of International Journals.', '■ Taylor & Francis Group journals searchable by subject and alphabetical listing.', '■ Lawrence Erlbaum Associates, Inc. listing of journals at all levels of education.', and '■ Intellect books has a list of journals, mainly in arts and humanities.' At the bottom, it says: 'For further information, see our sections on [Educational Publishers](#) and [Online Publications](#).' and 'If you know of any titles which you would like to add our lists, please send details to us at deliberations@londonmet.ac.uk'.

Generic v Specific?

- Generic:
 - higher impact factor?
 - wider readership?
 - cross-curricular projects
- Subject-specific:
 - nearer the 'chalkface'
 - more likely to be of direct relevance to readers
 - more likely to be 'used'

Publishing - generic education journals

- Assessment and Evaluation in Higher Education
- Studies in Higher Education
- Teaching in Higher Education
- Computers and Education
- International Journal of Science Education

Publishing - biological journals

- Journal of Biological Education
- Bioscience Education E-journal
- Others:
 - CBE Life Sciences Education
 - Biochemical and Molecular Biology Edn
 - Advances in Physiology Education

Journal of Biological Education

INSTITUTE OF BIOLOGY

Why publish in JBE?

- ✓ Covers Secondary as well as Tertiary Edn
- ✓ Has (small) impact factor
- ✓ Widely read in UK and elsewhere
- × Subscription required



Bioscience Education E-journal

Why publish in Bioscience Education?

- ✓ Free electronic access for all
- ✓ Fast turn around
- ✓ Friendly service, supportive
- ✓ Broad range of articles accepted
- ✗ No impact factor at present



Bioscience Education
e journal

The logo for Bioscience Education e journal is contained within a white rectangular box with a black border. The text "Bioscience Education" is in a bold, dark blue, sans-serif font. Below it, the word "e journal" is written in a red, italicized serif font, with the "e" enclosed in a red circle. The bottom-left corner of the box features a light blue curved gradient.

<http://www.bioscience.heacademy.ac.uk/journal/>

Bioscience Education: Range of articles

- Research articles
- Descriptive accounts (1)
- Descriptive accounts (2)/Short Communication
- Review articles on topics related to T&L
- Essays on bioscience education policy matters
- Reviews of current or historical interest
- Original electronic resources
- Reviews of books
- Reviews of websites

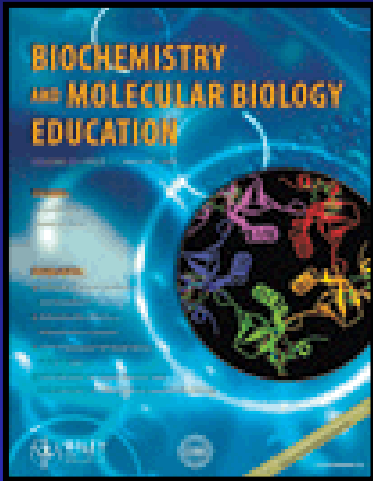
The logo for Bioscience Education e journal is contained within a white rectangular box with a black border. The text "Bioscience Education" is in a bold, dark blue, sans-serif font. Below it, the word "e journal" is written in a red, italicized, serif font, with a red circle containing a white lowercase 'e' positioned to the left of the word "journal".

Bioscience Education
e journal

<http://www.bioscience.heacademy.ac.uk/journal/>

Other Biological Pedagogy Journals

Some other titles serve sub-specialisms within biology



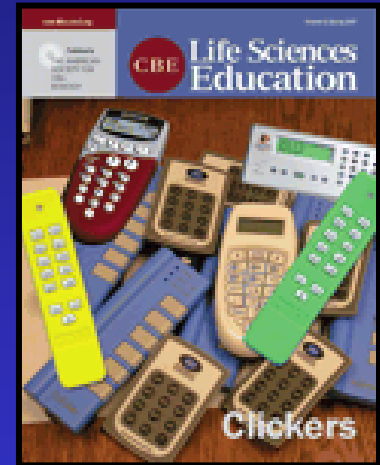
Biochemistry & Molecular Biology Education

www3.interscience.wiley.com/cgi-bin/jhome/112782101

www.bambed.org

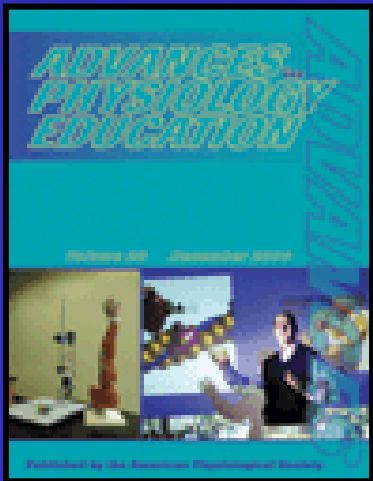
CBE Life Sciences Education
Formerly Cell Biology Education

www.lifescied.org



Advances in Physiology Education

<http://advan.physiology.org/>



Assessment & Evaluation in Higher Education

“... publishes papers and reports on all aspects of assessment and evaluation within higher education.”



www.tandf.co.uk/journals/titles/02602938.html

Biological examples:

Orsmond *et al* (2005) Biology students' utilization of tutors' formative feedback: a qualitative interview study **30:369-386**

Cann (2005) Extended matching sets questions for online numeracy assessments: a case study **30:633-640**

Pickard (2006) Staff and student attitudes to plagiarism at University College Northampton **31:215-232**

Downs (2006) What should make up a final mark for a course? An investigation into the academic performance of first year Bioscience students **31:345-364**

Studies in Higher Education

"... welcomes empirically based, reflective and synoptic articles dealing with any aspect of higher education, approached from any perspective or discipline.

... articles should be written in an accessible, but rigorous, style that is likely to engage those without a specialist interest in the topic being discussed."

www.tandf.co.uk/journals/carfax/03075079.html

Biological examples:

Lawson and Johnson (2002) The validity of Kolb learning styles and neo-Piagetian developmental levels in college biology **27**:79-90

Hughes and Large (1993) Staff and peer-group assessment of oral communication skills **18**:379-385



Computers and Education

"The Editors welcome any papers on cognition, educational or training systems development using techniques from and applications in any technical knowledge domain."



www.sciencedirect.com/science/journal/03601315

Biological examples:

Evans *et al* (2004) Virtual learning in the biological sciences: pitfalls of simply "putting notes on the web" **43:49-61**

Riffell and Sibley (2005) Using web-based instruction to improve large undergraduate biology courses: An evaluation of a hybrid course format **44:217-235**

International Journal of Science Education

"...the authoritative voice in the world of science education. It bridges the gap between research and practice, providing information, ideas and opinion. It serves as a medium for the publication of definitive research findings."

www.tandf.co.uk/journals/titles/09500693.html

Biological examples:

Ellis (2004) University student approaches to learning science through writing **26:1835-1853**

Watters and Watters (2007) Approaches to learning by students in the biological sciences: implications for teaching **29:19-43**



Journal of Research in Science Teaching

"...publishes reports... on issues of science teaching and learning and science education policy.



Scholarly manuscripts... employing qualitative, ethnographic, historical, survey, philosophical, or case study research approaches..."

www3.interscience.wiley.com/cgi-bin/jhome/31817

Biological examples:

Orgill and Bodner (2006) An analysis of the effectiveness of analogy use in college-level biochemistry textbooks **43**:1040-1060

Duncan and Reiser (2007) Reasoning across ontologically distinct levels: students' understanding of molecular genetics **44**:938-959

Acknowledgements

Thanks to the following for recent e-conversations:

- Steve Maw
- Simon Napper (JBE)
- Paul Orsmond

References

Joy M. *et al* (2007) Getting started in computer science education research
www.ics.heacademy.ac.uk/resources/pedagogical/cs_research/

McLeod S. *et al* (2005) Publishing scholarship in teaching and learning
www.csu.edu.au/division/landt/reschol/mcleodpaper.doc

Proceedings of the Science Learning and Teaching Conference 2005
www.bioscience.heacademy.ac.uk/events/reports/scilt2005.htm

Tavistock Report (2002) Review of current pedagogic research and practice in the fields of post-compulsory education and lifelong learning, conducted on behalf of the ESRC by Cullen *et al*
www.tlrp.org/pub/acadpub/Tavistockreport.pdf