

Moving from Confidence to Competence in Critical Thinking Skills (0110)

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The ability to think critically is considered by HE institutions, the government and employers as a key attribute which graduates need to compete in the Global Knowledge Economy. In addition, there is increasing pressure on HE institutions to deliver value for money to justify fee levels and this is heightened by the demands of the Teaching Excellence Framework. Recent reports have stated that the government is considering running a pilot test in the autumn of 2016 to measure students' critical thinking and problem solving abilities (Griffiths, 2016).

Undergraduates within the business school of a post-1992 institution with a diverse cohort of varying academic ability lacked critical thinking skills. Classroom observations identified that students did not understand the language of critical thinking and could not demonstrate a critical approach in written work. Marking criteria for undergraduate assignments required the use of a wide range of appropriate evidence, evaluation and synthesis and the ability to produce critical and reflective arguments. As students lacked these skills, their ability to perform well in such assignments was impacted.

This paper discusses how a holistic critical thinking skills teaching framework has been designed and piloted to help students and to address its increasing importance within the HE environment. We argue that while confidence levels in toolkit usage appear to have increased within the pilot cohort, the challenge of measuring the impact on competence levels now needs to be addressed.

Defining critical thinking was problematic, as many versions exist, each focussing on different elements (see, for example Mulnix, 2012). Given that a key driver for this project was to improve students' ability to do well in a range of assessments, we sought to find one that best represented their needs. To this end, Facione's definition (1998) has been used to describe the skills required. Whilst not perfect, it does not mention the need to locate or to synthesise information for example, it does cover the skills of interpretation, analysis, inference, evaluation, and explanation (Facione, 1998).

Within the existing literature, Catterall and Ireland (2010) and Wingate, Andon and Cogo (2011) have demonstrated strong links between the ability to think critically and the ability to write effectively for academic purposes. According to Putwain et al., (2013) raised levels of academic performance can also be achieved if students develop self-efficacy which, in turn, creates positive learning related emotions. Abrami *et al.*, (2015) indicate that critical thinking should be explicitly taught within an existing discipline specific curriculum with plenty of opportunity to practise and regular feedback provided. This supports the earlier thinking of O'Doody and Condon (2012) who suggested that active learning techniques should be used when teaching higher level thinking skills.

These findings have guided the design of a Critical Thinking Skills Toolkit which has been piloted on a small sample of undergraduates to embed and scaffold critical and reflective skills within existing teaching (Mc Williams and Allan, 2014). Consisting of a set of branded interventions so as to develop a common vocabulary across disciplines and levels of study, it adopts a guided approach tailored to the variety of learner levels and assignment tasks, and provides students with an element of choice. Specific teaching guides have been developed which become steadily less detailed as students move through the three years of their degree programme and as the level of support and guidance is slowly removed. Regular opportunities for discussion, reflection and feedback are provided during classroom sessions to increase students' self-belief and efficacy and to equip them with key employability skills (McWilliams and Allan, 2014).

The diagram below shows the interventions and their aims, which skills, initially identified in Facione's definition (1998) and expanded by us, are developed and where they are introduced during a three-year degree programme.

| Intervention | Aim | Critical thinking skill(s) developed | Year of introduction |
|-----------------------|--|--|-----------------------------|
| The Source | To develop search terms, find, critique and reference materials whilst considering credibility, reliability and appropriateness. | Information seeking | 1 |
| Read Right | To help read in a systematic way, understand and make notes. | Interpretation | 1 |
| Practitioner Insights | To interpret, analyse and evaluate practitioner materials and trade journals. | Interpretation, analysis and evaluation. | 1 |
| The Argument | To develop the technique of understanding and creating an argument. | Interpretation, analysis, evaluation, inference and explanation. | 1 |
| The Case | To develop the skills needed when approaching a case study. | Interpretation, analysis, evaluation, inference and explanation. | 1 |
| The Critique | To identify key themes within academic papers and critique them. | Interpretation, analysis, evaluation and inference. | 2 |
| The Thematic | To record themes within | Evaluation and | 2 |

| | | | |
|-------------------------|---|--|---|
| Analysis Grid | academic papers in order to be able to compare and contrast. | inference. | |
| The Argument Map | An alternative method of recording themes within a set of academic papers | Evaluation and inference. | 3 |
| The Critical Reflection | To develop views on academic literature and to record how this view has changed given further reading and debate. | Evaluation, inference and explanation. | 3 |
| Critically Right | To write a critical review of literature whether it is academic or practitioner. | Evaluation, inference and explanation. | 3 |

Two multiple method action research cycles have generated both qualitative and quantitative feedback amongst the pilot group. Analysis of qualitative statements (n=50) indicated that students liked the guided methodology, the support and feedback and the autonomy and flexibility the toolkit provided. A pilot confidence survey (n=24) was administered to specifically address the impact of using The Critique, The Thematic Analysis Grid and the Argument Map to evaluate literature. Before using these interventions, 54% stated they lacked confidence in their critical ability, dropping to 8% following practice and support using these interventions. More in-depth work is needed across larger cohorts to derive more robust results.

It is now imperative to attempt to measure more than confidence levels in toolkit usage. Further research is planned to establish the impact of the toolkit on student competence in interpretation, analysis, inference, evaluation, and explanation (Facione, 1998) so that added value from the interventions can be measured and teaching adapted as necessary. A range of metrics to assess thinking skills is debated in the literature and further work is planned to develop a series of tests to track student's movement from lower to higher order thinking skills. This should provide evidence for informed judgements to be made on the value of education and goes some way towards meeting potential government requirements to measure critical thinking abilities (Griffiths 2016).

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