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Patrick J. Costello

Glyndwr University, p.costello@glyndwr.ac.uk

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Writing Reflectively and Effectively: Developing the Skills of Critical Thinking, Reasoning and Argument in Higher Education

PATRICK J.M. COSTELLO

Learning to argue is one of the central objectives in education. Whether it is conducting a formal debate, participating in a group discussion, writing an essay, a critique or a persuasive appeal, the ability of the student to employ argument and to anticipate and evaluate the arguments of others will generally be an important measure of achievement.

My purpose in this paper is to outline some key issues involved in teaching, learning and assessing critical thinking, reasoning and argument skills in higher education (HE). When examining arguments for teaching and learning such skills, with undergraduate and postgraduate students, I focus on two issues. The first concerns the view articulated by Garner (2006, p.2) that ‘... many students with top grade A-level passes... had been coached to answer the questions they would face but had little knowledge or understanding [of how] to develop an argument’.

The second issue concerns the concept of ‘indoctrination’. I argue that, to some extent, indoctrination is an essential and unavoidable part of the educational process. Having made a distinction between justifiable and unjustifiable indoctrination and offered the view that indoctrination is, in some sense, an ‘illness’ which pervades educational institutions, I suggest that teaching students the skills of thinking, reasoning and argument provides an ‘antidote’ to it.

Indoctrination

Viewing ‘indoctrination’ with opprobrium is a comparatively recent development in the world of education (Gatchel, 1972). Historically, the term simply meant ‘teaching doctrines’ and was not looked upon as what philosophers call a ‘boo’ word, i.e. something to be given a negative value. Nowadays, however, ‘indoctrination’ is seen as a term to be compared unfavourably with, for example, ‘education’, which is seen as having positive value in itself. Thus, while ‘indoctrinating’ is thought to have been the concern of Communists, Roman Catholics, pacifists and certain other proponents of political education, ‘educating’ is said to be what we ‘good’ teachers are engaged in.

This myopic view of indoctrination is safeguarded, to some extent, by the arguments of philosophers who assert that 'indoctrination' is a matter of the methods used by the teacher, or the subject matter conveyed to students, or the teacher's intention to indoctrinate. Various combinations of these features have also been suggested as providing the 'essence' of the term. A fourth alternative, which views 'indoctrination' in terms of the outcome or result of a teaching transaction, has been ignored by many authors. Elsewhere (Costello, 2000), I have argued that this notion of *result* is central to the concept and offered the following definition of the indoctrinated state of mind:

X is indoctrinated with respect to p (a proposition or set of propositions) if, due to the teaching or influence of Y, X believes that p or doubts that p, in such a way that X is disposed to reject any present q which is offered as a counter-instance to believing that p or doubting that p.

Looked at from the point of view of the indoctrinator, the formula becomes:

Y indoctrinates X with respect to p (a proposition or set of propositions) if Y teaches or influences X to believe that p or doubt that p, in such a way that X is disposed to reject any present q which is offered as a counter-instance to believing that p or doubting that p.

In developing this conception of 'indoctrination', I examined the issue of whether the term 'indoctrinated' can be said to apply to either or both of the following: (1) persons who reject counter-instances to their believing that p or doubting that p at the time at which they are offered to them but who later accept such counter-instances; (2) persons who reject such counter-instances at the time at which they are offered to them and at all times in the future. My own view was (and continues to be) that we can call someone 'indoctrinated', even though this state of mind may only be a temporary one. Furthermore, for us to be able to refer to someone as 'indoctrinated', it is only necessary that he/she rejects any present counter-instance at the time at which it is offered. It is not necessary that such an individual rejects any putative future instance.

The example I gave (Costello, 2000) to illustrate this view was as follows. Let us say that I attempt to indoctrinate someone with the proposition 'There are ten rings around the planet Uranus'. In order for me to be able to say that I have succeeded (i.e. that the person has

become indoctrinated), it is necessary only he/she rejects present counter-instances to the proposition (for example, 'Uranus has nine rings around it'). It is not incumbent upon him/her to reject a putative future counter-instance (for example, 'What if an eleventh ring were to be discovered in 2010?').

Looking at this statement in the light of more recent events, I continue to find it persuasive. For example, the International Astronomical Union (IAU) voted recently to redefine the term 'planet' as a celestial body that: (1) 'is in orbit around the Sun'; (2) is 'able to maintain a spherical shape under its own gravity'; (3) 'has cleared its orbit of debris' (International Astronomical Union, 2006; University of Leicester, 2007). Redefining the term in this way means that the Solar System is now deemed to consist of eight 'planets': Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto has been deleted from the list). The IAU also agreed that a new category called 'dwarf planets' should be developed and that 'planets' and 'dwarf planets' should be regarded as two distinct classes of objects. The first members of the 'dwarf planet' group are Pluto, Ceres and Eris. In terms of exhibiting an indoctrinated state of mind, someone could have rejected counter-instances to the statement 'There are nine planets in the Solar System' (say, in 2000) but yet be willing and able to change his/her mind and accept the view that there are now eight planets in the Solar System, given the deliberations of (and conclusions reached by) the IAU.

In my earlier work, I argued that when there exists, to the best of our knowledge, no warrantable alternative to a belief, then it is justifiable to indoctrinate someone with that belief. I offered a representative sample of beliefs which might, on this criterion, be indoctrinated. These include the following:

- Two plus two equals four.
- Darkness is the absence of light.
- Rome is the capital of Italy.
- In French, 'lundi' means 'Monday'.
- The chemical symbol for copper is Cu.
- The poem 'Days' was written by Philip Larkin.
- The balance of visible trade is said to be in surplus if exports exceed imports.
- *Les Femmes d'Alger* is Picasso's first Cubist painting.
- All triangles have three sides.

- The Lateran treaty of 1929 established the Vatican City as an independent sovereign state.
- Ohm's Law is expressed in the equation: electromotive force (in volts) = current (in amperes) x resistance (in ohms).

I go on to discuss the notion of 'unjustifiable indoctrination' in the context of statements expressing value judgements in areas such as economics, aesthetics, morals, politics and religion. I argue that there is a need for teachers and students undertaking initial teacher education and training (ITET) courses to become acquainted with the 'indoctrination debate' and to articulate their own views, perspectives and arguments in regard to it. Furthermore, I suggest that if indoctrination is at least in some sense unjustifiable, its effects must be countered. Developing the skills of critical thinking, reasoning and argument is essential to this task.

Developing critical thinking, reasoning and argument skills in higher education

My research into developing critical thinking, reasoning and argument skills in higher education grew out of earlier research which focused on teaching and learning such skills in primary and secondary education (Andrews, Costello and Clarke, 1993; Costello and Mitchell, 1995; Costello 2007a, 2007b). A project funded by the Esmee Fairbairn Charitable Trust (Andrews, Costello and Clarke, 1993) involved research undertaken over two years with twenty schools in Lincolnshire and Humberside. Elsewhere (Costello, 2000), I have discussed a working model of argument which focused on assessing pupils' progress in this area. This model was collaboratively developed by the teachers and researchers involved in the project.

Some years later, in considering how best to introduce this work into the context of higher education, I came upon another model of argument as a result of undertaking collaborative teaching and assessment with a colleague, Rob Norris. Having provided some seminars as part of a final year undergraduate module, we set an examination and agreed that we would each mark half of the students' work. On examining the scripts assessed by Norris, I saw that he had treated written answers as though they were longer, word-processed assignments. In all cases, the text was closely annotated with comments indicating where, in the view of the marker, students had been more or less successful in terms of what they had written. Looking more closely at the comments, I was reminded of the earlier model of argument, developed intentionally and explicitly by teachers participating in the Esmee Fairbairn project. By contrast, what was emerging from my scrutiny of the examination scripts was an *implicit* model of

argument. In order to assess it in greater depth, I wrote out all the comments made by Norris on the scripts and grouped them under the headings 'Plus Points' and 'Minus Points' (see appendix 1). The 'forward slash' symbols indicate the number of times that Norris found these points in the text.

What is clear from an examination of the model is that it offers a clear and concise framework by which students' progress in developing the skills of argument might be assessed. However, this model represents the critical reflection of a single individual. In order to foster students' thinking, reasoning and argument skills, I would suggest that certain prerequisites are necessary. To begin with, academic tutors need to discuss, debate and ultimately agree on appropriate models for assessing these skills (for a discussion of thinking skills frameworks, see Moseley *et al.* 2005). Secondly, these models should be shared and discussed with students *in advance* of formal assessments taking place. Finally, at the conclusion of the assessment process, tutors should encourage students to evaluate their academic performance critically, as a baseline for agreeing short-, medium- and long-term goals for future work. I would argue that students' full involvement in the assessment process is a necessary condition for the improvement of academic performance.

One way to encourage students' participation in this way is to ascertain their views about induction into (and progress in) higher education. Currently, I am engaged in a research project that aims to explore key issues concerning teaching, learning and assessment, across three years of an undergraduate degree. Phase one of the project has focused on induction into higher education and I have asked a cohort of year one ITET students a number of questions. These are set out below, together with examples of students' responses.

How can students best be prepared to undertake study in higher education?

- Be mentally and physically prepared and focused to put everything into the course.
- Students should be committed and take responsibility for their own learning.
- It is important that students are committed to the degree programme in order to gain maximum knowledge and understanding from lectures.
- Study hard and attend all lectures. Take any opportunity available to gain help or information from those who offer it.
- Study skills programme at the beginning of the year.

- Study skills invaluable, especially as a mature student returning to education after twenty years.
- To know what is expected of us when writing assignments.
- A good level of understanding of the format of assignments.
- Have help with assignment writing, such as how to structure an essay and how to write references.
- A clear and confident understanding of computers.
- Open days to prepare students and allow them to see if higher education is for them.

How can lecturers help to facilitate students' academic success?

- Help with assignment layout and discuss assignment title words.
- More information from tutors regarding assessment criteria.
- Give clear explanation of the content of the assignment in order to dispel any confusion.
- Ensure feedback is given after every assignment and make time for students' questions.
- Through assignment feedback, so you know areas which need improvement and you can develop these areas for future assignments.
- Give appropriate feedback to the student on a one-to-one basis.
- To offer critical advice on assignments. It's good to be positive but we cannot improve without being given advice on what we have done wrong.

Should thinking, reasoning and argument skills be taught in higher education?

Yes: 21.

No: 0.

Don't know: 3.

Please give reasons for your answer.

- I believe that these skills are of the utmost importance when writing a good assignment. Furthermore, they are life skills that as teachers we need to pass on to pupils.
- You need to be able to process thoughts, analyse information, reason and create an informed argument.
- I believe that these are important skills to learn, as they will encourage a deeper reflection process when constructing essays.

- It would help in the structuring of essays. Knowing the order in which arguments could be presented would allow a better mark to be achieved.
- Not everyone knows how to do these things. Some can do it orally but have difficulty writing it down.
- Some people may not have been taught these skills or may not have used them for a few years. I believe these skills improve assignment writing and should be taught at the start of the year.
- It is a good tool for later life and healthy for freedom of speech.
- The essays I have written have not been marvellous and I feel I need more lectures in the areas above, so that I can write better essays. I feel I do not support my quotes.
- Builds confidence in mature students. In my mind, probably the most important tools to gain my degree.

How should such skills be taught?

- Through study skills lectures and then reinforced by subject lecturers in class.
- These skills should be taught in the study skills seminars and, additionally, should be briefly discussed by other tutors, as tutors have different approaches to these skills.
- I think the way it's being done now, through study skills seminars, is good.
- Incorporating them into each subject would help with understanding how to relate them to that subject and what the subject lecturer is looking for.
- This should be taught as a module alongside study skills.
- By analysing work done and looking at how it could be improved.
- Practising writing short arguments for different purposes.
- Debating sessions but with a lecture to help beforehand.

Considering tutors' feedback on assignments you have completed in year 1, write down three things you have done well.

- Knowledge and understanding of subject area.
- Analysed question well.
- Researched well for assignments.
- Good range of sources – articles, books and websites.
- Evidence of good planning.
- Quotations selected appropriately.

- Well written.
- Clearly set out and well structured.
- Written fluently to engage the reader.
- Gave good ideas for developing oral skills with effective examples.
- Made better use of references.
- Good presentation.
- Critical argument.
- Essay reflects the effort I put into the work.

Considering tutors' feedback on assignments you have completed in year 1, write down three aspects of your work that require further improvement.

- Ensure I understand the question completely.
- Ensuring that I meet the expectations of the marking tutor through the assessment criteria.
- Introduction to assignment is too brief.
- Write more detailed conclusions.
- Justify quotations.
- Sometimes points made are a bit disjointed.
- Present bibliography in an appropriate manner.
- Proofreading needs attention.
- Issues with spelling, punctuation and common grammatical errors.
- To adhere to word limit.
- Reflecting critically.
- Develop argument skills.
- Supporting arguments with relevant evidence.
- Use a broader range of source material to support my arguments.
- Try to make arguments more succinct.

What academic support do you require to make these improvements?

- More guidance about assignment writing.
- Examples of good layout and presentation to be made available.
- Examples of good assignments.
- Learning thinking, reasoning and argument skills.
- Study skills – how arguments are to be focused and refined.

- More study skills lectures.
- One-to-one support where an individual feels they would benefit from it.
- Critical feedback.
- Open lectures where lecturers are free to answer any questions we may have.

What can you do to facilitate your own success?

- Ask if I am unsure about the essay that has been set.
- Start the assignment as early as possible.
- Research topic in greater depth.
- Plan my assignments in line with the marking criteria.
- Spend more time on the assignments.
- Do more reading on assignments and to read more in between assignments to build up my knowledge.
- Practise my essay writing.
- Remember to analyse my quotes in depth.
- Improve my reasoning and argument skills.
- Proofread with others.
- Read more books, study harder, listen to other people's judgements and liaise better with lecturers.
- Accept positive, constructive feedback and criticism.
- Discuss my assignments with tutors so I can get the feedback needed to do better next time.
- Continue with the standard of work I have produced during year one and develop my style of academic writing further.

Elsewhere (Costello, 2008), I have discussed the results of this part of the project in greater depth and linked it to research undertaken with undergraduates in their second year of study (see also Burke, Jones and Doherty, 2005; Moon, 2005; Andrews *et al.*, 2006). In concluding this paper, I should like to draw attention briefly to the following themes that emerged from comments made by my students and offer some key questions for those working in higher education to consider (Costello, 2004):

Key themes

- The importance of providing a study skills programme to support the undergraduate curriculum.
- The need for appropriate and timely formative assessment of students' assignments.
- Overwhelming support for the provision of a programme to develop thinking, reasoning and argument skills in higher education (perhaps linked to seminars on study skills).
- Developing such skills as a desired outcome indicated by both academic tutors and students.

Key questions

- What is meant by the notion of 'student as curriculum customer'?
- What are the implications of this notion for lecturers in higher education?
- If the notion is (at least to some extent) acceptable, what sort of entitlements does the student have?
- Is academic success such an entitlement?
- How can lecturers best facilitate such success?
- How can students best be prepared to undertake study in higher education?
- Should thinking, reasoning and argument skills be taught in higher education?
- How might such skills be taught?

Earlier, I referred to the need for academic tutors to discuss, debate and ultimately agree on appropriate models for assessing students' thinking, reasoning and argument skills. Precisely the same approach is required regarding the above key questions. Such debate should be viewed as an important aspect of tutors' continuing professional development. In my view, it is also an essential prerequisite for students' academic success.

Appendix 1

Assessing Progress in Argument in Higher Education

Plus Points

straight into the question/to the point //

sticks closely to the task of answering the question //

sense of immediacy in answer/sense of debate /

deals directly and crisply with key developments in policy ///

clear/economical/well-paced/well-expressed/well structured argument ////////////////

critical thinking/analysis/argument/evaluation/personal critical voice //////

grasp of complexity of issues/attitudes ///

evaluates approaches /

raises interesting questions /

concepts/issues grasped/identified/clarified ///

identifies development of policies/their characteristics/key problems ///

demonstrates some awareness of issues /

describes context with some reference to issues /

shows understanding/awareness of historical developments and key issues/concepts ///

substantial/good reference to journal and other literature ///

refers to/some substantiation from literature //////

some referencing /

cites evidence //////

gives/lists reasons //

has the key ideas /

sound argument //

relevant statements/arguments //

some relevant points /

keeps argument going /

Minus Points

does not get straight into/to grips with question //

answer runs in parallel with the question rather than addressing it directly /

quote is not sufficiently well-addressed /

lacks clarity of conceptualisation /

provides references to support argument but simplistic at times /

not so good in citing research evidence /

tends to lack substantial evidence /

weak on reference and evidence //
only some referencing /
some reference to literature but not to research /
no evidence of reading //
not well-informed /

lacks clear thread of argument /
points not welded together into an argument /
grapples with key concepts/arguments but with some lack of control /
does not marshal arguments for and against sufficiently well /
shaky/inadequate grasp of key concepts //
does not demonstrate clear understanding through analysis/evaluation /
gives examples rather than analyses issues /
rushed argument with little critical analysis /
demonstrates lack of knowledge of research /
identifies issues around the question /
gaps in content /
repetitious /
reader left to make connections /
argument at level of invective /
catalogue of bold and unsubstantiated assertions /
high on assertion /
low on analysis/evaluation ///
lacks analysis/evidence /

answer not structured /
answer poorly structured /
answers at a common sense level ///
naïve and over-simplified ///
largely misses point of the question /
no depth /
no references //
poor expression //
plan looks better than essay /

I am very grateful to Professor Rob Norris, formerly Dean of the Faculty of Arts and Education, North East Wales Institute of Higher Education, on whose assessment of a Year 3 BA (Hons.) Primary Education examination this schema is based.

/ indicates the number of times a particular category featured in students' written work.

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Address for correspondence:

Professor Patrick Costello
School of Education and Community
University of Wales, NEWI
Plas Coch Campus
Mold Road
Wrexham
LL11 2AW

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