

# “It’s not like teaching other subjects” – the challenges of introducing Critical Thinking AS level in England

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## Introduction

This article focuses on the introduction of Critical Thinking AS level into schools in England. As an AS level, it is a qualification, with a specification (syllabus) which prescribes the content that will be examined. As such, it does not itself provide a ‘programme of instruction’. Even so, it has probably been the catalyst for the largest scale introduction of Critical Thinking into schools in England. In 2001, 130 schools entered in total just over 2,000 candidates for the whole AS level. By 2009, this had increased to over 1000 schools<sup>1</sup> entering over 22,000<sup>2</sup> candidates.

However, candidate ‘success’ at Critical Thinking (in terms of proportion of grade As and passes) has remained relatively low, as shown in Figure 1.

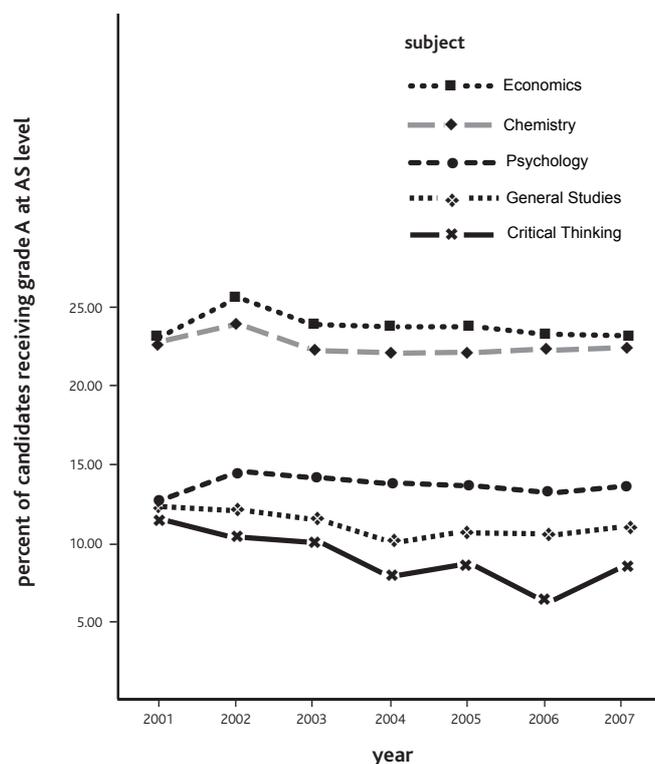


Figure 1: proportion of candidates who have received a grade A in various AS subjects between 2001 and 2007

Hypotheses or potential explanations for why this may be the case fall broadly into three types (though these are not mutually exclusive or independent of one another):

1. Performance standards exhibited by candidates reflect low level of teaching provision.

2. Performance standards exhibited by candidates reflect low level of candidate motivation to achieve in this discipline.
3. The high demand of the discipline.

This article explores the first two types of explanation in detail, but first we briefly consider the third one. The perception that Critical Thinking (CT) is difficult is partly because of the relatively low proportion of candidates, in comparison with other subjects, who receive a grade A as in Figure 1 (this relates to the notion of ‘grading difficulty’). While qualification outcomes in terms of % of candidates at or above particular grades may affect the *perception* of difficulty, they do not necessarily mean that a subject is ‘easy’ or ‘difficult’. There is a distinction to be made between *grading difficulty* and *intrinsic difficulty*. But is there a case to be made that, intrinsically, Critical Thinking is difficult? From a cognitive point of view, it might be considered more difficult than some subjects since it necessarily requires abstract, rather than concrete, thinking. For instance, conceptualising the subject in terms of Bloom’s taxonomy (Bloom, 1956), it could be said Critical Thinking is characterised by higher-order processes such as evaluation, analysis, synthesis and application.

In terms of hypothesis 2, there is some evidence to support this in Vidal Rodeiro’s (2007) survey of students’ A level choices. Over 6000 students were surveyed about factors affecting their AS and A level choices. Of the students surveyed, 5.1% were taking Critical Thinking AS level, and nearly half of the centres in the study offered Critical Thinking AS level. While Chemistry, Mathematics, and English were seen as some of the most important subjects at AS level, Critical Thinking was seen as one of the least important (above only Citizenship and General Studies). Of the students taking Critical Thinking, nearly 58.9% rated it as their least important AS subject, while only 8.9% rated it as their most important subject. While this research does not allow us to understand the finer details of how students may have construed the term ‘important’ (e.g. ‘important for me to get a good grade’/‘important in terms of the significance of its subject matter’ etc.), it does indicate that there is likely to be lower motivation in this subject than in others. This current research project also aimed to find out about student motivation – though only indirectly – through the reports of their teachers.

In any subject, there are undoubtedly difficulties in delivering something new. As a school subject, Critical Thinking has grown so rapidly that few current teachers are likely to be in a position to have the benefit of years of teaching experience in the subject. In the US, where Critical Thinking programmes of instruction have been around for much longer, Sternberg (1987) identified ‘eight easy ways to fail before you begin’ – eight ‘fallacies’, peculiar to Critical Thinking, which ‘obstruct the teaching of critical thinking ... and make it easy to fail’. These include the following (sometimes interrelated) ‘fallacies’:

- teachers who assume they have nothing to learn from students, whereas teachers need themselves to be receptive to new ideas;

1 About a third of centres offering AS/A levels in England enter candidates for Critical Thinking.

2 For context, some other AS subject entries for 2009: Chemistry 58,473, Economics 27,714, French 19,122, English 107,124.

- that what really counts is the right answer – in Critical Thinking it is the thinking behind the answer which is important;
- that the job of a course in Critical Thinking is to teach Critical Thinking – Sternberg’s point here is that students and teachers both have to think for themselves and thus the role of the teacher in the classroom is more of a facilitator than a didact.

Sternberg concludes that teaching Critical Thinking, though possible and desirable, is not simple. Some common ideas that teachers hold about teaching and learning, while they may be applicable in the normal course of classroom events, do not apply in the Critical Thinking classroom. This suggests that the struggle of introducing Critical Thinking is not just that of introducing a new subject – it requires a fundamental re-orientation prior to teaching.

This point resonates with the findings of a case study of the implementation of three different Thinking Skills programmes in a UK context (Baumfield and Oberski, 1998). Although they found that the instigation of the programmes was a response to dissatisfaction with the prevailing mode of teaching and learning, it was difficult for teachers to entirely shake off that prevailing mode. The programmes afforded greater opportunities for group work and discussion (and this was seen as important by both students and teachers), but some teachers found this sometimes difficult to manage. In particular, not having a “solid body of content” and trying out new ideas for the first time created some insecurity. There was a tendency at times, therefore, to resort to more familiar modes of teaching in terms of what a productive and meaningful lesson should be. Baumfield and Oberski conclude:

*... if conventional modes of planning using aims/objectives/outcomes are based, albeit loosely, on behaviourist models of learning, we would anticipate some incompatibility with the constructivist orientation of thinking skills programmes.*

Both Sternberg’s and Baumfield and Oberski’s papers suggest that the introduction of Thinking Skills/Critical Thinking as a new subject may be more problematic than other new subjects.

Richardson (2008) describes some of the difficulties of introducing another new subject into schools – Citizenship. This possibly has some shared issues with that of Critical Thinking: for example, difficulties in defining the construct (Black, 2008; Kerr and Cleaver, 2004); the teaching and assessment was adversely affected by lack of time, resources and training (House of Commons Select Committee, 2007, cited in Richardson, 2008). This too is potentially an issue for Critical Thinking – certainly, no teacher has a degree in Critical Thinking, no teacher training qualification in the UK includes Critical Thinking. In the US, there is a growing bank of evidence that teacher training in advance of teaching Critical Thinking skills has a significant impact upon the success of the programmes in terms of student gains in Critical Thinking skills (Abrami *et al.*, 2008).

The present research considered the difficulties of introducing a new subject through an exploration of the results of a survey of 236 teachers of Critical Thinking and reports on the ways in which centres have implemented the provision of this new school subject.

## Method

### Sample

As the main medium for collecting data was an electronic questionnaire, we attempted to contact all centres (n=1096) with entries for OCR AS

level Critical Thinking units in the June 2007 session by email. There were 236 responses from teachers, representing just over 20% of all OCR Critical Thinking centres and 34.3% of AS candidate entries for 2007. In general terms, this represents a good response rate.

### The questionnaire

Prior to the main data collection stage, the questionnaire had been piloted in two stages (involving 5 centres) in order to minimise ambiguities and maximise information capture.

The questionnaire was available for online completion. For those that requested, a paper version of the questionnaire was made available. The majority (n=226) opted for completing the electronic version.

The questionnaire consisted of 50 questions, a mixture of closed and open format questions divided into subsections, as used in the reporting of the results below.

## Results

### Section A: Background information of respondents

Respondents were overall very experienced teachers (mean teaching years = 18), though, given the newness of Critical Thinking, it was unsurprising they had not been teaching CT for long (mean years teaching Critical Thinking = 2.95).

Figure 2 shows the respondents’ main (first) subjects (i.e. the greatest amount of teaching/contact time), second and third subjects. The respondents came from a variety of subject backgrounds. Teachers of Religious Studies/Philosophy, English, History and Science accounted together for more than 50% of the respondents.

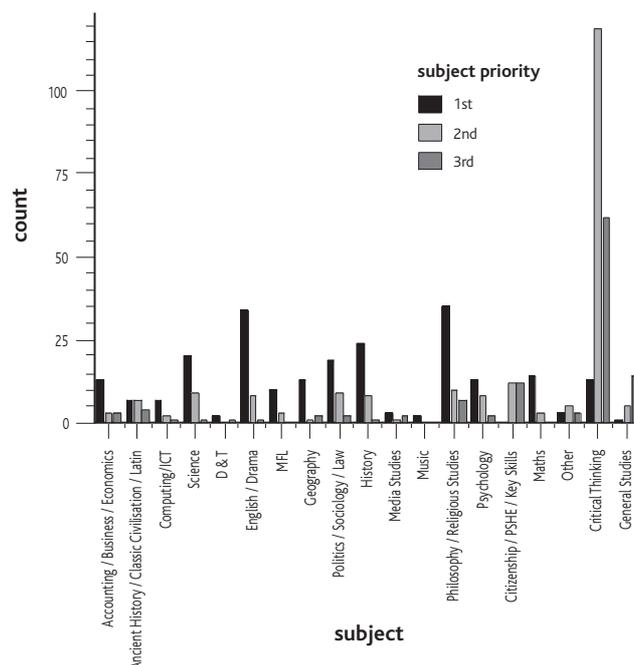


Figure 2: Frequency bar chart showing respondents’ first, second and 3rd subjects

We can also see that Critical Thinking was rarely cited as their main subject, but much more frequently as a second or third subject. An analysis of contact teaching hours for Critical Thinking as a proportion of overall hours revealed that more than two thirds of respondents reported that Critical Thinking constituted less than 20% of their teaching timetable. It seems likely that teachers may find it difficult to prioritise Critical Thinking when it forms such a small part of their timetable.

### Section B: Timetabling and delivery time of Critical Thinking

The number of hours timetabled in order to deliver the AS programme to students gives an indication of the centres' commitment to Critical Thinking.

Figure 3 shows a wide range of length of programme in terms of contact teaching hours (guided learning hours or glh) for the AS course, ranging from 16 hours to 165 hours. The mean CT AS programme was delivered in 57.12 hours, equivalent to an average of 1.5 hours per week. To provide some context, AS specifications in general suggest that they require approx 140–160 guided learning hours and Critical Thinking is no exception. Thus, it seems that in the majority of centres, Critical Thinking provision was very much attenuated. Teachers were also asked to rate the adequacy of this time. None indicated that they had 'far too much time'; the modal response was 'about the right amount of time' (60%), while 40% of respondents thought that there was not enough time ('too little' or 'far too little time') per class for the delivery of Critical Thinking.

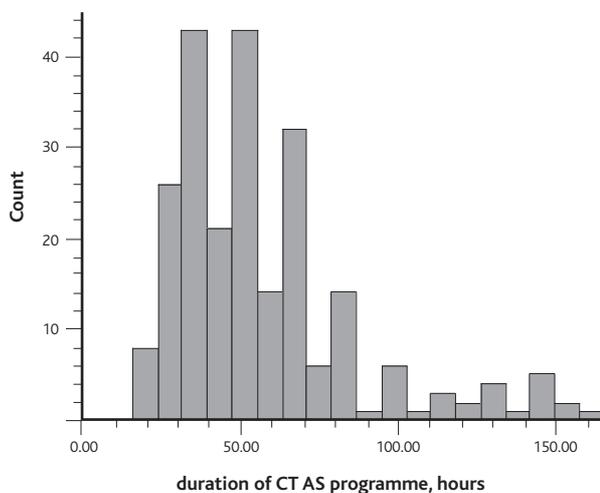


Figure 3: Histogram – programme length of Critical Thinking AS courses in hours

### Section C: Student motivation

In brief, teacher reports of student engagement and interest, and attendance were mainly positive (see Figure 4). Attendance can be viewed as a behavioural measure of motivation.

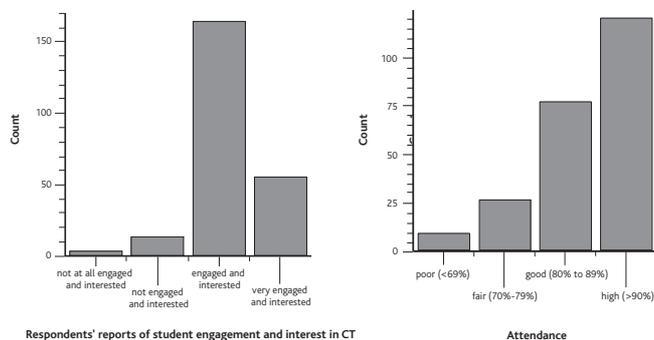


Figure 4: respondents' reports of student motivation

Respondents had the opportunity to write further comments about students' attitudes and motivation towards Critical Thinking. Over half of the respondents added a comment, and these were categorised in the first place as either 'wholly positive' (27.5%), 'wholly negative' (13.3%) or 'positive and negative' (51.7%) in terms of student motivation.

The comments provide insight into the delivery of Critical Thinking and student motivation and so it is worth considering them in some depth.

Many of the positive comments made a point about general enjoyment of the lessons/subject (n=31).

*Students enjoy the fact that this is a different approach to learning from the majority of their subjects.*

*Students seem to value the subject as being different; they enjoy the immediacy of its challenges; they enjoy the way it enhances their ability to win arguments ... they think it's 'cool'.*

Some teachers (n=9) reported that students could see the benefit (transferability) to their other A levels/GCSEs:

*Students enjoyed the course. While many found it intellectually challenging and may come out with low grades there was a real sense of achievement for completing the year. All students felt it helped them in other subject areas.*

However, a number of positive responses about student motivation were tempered with other issues. Some of these themes are reported below. One prevalent theme was the priority students gave to Critical Thinking when demands of other A levels (or GCSEs) increase (n=33).

*When taken as an extra there are always problems around pressure times such as coursework deadlines.*

A number of responses (n=13) noted the impact of timetabling, for example, lessons timetabled outside of normal teaching hours or simply not having enough time. Responses seem to indicate that such practices can effectively sabotage the course.

*Attendance was an issue for a significant minority in that it [clashed with] other activities students committed to, e.g. rehearsals for stage productions or rugby trials etc.*

For some teachers, the mandatory nature of the course and removing student's ability to opt for the subject, had a negative effect on motivation (n=9).

*Whilst the majority of the students see it as beneficial, there are some that resent having to do a compulsory subject once they are in the Sixth Form ...*

More rarely reported were problems with the motivation of the teachers (n=4) who themselves may have had Critical Thinking imposed upon them like their students.

*As they [students] don't choose this subject as a main AS they give the subject very low priority. Interest in the subject depends very much on who is teaching it. Often staff who are uninterested in the subject are asked to teach CT to fill their timetable.*

Perceived subject difficulty was mentioned in a number of responses (n=23), sometimes along with its impact upon motivation and/or attendance or retention.

*Attendance is much better than for other enrichment options.*

*Students recognise its value but worry about the effect it has on their grade profile as they are used to getting grade As.*

*Our students are mainly motivated by the possibility of top grades. In a high achieving school like ours they may be discouraged from doing CT in case they get a B or lower; this would be a 'stain' on their record. Only the very top students welcome the challenge (sad but true).*

The latter comment is quite interesting in motivational terms. For some students, acquiring Critical Thinking skills has no intrinsic value, is not an end in itself, but is only worth persevering with if it were a means to some other end. In this case, getting a top grade as an outcome is the (only) incentive.

Following on from this, a number of respondents commented upon the perceived value of Critical Thinking, frequently identified in terms of UCAS points, though not always.

*They ... don't see the value as it does not count towards many university applications.*

There seems to be strong picture emerging that Critical Thinking, though with much potential to be rewarding and engaging, is often faced with difficulties that affect motivation.

#### Section D: resources and training for teachers of Critical Thinking

The majority of teachers (92%) had attended at least some specific CT training events and many could identify an aspect of their formal academic education that had helped them teach Critical Thinking (52%).

In terms of the latter, respondents often reported that a degree (or part of a degree) in logic and/or philosophy had been useful (see Figure 2 earlier – many Critical Thinking teachers are primarily Philosophy or Religious Studies teachers). However, there was a wide range of responses across the range of arts, humanities and science domains. A few respondents elaborated on how their degree had helped, showing that some teachers have been able to see *how* Critical Thinking skills are embedded within their own education and the structure of a particular discipline. For instance:

*Psychology involves a critical approach to both data and written argument.*

*Theology degree – many units considered the nature of arguments, concept of proofs etc.*

*Economics – the analytical requirement of the subject.*

*Mathematician – naturally logical!!*

The most common form of training attended (71.2% of respondents) was awarding body INSET<sup>3</sup> and many had attended INSET from other providers. Many reported partaking in other (less formal) types of training such as discussions and ideas sharing with other teachers, either within their centre or in a local network. The overall picture, though, was that most teachers had only experienced a handful of relatively brief training experiences. They were largely self-taught and had had to be largely self-reliant. This was evidenced in many of the teachers' comments:

*... I do have the opportunity to attend inset but my other subjects and classes take priority and I have not yet felt I can fit in a training session for myself.*

*Perhaps the most useful training has been in my role as an Assistant Examiner. This has enabled me to develop an excellent understanding of what is required by students in order for them to achieve top grades.*

*None. I've done it all by myself!*

*I had to pay for course myself.*

*I feel there is a desperate need for far more training for people who like me are 'flung in at the deep end' and have little clue of what they are expected to deliver! I have had one useful day of training with a trainer brought in by our new Head Teacher who recognised the lunacy of what was happening (i.e. go teach this with no training) and one day which was really too advanced for where I was at the time.*

#### Section E: Other questions

This final section of the questionnaire asked questions aimed to investigate wider attitudes towards Critical Thinking, both their own attitudes and their students'.

Teachers were asked whether they encouraged students to apply Critical Thinking techniques or think more critically in the other subjects that they taught. 92.3% responded that they did so at least sometimes, with many providing interesting additional comments which typically referred to multiple Critical Thinking skills (argument, analysis, evaluation, consideration of bias/credibility etc.). Some of these comments are included in order to illustrate how teachers have found that Critical Thinking skills can have a useful application in different subject domains.

*In my science lessons when considering social impact/consequences of things – e.g. genetic medication or choosing the location of chemical plants.*

*When listening/reading a text in French AS/A2 we approach it from critical thinking perspective of key purpose, reasons used, assumptions made, inferences drawn etc.*

*[CT] models the type of reasoning they need to use in their own essay writing.*

*In English: to think about their arguments in essays and the ways in which they present their views trying to provide strong evidence/reasons to back up their conclusions.*

*In sociology I highlight types of flaws in arguments; I always encourage [students] to structure arguments carefully.*

Respondents were asked about whether they and their students value Critical Thinking. Results are presented in Figure 5.

Both graphs show overall that both teachers and students (according to teachers' reports) tend to positively value CT. And although the teachers' graph is *more* positive, this would probably be true of any subject. On the whole, teachers said that they highly value Critical Thinking, frequently backed up by additional comments showing great enthusiasm for the subject:

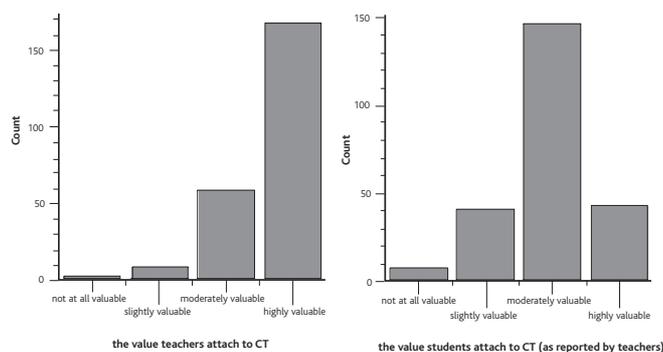


Figure 5: value attached to CT by both teachers and students (as reported by teachers)

3 INSET means 'In-service training' and typically lasts half or one day.

*In future, we will not really be able to know everything there is to know. Quite often, we will have to make judgements based on the information we are given and be able to account for the judgements that we have made and the actions we have taken. This will be a fundamental skill for the workforce of the 21st Century.*

*Its value lies primarily in that it is applicable to every other academic school subject I have come across, ... many that pupils will not encounter until university or later life.*

*The pupils have poor analytical skills and believe most conspiracy theories and media headlines shown to them. They are reluctant to analyse what they read on the web in particular. This should be a growing concern and CT combats this to some extent.*

Of the teachers who reported that they thought that Critical Thinking was 'not at all' or 'slightly' valuable (n=2 and n=8 respectively), some quotes are included.

*Only done really as a means to a qualification and to help Oxbridge students with tests and interviews. Might be more useful if done at greater length for other reasons.*

*The narrow subject specific definitions used limit its usefulness in other subjects.*

Some of the comments on why students find it highly or moderately valuable include:

*Those attending see it not just as an extra AS but as an opportunity to discuss, debate and generally have their minds expanded by exposure to materials which challenge and focus their thinking skills without distraction by masses of subject-specific rote-learning.*

*Where else do you get to argue openly with a teacher?!*

*They vary. Some think it's crap. Others really see the point of questioning the propaganda and the spin.*

*They no longer blindly accept what they are told. It sparks discussion and debate.*

*They transfer the skills to other subjects and are aware that in combination with subject knowledge they can develop a powerful tool for analysing discourse.*

Common themes reported were that students simply enjoy CT (n=24) or believe they have beneficially transferred the skills into other subjects (n=20). Another common theme (as mentioned elsewhere in this article) was that for students, the value of a subject lies within its currency for a university place, though there were divergent views on whether CT added to their application or not. Consider the juxtaposition of the following two quotes:

*Feedback from students has been positive. They understand the value placed on Critical Thinking by HE organisations and many have commented on how it has strengthened their understanding in other subjects.*

*They see it as a good A level to have until some unis unhelpfully say they will not consider it.*

Some of the comments accompanying less positive student ratings are included below. Common themes once again include identifying the value of the subject with UCAS points, perceived difficulty, and an instrumental

approach to learning. A few responses alluded to the nature of the assessment limiting the students' ability to engage with the subject.

*The vast majority of pupils regard "usefulness" as meaning "is it useful to the UCAS process?" and the overwhelming feedback... is that universities are not interested in it.*

*They tend to think in an instrumental way and not think about learning as an activity that has intrinsic value.*

Another theme was that low valuation on behalf of the students was (partly) a result of the limited timetabling:

*It only takes a look at the timetable for students to make up their mind about how valuable the subject is in comparison with other subjects.*

The most negative comments concerned those students for whom CT was mandatory.

*They see it as a forced option and hate it. Lessons not particularly stimulating as a one-term rush inevitably has to be focussed on exam-practice.*

Finally, a quote that encapsulates how a nexus of factors can contribute to a negative valuation of the subject:

*I fear that their utilitarian attitude to exams/courses rather holds them back. They are so highly examined – rather trapped in the system to the extent that they can not always see the point of doing anything that 'doesn't count' on August 16th. Also the disappointing results have been a real blow. They ask what is the point of doing a hard subject. They only want As and Bs and see anything else as an insult.*

Teachers were asked about their enjoyment of teaching CT (84% were positive) and 186 respondents provided additional comments regarding their enjoyment. Many teachers' enjoyment of Critical Thinking derived from their view that it is 'new', 'different' or 'fresh' (n=28):

*It's been a "shot in the arm" for a teacher who needed a new stimulus.*

*It is refreshing to be able to encourage children to actually use their brains rather than just worry about memorising information and 'getting the right answer'. It is exciting to see them grow in confidence and skills.*

... or simply just fun/enjoyable (n=33):

*It allows me to indulge myself in the "Dead Poets Society" aspect of teaching which I particularly enjoy.*

In particular, (and this was the most common theme) teachers tended to describe a greater freedom or creativity in choosing materials to teach Critical Thinking because of its skills-based nature (n=40).

*I enjoy the freedom from the drill of a body of knowledge but enjoy the discipline that the skills provide. It seems to me that this subject develops the skills that have been squeezed out of other subjects by the national curriculum.*

However, not all teachers responded so positively to this aspect of teaching the discipline. Two respondents found the lack of 'factual' content a drawback, for example:

*I enjoy teaching it but find it very challenging and it definitely moves me out of my comfort zone. Not having specific content or definitive answers takes some getting used to.*

Frequently, teachers referred to the benefits for the students (such as the transferability of skills into other subject domains), and the perceived 'worthwhile' nature of the subject (n=23). A number of teachers highlighted the enjoyment they derived from challenging, stretching and encouraging students' thinking (n=23).

*It gives me the opportunity to challenge the brightest students and to develop their intellect far more than is possible at KS4.*

*I like encouraging thinking – education should, as Hemingway put it, "make you a good crap detector"...*

A number of teachers (n=21) commented that their enjoyment stemmed from being stimulated and challenged themselves (in a positive way):

*... Having taught for 23 years it is a new challenge to me (and I do find it challenging at times) and I am learning a lot myself through teaching it – that is very much part of the enjoyment.*

As with the last quote, a number of teachers believed that through teaching Critical Thinking they were developing professionally: they were upskilling in terms of their own thinking skills as well as professional situations (n=15). This is potentially an important and unanticipated collateral benefit of teaching Critical Thinking.

*Teaching this subject has altered the way I think. I find myself using the skills not only in the classroom but also in meetings and other aspects of my life.*

*Made me be more rigorous in my own thoughts.*

Additionally, on a professional front, teachers reported enjoyment of adopting different teaching styles/pedagogical approaches (n=18) – more student-centred, interactive and less didactic. This finding echoes both Sternberg's views of CT pedagogy (see earlier) as well as the findings of Baumfield and Oberski (1998) that (broader) thinking skills approaches in classrooms were popular with teachers because they foster changing patterns of interaction in the classroom. Teachers commented that adopting this different role in the classroom meant that they learnt a lot from the students and that they welcomed the greater unpredictability and 'uncertainty' in lessons.

*It's a subject you can 'discuss'; it requires little didactic teaching which is good.*

*I really like challenging myself in the teaching and sometimes I do not know the answers and work them out with the students. I find that very powerful as a teaching tool and a model for learning.*

*The chemistry between students and students-tutor brings a levelling as ideas and argument can arise from any of many sources. The tutor as 'facilitator' is attractive and (when it works!) is very fulfilling.*

*More unanswerable questions are raised than in other subjects and there is a real opportunity to challenge and explore each other's points of view.*

*Every lesson is different – I am always surprised or stimulated by student responses.*

However, taking such a role and operating in a more 'uncertain' classroom was not comfortable for all respondents (n=2):

*It's not like teaching other subjects where you can hide being wrong or not knowing: students lose faith in your ability to teach; this has implications for the senior role I play in college.*

This interesting comment resonates with Blagg's observation (1991) that the feeling of being 'deskilled' is more of a threat to an experienced teacher than it is for a novice.

A number of factors were mentioned for tempering or, in a few cases, eliminating enjoyment of teaching the subject. One common 'negative' theme was encountering problems with the materials – either accessing materials or that the materials available were considered too 'dry' (n=12):

*Need far more resources than are at present available.*

*[Students] only show an interest when I provide material I've adapted – which is very time consuming to produce.*

Again, there were also some issues with timetabling limitations (n=11), or, as a teacher's second or third subject, prioritisation (n=3):

*With very limited time available I have not been able to do many of the activities I would have liked to do.*

*I would LOVE to teach Critical Thinking properly but I am not given the time on the timetable, the teacher-resources, or the support I require in school either to teach my own classes properly or to co-ordinate the delivery of it school-wide.*

*I do enjoy teaching CT but as my other subjects (History and Politics GCSE and A Level) take priority... Therefore I feel the students do not always get the best deal in CT lessons.*

*I am not trained to teach it. It is not my priority. Students attend poorly and show little interest.*

Finally, the last fixed-choice question in this section asked whether respondents believed that Critical Thinking skills can benefit students in their other AS exams.

The overwhelming majority of respondents answered yes (see Figure 6).

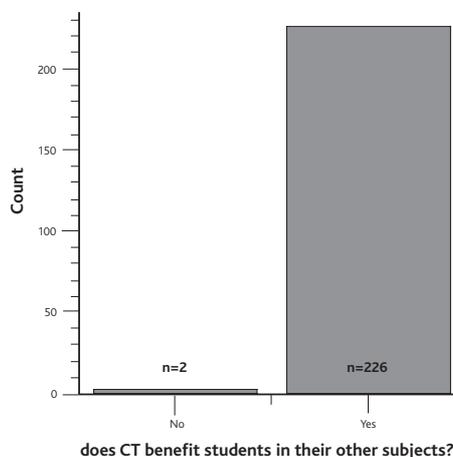


Figure 6: frequency bar chart of respondents' views on whether CT benefits students in their other AS subjects

Accompanying comments (n=186) were mainly positive (or, indeed, very positive), with only a few showing some equivocation. Comments tend to highlight subjects that can particularly benefit and/or the skills which are particularly transferable, or in some cases describe how other staff or students themselves have ascribed increased performance in other subjects to Critical Thinking.

*It can but I am not sure it does. The Heads in both schools where I teach Critical Thinking believe it improves A Level results. I don't have the data.*

*Many subjects call for reasoned arguments. What better way to prepare them?*

*Making cross curricular links is highly useful. It also encourages them to think more broadly about their work and how to approach it.*

*... the majority [of students] find it quite useful and they now write better essays or think more logically. One said 'It has changed my whole way of thinking'.*

*Complements analytical requirement in many subjects... Many of our "most-improved" students in year 13 took CT in their year 12 perhaps due to developing transferable skills.*

Many of these assertions indicate that Critical Thinking is, or at least, is believed to be a powerful educational force.

## Discussion

Because the respondents were self-selecting, it is more than likely that they do not represent the full range of teachers of Critical Thinking. Many of the respondents identified that they were the co-ordinator or the sole teacher of Critical Thinking in the centre. It seems likely that the ordinary 'foot soldier' is under-represented in the sample. This possibly may explain the disparity between Vidal Rodeiro's findings that Critical Thinking is often poorly valued by students, and the findings from this research. Certainly, in this study, the centres where Critical Thinking was mandatory reported significantly lower levels of student motivation, attendance and enjoyment.

The responses to the questionnaire identified a series of obstacles and challenges which teachers of Critical Thinking have been faced with, many of which interact together. A frequent theme was the value placed upon Critical Thinking (c.f. Vidal Rodeiro, 2007). Interestingly, while Richardson (2008) notes that, for Citizenship, formal summative assessment was perceived as being needed in order to 'credentialise' a new subject, our findings make it clear that formal summative assessment is far from sufficient. In order for the subject to acquire the same 'credentials' as other AS qualifications, it is not enough that there is an exam, and that the subject/exam is perceived to be difficult. It needs endorsement from universities' admissions policies, as well as centres themselves offering the course in a fully resourced and supported manner. Evidently though, some teachers can and have overcome some of these obstacles by promoting the perceived intrinsic value of the subject, and many appear to be passionate advocates of the value of the discipline both in terms of its life skills and transferability to other academic subjects. This report shows that many of the respondents have been (and have had to be) very resourceful in terms of training themselves in this new subject. They have responded positively to the greater freedom in lessons and have altered their teaching styles in order to deliver it (c.f. Baumfield and Oberski, 1998; also noted in Blagg, 1991). There is some evidence that by teaching Critical Thinking, teachers themselves were developing professionally: they were up-skilling in terms of their own thinking skills, in terms of using greater analysis and evaluation skills in other subject lessons as well as in other professional situations. This is a potentially an important and unanticipated collateral benefit of teaching Critical Thinking and possibly warrants further investigation.

The challenge to any new subject lies in it finding its 'niche' within the

curriculum. As for AS Critical Thinking, it is in a paradoxical position. It is like other AS levels in that it leads to the 'same' qualification – an AS level. And yet, it does not have true parity with them, first because of the nature of its subject matter (it has a higher focus upon skills and lower focus upon content), secondly because it is often delivered in much less contact time, and thirdly, given its current status with universities, many students would probably want to avoid taking Critical Thinking as one of their main AS levels. However, if it were not an AS level, it is probably true to say that many fewer students would have had the opportunity to study Critical Thinking.

We conclude with some speculations about what the future might hold for Critical Thinking in schools. As time goes on, teacher experience and expertise in the subject will accumulate, and a greater range of resources will be available. This should have a positive impact upon teaching and learning. However, this can only happen if the strategies in schools permit it. Thus, where schools 'drop teachers in the deep end' at the beginning of the school year (as several respondents reported), do not support teachers in terms of funding resources, sufficient timetabling or training days (again, reported in this study), this vital accumulation of expertise is prevented from happening.

Perhaps the key matter for the future success of Critical Thinking AS level is for it to gain greater acceptance with universities. Currently, its acceptance as part of a 'main offer' is patchy. As reported above, this is a significant source of frustration for teachers who do see its value, but who have to deal with students' consequential low motivation. If universities were to more widely acknowledge its value and endorse its status, the future for Critical Thinking would be much more secure.

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