IntelPrep, BARD and LinkImplication: processes for improving student learning and decision making

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Abstract

This paper summarizes an Integrated Learning and Pedagogical Research Process (labelled IntelPrep), within which a combined Business Analysis and Academic Research approach (labelled BARD) plays a prominent role, itself incorporating the concept of linking analysis to recommendation (labelled LinkImplication). IntelPrep combines a learning process which is made explicit to students and evaluated with a piece of pedagogical research into student perceptions of that process, particularly into the use of BARD. Evidence suggests that the BARD approach has benefits for students in terms of deeper learning, easier structuring of answers and better results but also imposes a heavier workload.

While the context for the following explication of this approach is in business and management, BARD has applications in any subject where students are using most of the elements of inquiry-based learning, as characterised by Hepworth and Walton (2009, p.82-3) and, subsequently, in career and life decisions. Equally, IntelPrep involves a series of stages which can be applied to the delivery - and assessment - of most curricula.

Introduction

Many formative learning tasks and summative assignments require students to recommend courses of actions in case-study scenarios. Typically, many students tackle such an assignment by proposing an answer and then justifying it by listing the advantages and (sometimes) disadvantages of their chosen option. In writing about the biases that dooms much business and life decisions, Heath and Heath (2013) found that people make quick decisions and then search for information which confirms that belief, a phenomenom known as confirmation bias. Kahneman (2011) also found that people have intuitive opinions and jump to conclusions by giving too much weight to information which is immediately or recently available. This last might suggest an additional criterion for the evaluation of information on top of those summarised by Hepworth and Walton (2009, p.207)

In short, most students do not demonstrate a clear process that will result in a logical decision. Lovallo and Siboni (2010) found that process was six times more important than analysis in making good decisions about how to increase profits and market share. Articulating a process through which a business decision (BD) can be made is also a higher order managerial skill and is in many ways similar to the academic research (AR) process which builds a model which may then be tested through its application to a data set.

A piece of secondary data research, conducted by this author, into students' past papers confirmed this lack of a decision model in most cases and, further, that those students who did incorporate management models of some sort often failed to establish a clear connection between the application of such models and any recommended course of action i.e. they did not demonstrate that they understand the implications of the application of the model they have chosen. Indeed, in some cases, students provided their answer to the task and then 'applied' a model afterwards – presumably as a sort of tick box exercise.

The IntelPrep framework shown below has been formulated as one attempt to redress some of the above failings. This version has 8 stages although it is possible to maintain the central learning strategy without the final 2 stages which evaluate the effectiveness of the learning strategy in detail.

The 8 stage IntelPrep Learning & Teaching Framework

Stage 1: Benchmarking Learning Outcome (LO) Questionnaire

Students are given a copy of a previous student's answer to an assignment on international market selection. Their understanding of a number of generic skills such as 'evaluation', 'synthesis' and 'critiquing academic literature' is tested by their agreement or disagreement with the past student's answer in demonstrating these skills and, more specifically for BARD, whether the student answer:
a. Made explicit the process by which the student arrived at their decision
b. Provided a comprehensive analysis of all the factors relevant to the decision
c. Demonstrated the implications of research evidence for the decision

Stage 2: Feedback to students on LO Questionnaire responses

Feedback on student responses is provided through Blackboard and is also discussed in a seminar. Generally, the vast majority of students consider the past answer to meet assessment criteria, particularly with respect to 'justifying' the decision. Student responses are then compared with my responses (which are that the past student answer failed), the purpose being to clarify their understanding of our LO's and my expectations of their performance in the assignment.

Stage 3: Introducing the BARD approach

The process below is introduced following the Stage 2 feedback. It incorporates a presentation which applies BARD to a previous case study. The process is also described in the student handbook.

Conduct a search for academic journal articles in the subject area in order to build knowledge and understanding and recognize different perspectives

Synthesise the above, evaluating evidence and critiquing research where possible

Develop a decision model incorporating the variables needed to inform the recommendation. This is the student's theory about the way things work and may be

a small adaptation to extant models or a completely new model. By doing this, the student is defining the process which will be used to lead to their recommendation/decision.

Apply the model to the task context using a method defined by the student. This could be, for example, a system which scores feasible alternatives against model variables/criteria or a more qualitative method. It is at this point that some students have difficulty in relating model application 'results' to recommendations, so the next step is….

Make explicit the implications of the applied model for the decision i.e. linkimplication

Bearing in mind the principle of relating new to existing knowledge, this approach might risk introducing ambiguity since it appears (for most students) to contrast new skills with existing skills. It therefore has to be continually reinforced as shown in Stage 4.

Stage 4: Embedding the BARD approach

Students give 3 group presentations on case studies covering key marketing decisions. Typically, few students present a model in their first presentation, suggesting that the new approach initially lacks the 'stickiness factor' (Gladwell, 2000). It is also likely that some students have not yet grasped the concept of 'model', which (here) is explained as a simplification of reality and shows or lists the key relevant variables in the decision (Briggs, 2007).

Stage 5: Feedback to students on seminar presentations

Groups receive written feedback only on slides which specifically address their performance in individual components of the BARD process e.g. model building and linking implications of model outputs to recommendations.

Stage 6: One-to-One sessions with students

These are offered to all students with the requirement that they are based entirely around the use of the BARD approach

Stage 7: Questionnaire 2

This large questionnaire is posted on Blackboard in the penultimate week. As well as many 'general' module monitoring questions, there are specific questions on the use of BARD and all the learning materials and activities used in embedding BARD.

The questionnaire is also a final reminder to students that they really have to use the BARD approach and that the assessment criteria reflect this.

Stage 8: Analysis of student assignment results

Together with the analysis of Questionnaire 2 an examination of student papers and marks is used to assess the effectiveness of IntelPrep and BARD in bringing about 'deep' learning.

Evaluation of IntelPrep and BARD

In the IntelPrep framework, students are encouraged to engage with an explicit learning strategy early on in their studies and they receive regular feedback which is focused on embedding the central BARD approach in order to aid summative assessment preparation.

The most important proposition here is that it is identification, selection and interaction, mature application and implication of the relevant model variables which shows true knowledge construction (Eriksson, 2003) whereas the conventional evaluation of options via advantages and disadvantages does not constitute true understanding. It is the design of a decision model and its linking to the decision which gives rise to the sort of deep learning as advocated in Marton and Saljo (1984) and Ramsden (1992) and discussed in Wilson (2000) and, at the same time, improves the process of decision making.

From a student perspective, BARD causes a lot of additional work but helps them structure their assignments and most students questioned claim that they would use the BARD approach in future assignments and in future work situations.

From a teacher perspective, BARD appears to result in a significant number of outstanding student papers, as indicated by External Examiner feedback and 'industry clients'. In some cases, the subject area has been moved forward.

BARD also appears to distinguish effectively amongst student performance. This is perhaps surprising since a common prescribed approach might be thought to lead to standardised responses. The differentiation occurs in the competence with which the model building is undertaken, the methods used to move from model application to implication, and the level of maturity demonstrated in terms of the practical feasibility of the specific recommendations made.

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