

Achieving Constructive Alignment Using the Critical Thinking Skills Pentagon and Reflective Practice

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Abstract

The Australian Command and Staff College (Joint) sets ‘applying critical thinking, research, and analytical skills to solve complex problems’ as one of its five core course objectives. Yet, as for many tertiary courses, there is anecdotal but not objective evidence that the course achieves constructive alignment with that objective. The Critical Thinking Skills (CTS) pentagon is a tool for enhancing critical thinking by “making thinking visible,” giving learners the vocabulary to analyse and reflect on their skills as critical thinkers. In a group-based, problem-based learning (PBL) exercise, this paper applies the CTS pentagon in two ways: Firstly, students engaged in a scaffolded exercise of critical reflection on their execution of group-based critical thinking skills; this exercise took place in the middle and at the conclusion of the exercise. Secondly, researchers helped course designers use the CTS pentagon to modify an existing assessment rubric to strengthen the rubric’s focus on critical thinking skills. This paper provides evidence for the utility of combining the CTS pentagon and student reflective practice to achieve constructive alignment in critical thinking course objectives.

Introduction

This research was undertaken in the Australian Command and Staff College (Joint; ACSC(J)). Approximately 170 Australian Defence Force (ADF) and Defence Department (civilian) personnel participate in a one-year, residential, professional military education (PME) course. The mission of the ACSC(J) course is primarily to assist military officers develop the skills necessary to shift from operating at a tactical level into higher rank appointments where they will work at an operational and strategic level in multi-service, multi-national and interagency environments. As such, one of the five core course objectives is to “develop a broad body of knowledge and apply critical thinking, research and analytical skills to solve complex problems, both as individuals and in a team.”

The present research used the Critical Thinking Skills (CTS) pentagon of the MELT frameworks to implement two changes in a particular phase of the ACSC(J) course to work towards achieving constructive alignment between the above stated course objective and coursework and assessment. The CTS pentagon is a critical thinking tool that presents the six facets of cognition common to all MELT models in a non-linear graphic representation. The CTS was chosen for use in this context for two reasons. First, CTS is ideal for use in teaching critical thinking because, as John Willison has suggested, it “makes thinking visible.” When thinking about thinking, it is more effective for a group to have a shared language for what it means by critical thinking. Second, the non-linear arrangement of the six facets is ideal for teaching critical thinking in the ACSC(J) context. Because of their backgrounds in the Australian Defence Force (ADF) students at the ACSC(J) tend to be more comfortable with following specified linear structures to achieve an outcome. The arrangement of the CTS communicates to students (and teaching staff) that rather than being a linear process, critical thinking is a set of interrelated, complementary skills that can be honed through practice and reflection.

Practice Gap

One contribution of the present practice is to extend research in using MELT to enhance constructive alignment. The ability of the ACSC(J) to achieve its core course objectives is of critical importance to the senior leadership of the ADF, who need to ensure they have an exceptional

workforce to maintain the defence of Australia. Senior leadership has ample anecdotal evidence from past students, teachers, and employers of graduates that the course is achieving its mission. Still, the College leadership (ADF and ANU) are particularly interested in gathering more evidence of constructive alignment, particularly for the course objective of critical thinking and analysis.

The second contribution is a novel context for applying the CTS pentagon. The CTS pentagon is one of the newer MELT, and one of its benefits is in its adaptability to different learning contexts. This setting is contextually distinct as it is professional, adult, military education. The present practice can offer insight in the degree to which the CTS pentagon can be useful in enhancing learning in such an environment and to what extent the CTS needs to be changed and adapted to increase utility.

Approach

In July, students began a course module known as Joint Operational Planning (JOP). JOP is a group exercise conducted by Army, Navy, Air Force and interagency personnel in a mission lasting several weeks in which a scenario unfolds; the task for the students is to plan, collaborate and respond accordingly in the design of an operation. The present practice comprised (1) an introduction to CTS for students and teaching staff, (2) use of CTS in two periods of reflection and one period of feedback, and (3) use of CTS in adapting the assessment matrix for the JOP phase. We introduced the CTS to students and teachers in two separate sessions, tailored separately for student and teacher use in March 2017, and reinforced throughout the semester. Copies of the CTS were posted in each of the classrooms for students' and teachers' reference.

The operational design is known as the Joint Military Appreciation Process (JMAP). In civilian terms, the JMAP sets out five broad steps for robust operational planning. It is part of ADF Doctrine and as such has been tested, reviewed, refined and "provides authoritative and proven guidance, which can be adapted to suit each unique situation" (Joint Doctrine Centre, 2016). That adaptability suggests that practitioners need to follow the process while employing robust critical thinking. The CTS pentagon can be used in conjunction with the JMAP to enhance the application and adaption of the process to unique situations.

Students learn and practise the JMAP in three phases. In the first, students are closely guided through the process by a military teacher. In the second phase, students complete an iteration of the JMAP as a group, without guidance, but without being assessed. In the third phase, students again complete an iteration of the JMAP as a group, concluding with an assessed presentation of their results.

Between JOP phases 2 and 3, students were given the opportunity to spend time reflecting on their critical thinking as a group in the planning process for the purpose of learning and adapting in their assessed phase and also of considering how they will transfer group-level critical thinking skills to their future job postings. The reflection exercise was completed in a standard (at ACSC) 90-minute class period. Students started as a large 170-person group in the lecture theatre where the researchers briefed students on the activity for 25 minutes, and then moved to separate classrooms in their 12-person JOP teams. In order to allow students to reflect honestly without feeling assessed, teaching staff absented themselves once the activity was underway. Students participated in a 35-minute group reflection, structured with questions from a handout about strengths, weaknesses, and future goals. Finally, students participated in a 20-minute individual reflection, structured with questions about strengths, weaknesses and future goals.

At the conclusion of the syndicate discussion, course members were to provide teaching staff with a brief summary of their conclusions and ideas for how they might improve in the third assessed phase. The purpose of this document was 1) to focus the discussion on identifying specific outcomes and a course of action, and 2) to provide students with a record of the discussion for further reflection at the completion of the third phase of the module.

The final point of contact with all students in this exercise occurred in September, at the completion of the third phase of the JOP module. After students had completed the third iteration of the JMAP process and been marked on their solution to the problem (but prior to release of results) course members completed a brief written reflection responding to three questions about how their previous reflection affected their performance and might inform future professional postings.

Students were then invited to volunteer to participate in two small discussion groups to provide feedback on how the experience affected their learning journey. The discussion included questions such as: What did students get out of the process of iterative reflection on their critical thinking? What modifications would you suggest for the CT to allow it to better suit your purpose?

To further promote constructive alignment, we worked with the military teachers to evaluate and adjust the assessment marking rubric. The military teaching staff for JOP expressed concern that the existing matrix focused on presentation outcomes rather than the planning process and encouraged students to simply “tick boxes”. Our practice aimed to draw on research by Venning and Buisman-Pijlman (2008, 2012) which used the RSD to create an assessment matrix that promoted student learning and skill development. In this case, we modified the existing matrix with the CTS model to align assessment with critical thinking course objectives.

Outcomes, Discussion, and Conclusion

This Master’s course is an intensive programme. It is an important professional development opportunity within a cohort of dedicated and competitive individuals, whose employer is investing substantially in the outcomes of the course. In an assessment-focused, product-oriented environment, there are significant challenges in making the case for students to have more time for reflection, an activity with few tangible outcomes – there is no sign that it happened as it is internal to the student or teacher. Anecdotally, however, one of the outcomes of this activity has been to build a case for the benefits of reflection among teaching staff and senior leadership.

The implications of this practice on the ACSC(J) course are in making progress towards constructive alignment, or in better achieving the core course objectives. The first objective (to develop a broad body of knowledge and apply critical thinking, research and analytical skills to solve complex problems, both as individuals and in a team) is an ambitious one. Assessment of the course by teaching staff has identified that, according to the Paul and Elder model of critical thinking (2009) the ACSC(J) course is successful at fostering three out of five key critical thinking behaviours. One notable exception was in identifying problems and questions rather than responding to assigned problems and questions. Facilitating student reflection on group problem

solving provided an opportunity for students to make the intellectual shift to setting their own problems and questions.

This practice identifies two lines of future research. The first is that it provides evidence of the adaptability of the CTS pentagon for use in a military problem-solving context. A second research avenue is in using the CTS pentagon to consider “group level” critical thinking as potentially distinct from “individual level” critical thinking. At the time of writing, the practice is a work-in-progress. As outlined above, we will continue to implement the practice in August through October of 2017. At the completion of the practice, we will be able to make choices on how to pursue these two research avenues in the 2018 academic year.

References

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