

## Redesigning a 'Quantitative Research Methods for Finance' Module

Luiz Vitiello  
Senior Lecturer in Finance  
London Metropolitan University

**Keywords:** *research methods, finance, module design, visual representation, constructive alignment*

### Introduction

ECP045 Quantitative Research Methods for Finance (QRMF hereafter) is a core module offered to Postgraduate Students in their first semester. It aims to introduce the students to the mathematical, statistical and econometrical tools employed in finance so that these can be used to analyse financial models and undertake research in finance. However, as will be discussed later, it seems that these aims have not so far been fully achieved. This study aims to address the problems currently faced by the QRMF module by redesigning it. In order to do so, the conceptual imagery and visual representations technique proposed by Jackson and Shaw (2002a, 2002b) will be initially applied to allow interconnectivity between the building blocks that compose the QRMF module. The constructive alignment theory will then be applied to ensure that those blocks are in tune and aligned with each other and also with the learning outcomes of the module (see for instance Jackson and Shaw (2002b) and Jackson, Wisdom and Shaw (2003)).

### Context

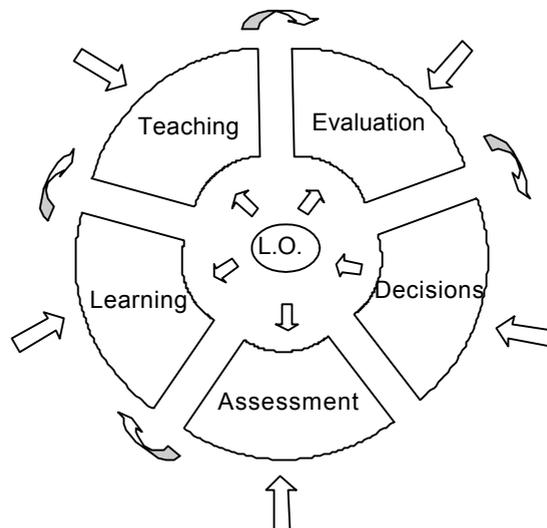
The QRMF module has been the target of appraisal and criticism from the teaching body mainly because the students seem to find it difficult to apply and link the tools they learn in this module to their dissertations and to other modules.

One could say that amongst the possible reasons for this is the fact that the module comprises 12 teaching weeks divided between two tutors and with each one being responsible for half of the module, including lectures and workshops. However these two halves are not connected, as the first part bears no direct technical relationship to the second. This lack of continuity and interconnectivity increases the complexity of the learning process and makes it more difficult to provide students with formative assessment/feedback.

## Rationale and Discussion

One way of improving the current situation of the QRMF module is to allow for the interconnectivity and alignment of its building blocks as depicted in Figure 1 (see Cowan *et al.* 2004).

Figure 1: the proposed visual representation of the module



The figure above suggests that the core of the whole process is the learning outcomes (L.O.) of the module, which in their turn are the results of a decision-making process. The learning outcomes have impact on all other blocks, as these have to be aligned with the learning outcomes of the module. All blocks receive input from outside – influences coming from the wider context of the module (e.g. subject benchmarks, professional body and quality assurance requirements) - represented here by the straight arrows outside the circle. By allowing this interconnectivity, there is a better integration among the building blocks of the QRMF module. The next subsection discusses the alignment of these building blocks with the learning outcomes of the module.

### *Constructive alignment theory*

Generally speaking, the constructive alignment theory can be regarded as belonging to the broad theory of learning known as constructivism, which assumes that meaning is not imposed or transmitted to the learner but it is the learner who creates it, i.e. instead of trying to transmit meaning to the learner, the tutor should try to create an appropriate environment to support the learner in his or her learning process.

Thus to achieve certain learning goals or learning outcomes the student should be surrounded by an environment that 'naturally' leads to those learning outcomes, where environment is defined as everything that the student has to do such as in-

class tasks, assessment method, group activities etc. As Shuell (cited in Biggs 1996, p. 349) points out,

*It is important to remember that what the student does is actually more important in determining what is learned than what the teacher does.*

With respect to the alignment of the building blocks of the QRMF module, it is worth noting that its learning outcomes are in accordance with similar modules in other business schools and with the research agenda of the London Metropolitan Business School (see also Jenkins and Healey (2005)). They are therefore kept unchanged as the core determinant of the module.

Following the diagram presented in Figure 1, the next building block to be discussed is the assessment method. Currently, students are assessed through a two-hour examination and a piece of coursework, each carrying a weight of 50%. However the two-hour exam seems to bear very little relationship to the ability of a student to undertake and set up research methods in the field of finance.

It seems therefore more appropriate to use an assessment strategy containing two or more pieces of coursework, as these usually require the students to research and write on a particular subject. Although this is only one of several other similar options, this strategy is easy to apply and can provide a good opportunity to get the students thinking about their dissertation/research. Thus, the assessment methods would be aligned with the learning outcomes of the module.

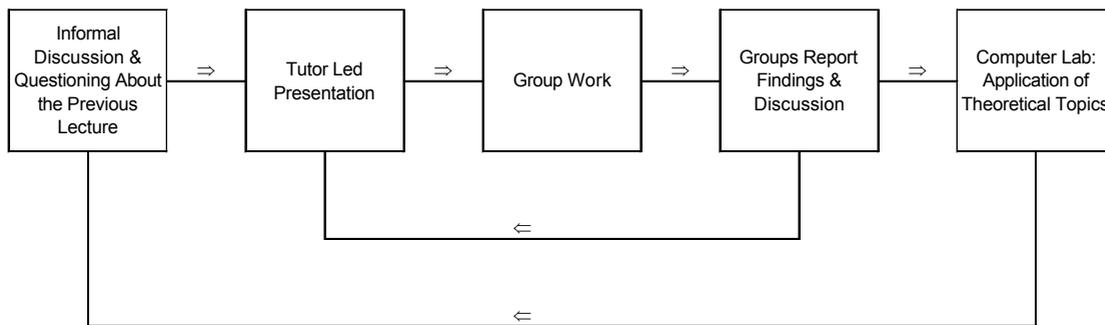
The third and fourth building blocks of the diagram in Figure 1 are 'Learning' and 'Teaching' respectively. In the QRMF module the delivery of the modules is structured around weekly three-hour sessions and these comprise seven weeks of formal lectures and four weeks of computer-based sessions.

The method of practicing and applying in the computer lab the theoretical topics discussed in the lectures is a good practice (see Morris et al (2002) for instance). However, due to the way that the lectures are currently organised they strongly rely on tutor-led presentations. We believe that the introduction of in-class group activities, student-led presentations and discussions among the students/groups could bring overall improvements to the teaching and learning process. Also, as the topics discussed in those in-class group activities would be related to the assessment strategy, the students would be able to relate/transfer the topics discussed directly to their coursework. This reinforces the alignment of learning and teaching with the learning outcomes of the module.

A typical session is summarised in Figure 2, which shows that it can be repeated continuously by using the results of the computer lab as an input for the discussions and the questions-and-answers (Q&A) element to refocus at the beginning of the

next session. These steps can roughly be related to the model proposed by Mcalpine (2004), in which the first part of the lecture can be considered the *engagement* phase; the second step – the tutor-led presentation – the *informing* phase, and the third step is the *practice* phase, which is represented by the Computer Lab workshops. Finally, the discussion and the Q&A at the beginning of the (next) session close the circle. This is what Mcalpine (2004) calls the *summative* phase.

Figure 2: Summary of a typical session



Taking Figure 1 into consideration once again, the final block that needs to be addressed is ‘Evaluation’, which can be considered a continuous process. For instance, the lecturer can (i) check, during the module, whether the specific learning outcomes for that session were achieved and whether that session contributed to the general learning outcomes of the module; then, at the end of the module use (ii) statistics of overall marks and pass rates and (iii) feedback from students and other lecturers to review the module and consider changes for the next cycle (see Warren 2008).

In the particular case of the QRMF module, item (i) can be verified through the Q&A session or similar activities at the beginning of each lecture, which can provide a rough idea of how the students are performing. Item (ii) can be checked immediately after each assessment. Item (iii) takes longer to be checked, as several modules that have the QRMF module as a prerequisite are run in the semester successive to it.

## Conclusion

This paper has proposed a new design for the QRMF model by applying a visual representation technique and the constructive alignment theory. Some changes have been made already and more changes will be gradually implemented. Overall it is believed that the proposed design will be more effective in engaging the students with the module and in achieving its learning outcomes.

## References

Biggs, J. (1996), 'Enhancing Teaching Through Constructive Alignment', *Higher Education*, **32**, pp 347-364.

Cowan, J., George, J. and Pinheiro-Torres, A. (2004), 'Alignment of developments in higher education', *Higher Education*, **48**, pp 439-459.

Jackson, N. and Shaw M. (2002a), 'Visual Representations and Conceptual Imagery in Curriculum Making: Part I', *LTSN Generic Centre*, **May**, pp 1-7.

Jackson, N. and Shaw M. (2002b), 'Visual Representations and Conceptual Imagery in Curriculum Making: Part II – Illustrative examples', *LTSN Generic Centre*, **May**, pp 1-12.

Jackson, N., Wisdom J. and Shaw, M. (2003), 'Guide for Busy Academics: Using Learning Outcomes to Design a Course and Assess Learning', *LTSN Generic Centre*, **March**, pp 1-8.

Jenkins, A. and Healey, M. (2005), 'Institutional Strategies to Link Teaching and Research', *The Higher Education Academy*, **October**, pp 1-68.

Mcalpine, L. (2004), 'Designing Learning as well as Teaching', *Active Learning in Higher Education*, **5**, pp 119-134.

Morris, E., Joiner, R. and Scanlon, E. (2002), 'The contribution of computer-based activities to understanding statistics', *Journal of Computer Assisted Learning*, **18**, pp 114-124.

Warren, D. (2008), '*Curriculum and Evaluation Development Handbook*', London Metropolitan University.

## Biographical note

Dr. Luiz Vitiello is Senior Lecturer in Finance at the London Metropolitan Business School, London Metropolitan University. He has been teaching the ECP045 Quantitative Research Methods for Finance module since 2007.

**Email:** l.vitiello@londonmet.ac.uk