

Response to Cambridge Assessment's seminar on Critical Thinking, February 2010

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Cambridge Assessment recently organised a seminar, hosted at the British Academy, on the role and value of Critical Thinking and its impact upon driving attainment. Many interesting questions and issues were raised, one of the most interesting being whether or not Critical Thinking could, or indeed should, be 'embedded' into other subjects, rather than taught and assessed as a standalone subject in its own right.

As someone who has taught Critical Thinking for ten years alongside A levels in English and Philosophy, and who has been involved in the Cambridge Assessment definition and taxonomy work, I do clearly have an allegiance to the subject. Nevertheless, it is my conclusion that many of the skills of Critical Thinking cannot be effectively taught by just embedding them in other subjects; and the question we must ask is – to what extent do we value these skills? To start with, I will try to clarify an area of confusion that I think distorted the debate, and that I believe has influenced the arguments of those who feel Critical Thinking can be successfully embedded in the 'proper' study of other 'proper' subjects. I would like to emphasise that, as a Critical Thinking enthusiast, I am not being protective about my subject area. As I hope this article will show, I value deeply the skills Critical Thinking teaches, and if they can be delivered through other subjects, that is excellent: I do not wish to hang onto them!

The arguments against the teaching of Critical Thinking as a standalone subject rested on two main premises. One was that thinking and reasoning needed a context: something to think and reason about. This is obviously true; it is a bit like saying you cannot practise passing a football around without a football. (Although it is worth noting that you can practise passing a football without engaging in a football match.) The more important objection was that the skills Critical Thinking teaches are those that are, or at least should be, acquired through the study of other subjects. To understand the force of this objection, we need to make a distinction between two senses of 'Critical Thinking': as a set of skills, and as a set of dispositions.

There are two objectives in teaching Critical Thinking. One is dispositional: to encourage an open-minded, critical, independent, healthily sceptical and questioning outlook; in short, to encourage people to think. The other is to encourage people to think *well*.

If we mean by Critical Thinking *just* the dispositional approach, then of course this can be embedded. It is, in the absence of specific Critical Thinking skills, really no more than an approach to study, to the way subjects are taught and assessed. As a teacher, I regularly come across students who strongly exhibit this approach to learning. It is true that they are not the norm; at my college, I usually encounter no more than one or two every year, and it would be nice if there were more of them. However, it is quite common for the students with this dispositional

outlook, while they are naturally inclined towards thinking and reasoning for themselves, to think and reason badly. Wherever possible, I encourage them to take Critical Thinking. There was one student I taught for English last year. She was extremely – fiercely – independent-minded; and yet her arguments and thinking were often horribly flawed. Occasionally I would try to challenge her; to point out her reasoning errors; but it was generally not possible to do so. This is not simply because of the constrictions of the subject; it is simply not something you can 'tack on'. I would have needed to devote several hours to the concepts of reasoning, argument, inference and logic. I would, in short, have needed to stop teaching English and start teaching Critical Thinking.

The arguments I have heard in support of making Critical Thinking embedded or implicit in other subjects seem to me to have conflated the notion of critical thinking as a disposition with critical thinking as a set of specific skills. There is also the assumption that, since all academic subjects entail thinking skills (along the lines outlined in the Cambridge Assessment taxonomy), this means that pursuing these subjects will teach students how to perform these skills well. There are two reasons why this assumption is mistaken.

First, it is becoming increasingly evident through the study of the human mind and its reasoning patterns that we all as humans, even high level academics, have innate tendencies to reason poorly. One of the first things to convey in teaching Critical Thinking is that thinking and reasoning effectively is *difficult*. (The fact is that year on year, the same students at my college, with the same teaching time, tend to do slightly worse in Critical Thinking than their other subjects. They find it *more difficult*: they admit this.) For most people, if not everyone, correct forms of reasoning are often counter-intuitive. Almost everyone has a tendency to (what is known in logic) 'affirm the consequent', and a weak tendency also to 'deny the antecedent'. These are both invalid forms of reasoning; but for psychological reasons are, to the untrained eye, utterly compelling. To correct these and many other kinds of inbuilt reasoning errors we make takes time and specialist input. It is not just encouraging people to 'think for themselves'; this will only lead to their own bad patterns of reasoning becoming more deeply entrenched. People can and do reason poorly despite achieving great success in their own specialist fields. It sometimes only takes a little explicit input on forms of reasoning before students are able to see and explain the flaws and errors in reasoning made by, presumably, well-educated individuals, such as academics, scientists, politicians and journalists. Explicit training really helps. When I used to defend my choice of Philosophy as a degree, one of the strongest points in its favour was that it helped me to think clearly, logically and analytically (or at least more so than I would have done otherwise). And yet, the challenges of Critical Thinking AS level have helped me significantly *beyond* my degree. It has helped me also to understand, and to teach, my other subjects better.

Secondly, the importance of having explicit training in thinking,

reasoning, or logic is that we ought to value thinking as an end in itself. We should value thinking, value our reason and rationality, as an excellence in itself; not as something that is simply the by-product of a particular academic discipline. On it depends our own autonomy. Yes, it

does underlie specialist subjects – so it will (and does) enhance what is done in each of those. But more importantly, it underlies what it means to be human.

A tricky task for teachers: assessing pre-university students' research reports

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Introduction

In the UK and internationally, many students preparing for university are given the challenge of conducting independent research and writing up a report of around 4000 or 5000 words. Such research activities provide students with opportunities to investigate a specialist area of study in greater depth, to cross boundaries with an inter-disciplinary enquiry, or to explore a novel non-school subject such as archaeology, cosmology or anthropology. We theorise that, as is the case in higher education (Brown *et al.* 1997), independent research encourages intellectual curiosity whilst enabling students to develop skills in practical and analytical research, higher order thinking, interpretation and time management. When applying to university, students can use their reports to demonstrate motivation for their intended course of study and to differentiate themselves from competing applicants.

In the wake of the recommendations of the Tomlinson Report (2004) on the shape of 16–19 qualifications in England, The Sixth Form College, Farnborough, developed a systematic approach to encouraging its students to conduct independent research. Since 2006, students have been carrying out extended projects during their holidays or alongside their other courses, generating formally-structured reports. The reports are assessed formatively through detailed written comments to the students by their teachers, rather than assessed summatively by issuing a mark. This has generated a considerable body of student evidence within the college.

At other schools, students conduct projects which constitute or contribute to a formal qualification, and which are therefore assessed summatively. For some of these qualifications, the students' research reports are assessed by their own teachers. The teachers' marks are then moderated by professional examiners who are employed by the examination board administering the qualification. The Cambridge Pre-U Independent Research Report, administered by Cambridge International Education, utilises this assessment approach, as do the extended projects administered by the AQA, OCR, and Edexcel examination boards. Extended projects can be used to obtain a stand-alone qualification. Alternatively they can contribute to a 14–19 Diploma in England or the Welsh Baccalaureate qualification in Wales. For other qualifications, such as the International Baccalaureate, students' research is marked exclusively by external examiners.

The assessment of research reports poses several challenges, including those which arise when assessment schemes are designed to reward

generic research skills rather than particular subject knowledge. Assessors may lack detailed understanding or marking experience of the research topics explored by some students. However, it is unclear whether subject knowledge facilitates or hinders marking. For example, familiarity with particular terminology or technical language may aid interpretation of what the student has written. Alternatively it may obscure the assessor's perception of generic skills, especially if they have been mis-applied by the student.

In this study, we explored the feasibility of applying a single mark scheme to research reports covering diverse topics in order to reward generic research skills. Our aim was to investigate the reliability with which teachers can mark diverse research reports, using four different generic assessment objectives. We also investigated teachers' views in applying generic mark schemes, particularly when marking reports on unfamiliar topics.

The Cambridge Pre-U Independent Research Report (IRR)

The study was conducted as part of a wider on-going research programme supporting the Cambridge Pre-U, a new type of qualification for 16–19-year-olds which is designed to equip students with the skills required to make a success of their university studies. The first cohort of Cambridge Pre-U students will be completing their courses in the summer of 2010. Typical Cambridge Pre-U students study three Principal Subjects over a two-year period (or alternatively, a combination of Principal Subjects and A levels). In addition to this, to obtain the Cambridge Pre-U Diploma, they must complete the Cambridge Pre-U's course in Global Perspectives and Independent Research (GPR).

GPR is known as the core of the Cambridge Pre-U Diploma but also constitutes a stand-alone qualification with a UCAS tariff equivalent to an A level. It comprises two components: the Global Perspectives course (GP), and the Independent Research Report (IRR) which may be up to 5000 words long. The GP and IRR have been designed to provide students with coherence, depth and breadth, through encouraging focused personal exploration and increased depth of study. They expand creative, critical and responsible awareness through the tackling of different perspectives on global issues. Assessment of the IRR focuses on the student's abilities in a range of areas. These include: designing, planning and managing a research project, collecting and analysing information,