Relevance of Operations Management to Practising Managers in Emerging Economies

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Abstract

The MBA of the University of Bedfordshire, England UK, has a very multicultural mix of students, many from emerging economies, and also includes a distance learning option with partner venues in India, Oman, Poland, South Africa, Germany and Switzerland. The university has an innovative blended learning approach which includes collaborative group learning, but has not researched whether what is taught on an operations management course originally designed for UK students is fully compatible with emerging economy practitioner requirements. Several previous studies have shown that practitioners favour concepts rather than quantitative methods and the purpose of this paper is to identify whether there are any gaps between practitioner requirements and what is taught. The paper will report on a survey of graduate practitioners from the university. It will explore whether there is a requirement for more project management content in the operations management curricula and whether there are any specific requirements for emerging economy practitioners.

Introduction

The main aim of this paper is to identify whether there are any gaps between practitioner requirements and what is taught on the Operations Management (OM) module of the University of Bedfordshire's MBA and in particular whether there is a requirement for more project management content in the operations management curricula and whether there are any specific requirements for emerging economy practitioners.

The University of Bedfordshire in England is located on two main campuses in Luton and Bedford which are both within an hour's drive from London. The University's full-time MBA course at Luton has a very multicultural mix of students, many from emerging economies, and analysis of one of the two cohorts from 2008-9 shows that approximately 45% of the students were from India, 30% from China, 15% from Pakistan and Bangladesh, 5% from Africa and 5% from the UK. The University's MBA also includes a distance learning option with partner venues in India, Oman, Poland, South Africa, Germany and Switzerland.

The University's OM module was originally developed for full-time students graduating and working in the UK. The current diversity in the student mix and the fact that the majority of the students graduate and work in emerging economies outside of the UK, makes it relevant to investigate whether the present curricula fully satisfies their needs.

The current OM course does not have a large emphasis on project management and it is hypothesised that this subject is increasingly becoming more relevant to graduates for the following reasons:

- An increasing use of project management techniques by both Private and Public sector companies to ensure that clients requirements are met and scope creep and deadline slippage do not result in project or business failure.
- Rapid advances in technology and increasing globalisation (where resources are sourced globally and markets are targeted across the globe) is creating a need for the management of multi-party projects and organisations need the ability to manage projects across continents and also to manage virtual projects.
- Present business environments are characterised by high volatility, which is forcing industries and organisations into change on an almost continuing basis. This is creating interest in more flexible, cross-functional project teams and the principles of project management to manage change.

The paper reports on a survey of graduates from the university, both full-time students and graduates from the overseas distance learning programme. It explores whether there is a requirement for more project management content in the operations management curricula and whether there are any specific requirements for emerging economy practitioners.

The paper first of all describes the MBA Operations Management course at the University of Bedfordshire. It then compares it with learning requirements from the literature before describing the survey done and the main results obtained. Finally the paper makes some conclusions and recommendations for further work in this area.

Operations Management (OM) Module

The current module curriculum covers the following topics with further detail given in Appendix 1:

1. Business strategy & global competitiveness
2. Quality management
3. Service and product design
4. Transformation & System Design
5. Capacity management
6. Location
7. Planning and Control
8. Supply-chain management
9. Inventory management
10. Material requirements planning (MRP) and Enterprise Resource Planning (ERP)
11. Just-in-Time (JIT)
12. Operations Improvement

The course promotes collaborative group work via the use of online learning tools such as group discussion forums and Wikis. It also makes use of Wimba live classrooms (www.**wimba**.com) both for teaching purposes and to provide a route to geographically dispersed students to collaborate in groups.

The course has a more strategic conceptual approach rather than a quantitative basis and this is consistent with the views of Visich and Khumawala (2006) who did an extensive review of OM curricula and practitioner requirements. They suggested more concepts may be preferred for mid-level management graduates from MBA programmes. The only real quantitative tools taught on the course are those associated with location decision techniques, capacity yield calculations and inventory management techniques.

The course's approach is also consistent to a significant degree with that advocated by Professor Denise Bower (2010) with respect to the teaching of Project Management courses as shown in Figure 1

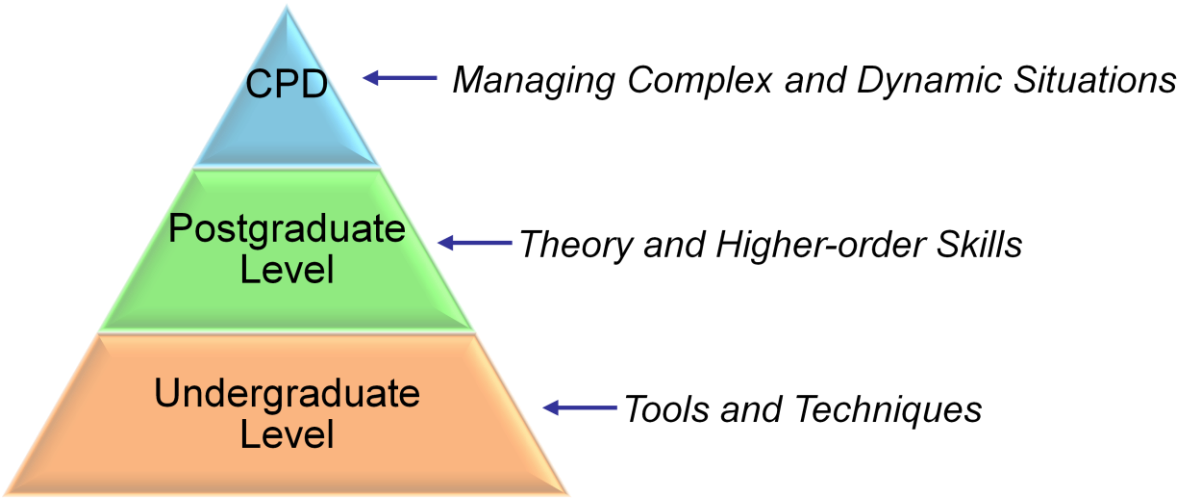

Figure 1: Curricula Focus in Project Management Courses, Bower (2010)

Here MBA Postgraduate student requirements are distinguished from those of undergraduates who require the basic tools and techniques of the subject, and from those of senior managers pursuing Continuing Professional Development (CPD).

However, many of the MBA postgraduate students have little prior knowledge of OM Tools and Techniques and therefore there may be a requirement on the course to investigate what the "base" level requirements for Tools and Techniques are. This is further complicated by the fact that a large number of MBA graduates do not go on to direct roles in Operations Management but have management roles in a variety of disciplines and functions.

The safest approach to take with respect to determining curricula needs would appear to be that advocated by Visich and Khumawala (2006) who suggest that faculty need to determine what their stakeholders current and future educational needs are, and this should be an ongoing process with feedback loops for continuous improvement. The study outlined in this report is the first step in this direction.

Visich and Khumawala (2006) also suggest the need to measure student satisfaction, learning and attitudes toward OM, and the extent that OM is integrated with other fields. It is hypothesised in this report that the balance between Operations Management (business as usual) and Project Management (the management of change) is tilting towards Project Management due to the volatility in today's business environments as previously described. A major weakness of the current course would therefore appear to be the lack of taught project management tools and techniques and concepts.

Survey Design

An online survey was conducted using Snap software (http://www.snapsurveys.com/) with previous graduates from both full-time courses and distance learning overseas courses who studied OM during the period 2007 – 2009. Graduates who scored a B grade or higher, were chosen for the survey as it was felt that they would have engaged sufficiently with the

course to allow worthwhile initial feedback to be given. A summary of the graduates responding to the survey is given In Table 1 and Figure 2 below:

Table 1: Summary of Respondents

	UK	Switzerland	Germany	Oman	India	Pakistan	China	Other	TOTAL
No.	5	5	4	3	10	1	1	3	32
Mean Age		34.7 (Standard Deviation = 8.3)							
Gender		9 females, 23 males							

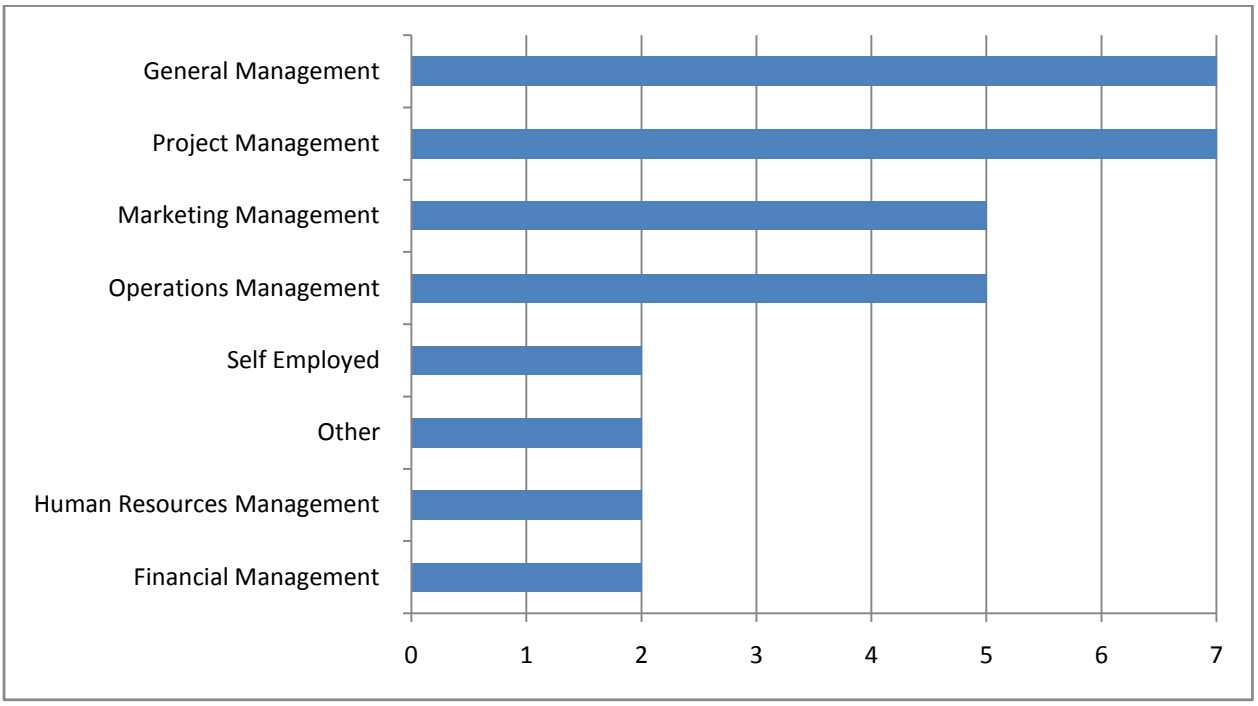

Figure 2 – Job Roles of Respondents

Research Objectives

The main research objectives of the survey were to determine:

1. What curricula areas were found most important in their jobs by practitioners
2. Whether project management was valued by practitioners
3. What tools and techniques were found most useful by practitioners
4. Whether there were any differences in practitioner requirements between graduates from the established Western European economies of the UK, Switzerland and Germany, and those from the emerging “Eastern” economies of Oman, Pakistan, India and China.

Survey Results

1 Important Curricula Subject Areas

Respondents were asked to rate how important they found subject areas in their job roles on a scale of 1 to 7 where 1 represented "Very Important" and 7 represented "Very UnImportant".

The data was first processed by combining the results for scales 1 and 2 to give a grouping called "Important"; combining the results for scales 5, 4 and 3 to give a grouping called "Maybe" and combining the results for scales 6 and 7 to give a grouping called "Unimportant". The resulting findings are given in Table 2a below:

Table 2a – Ranking of OM Topic Areas by Respondents

	Topic Area	Important	Maybe	Unimportant
1	Business strategy & global competitiveness	75.1%	12.5%	12.5%
2	Project Management	75.0%	18.8%	6.3%
3	Planning and control management	75.0%	18.9%	6.3%
4	Quality Mangement	50.1%	31.3%	18.8%
5	Service and / or Product Design	68.8%	25.1%	6.3%
6	Supply chain management	56.3%	37.5%	0.0%
7	Capacity Management	56.3%	25.1%	18.8%
8	Geographic location and related decision making of resources	56.3%	25.1%	18.8%
9	Inventory management	56.3%	37.6%	6.3%
10	Material requirements planning (MRP/ERP)	43.8%	31.3%	25.0%
11	Just in time managment (JiT)	43.8%	31.3%	25.1%
12	Transformation & System Design	37.6%	50.1%	12.5%

The results showed that Business Strategy, Project Management, Planning and Control and Quality Management were the four most important topics for practitioners while Transformation & System Design and Just-in-time (JiT) management appeared to be the least important. However, closer inspection of the data showed that these two topics had a large percentage of "Maybe's." The Important and Maybe columns were therefore combined to form a "Relevant" category. The resulting findings are given in Table 2b below

Table 2b – Re-ranking of OM Topic Areas by Respondents

	Topic Area	Relevant	Unimportant
1	Project Management	93.9%	6.3%
2	Service and / or Product Design	93.9%	3.1%
3	Just in time managment (JiT)	93.9%	6.3%
4	Quality Mangement	93.8%	6.3%
5	Transformation & System Design	93.7%	6.2%
6	Planning and control management	90.7%	9.4%
7	Geographic location and related decision making of resources	87.7%	12.5%
8	Business strategy & global competitiveness	87.6%	12.5%
9	Material requirements planning (MRP/ERP)	87.5%	12.5%
10	Capacity Management	87.4%	12.5%
11	Supply chain management	84.5%	15.6%
12	Inventory management	78.2%	18.8%

A comparison of Tables 2a and 2b allows the following conclusions to be drawn:

1. Quality Management; Planning and Control Management and Service and/or Product Design are the most important and relevant of the current course topic areas

2. Project Management is not currently taught as part of the course but IS HIGHLY valued by practitioners as hypothesised

3. Inventory management and Materials Requirements planning (MRP/ERP) were the overall least valued and relevant topics to the practitioners surveyed

2 Important Tools and Techniques

Respondents were asked “Over the next two years, which of the following techniques or tools do you think will be useful to you in your job role?” and the main findings are summarised in Table 3 below.

Table 3: Ranking of OM Concepts, Tools and Techniques

Concepts, Tools and Techniques	Percentage of Total Respondents
The 5 performance objectives	75.00%
Benchmarking	75.00%
Costs of quality	62.50%
Total quality management	62.50%
Fishbone diagram	56.30%
The 4 V's	50.00%
Quality standards	50.00%
Basic transformational model of operations	43.80%
Services Quality "Gap" model	43.80%
7 types of waster and JiT waste elimination techniques	43.80%
Balanced scorecard	37.50%
Business process re-engineering	31.30%
Weighted score method for location analysis	31.30%
Deming's 14 points	25.00%
Quality function deployment	25.00%
Poka Yoke (Fail safe error proofing)	25.00%
ABC inventory classification	25.00%
Volume-Variety process mix	18.80%
Centre of gravity method for location analysis	12.50%
MRP master production schedule & bill of materials	12.50%
Kanban	12.50%
Services "Blue Printing" Process Analysis	6.30%

The results show that:

1. Quality methods are generally the most valuable to practitioners
2. MRP related methods are amongst the least valuable to practitioners consistent with the earlier findings in page 7
3. Specialist methods such as Services Blue Printing were regarded as not being very valuable by the practitioners.

3 Further Analysis of Tools and Techniques

The Tools and Techniques were grouped together under common categories to aid further analysis and the overall total response was also compared with the response from practitioners in mature European economies and emerging Eastern economies[1]

Table 4: Ranking of OM Concepts, Tools and Techniques

	Total	Europe	Eastern
Basics			
The 5 performance objectives	75%	71%	78%
The 4 V's	50%	43%	56%
Basic transformational model of operations	44%	29%	56%
Quality			
Benchmarking	75%	57%	89%
Costs of quality	63%	71%	56%
Total quality management	63%	71%	56%
Fishbone diagram	56%	57%	56%
Quality standards	50%	57%	44%
Deming's 14 points	25%	29%	22%
Quality function deployment	25%	29%	22%
Balanced scorecard	38%	43%	33%
Services			
Services Quality "Gap" model	44%	71%	22%
Services "Blue Printing" Process Analysis	6%	14%	0%
System Design			
Volume-Variety process mix	19%	14%	22%
Business process re-engineering	31%	43%	22%
Inventory			
ABC inventory classification	25%	29%	22%
MRP master production schedule & bill of materials	13%	29%	0%
Lean Processes			
7 types of waster and JiT waste elimination techniques	44%	43%	44%
Poka Yoke (Fail safe error proofing)	25%	43%	11%
Kanban	13%	29%	0%
Location			
Weighted score method for location analysis	31%	29%	33%
Centre of gravity method for location analysis	13%	0%	22%

[1] *The 14 respondents from the UK, Switzerland and Germany were combined to form the group "Europe" (See Table 1, pg. 5) while the 15 respondents from Oman, India, Pakistan and China were combined to form the group "Eastern"*.

Table 4 shows the percentage of each category (Total, Europe and Eastern) who thought that a particular OM concept or tool was important for their job role. The main results were as follows:

1. Basic and Quality related concepts and tools are the most relevant to practitioners and this probably reflects the wide spread of practitioner job roles as shown in Figure 2, page 5.

2. European practitioners appear to value Service related concepts and techniques more than those in the emerging Eastern economies and this may be due to the more highly developed service industries in the European economies.

3. European practitioners also appear to value more specialist techniques such as Poka Yoke. Kanban and MRP based methods. This could possibly be due to more developed systems but the numbers involved are too low to allow any hard judgements to be made in this area.

Conclusions

The following main conclusions were drawn as a result of the survey:

1. Quality Management; Planning and Control Management and Service and/or Product Design are the most important and relevant of the current course topic areas. Quality methods, tools and techniques are also the most valuable to practitioners. This probably reflects the fact that graduates have a wide variety of management job roles rather than specialist operations management roles and quality as a general topic spans across most job roles.

2. Inventory management and Materials Requirements planning (MRP/ERP) were the least valued and relevant topics to the practitioners surveyed. This may again be explained that these are more specialist operations management topics and the practitioners are more “generalist” managers.

3. Project Management is not currently taught as part of the course but IS HIGHLY valued by practitioners from both established and emerging economies, as hypothesised

4. European practitioners appear to value Service related concepts and techniques more than those in the emerging Eastern economies of Oman, Pakistan, India and China, and this may be due to the more highly developed service industries in the European economies.

5. European practitioners also appear to value more specialist techniques such as Poka Yoke. Kanban and MRP based methods. This could possibly be due to more developed systems but the numbers involved are too low to allow any hard judgements to be made in this area.

Recommendations

It is recommended that:

1. Operations management courses review the amount of project management content that they contain as this topic area is of high relevance to managers in both established and emerging economies.

2. The University of Bedfordshire combines its Inventory and MRP teaching topics in order to free up space in the curricula to introduce more “valuable” project management topics.

3. The study is extended to capture the views of more practitioners, including those from emerging economies in Africa and Eastern Europe.

4. The study is also extended to measure student satisfaction, and learning and attitudes toward OM as suggested by the earlier review of Visich and Khumawala (2006). Additionally, the study should be extended to cover the views of students achieving lower than a B grade in OM.

Reference List

Bower, D. (2010), Presentation to the HEA Project Management Subject Group, University of Westminster, London, March 2010

Visich, J. K. and Khumawala, B.M. (2006), "Operations management curricula: literature review and analysis", *Journal of Statistics & Management Systems,* Vol. 9, No. 3, pp. 661–687

http://www.snapsurveys.com/

www.wimba.com

APPENDIX 1: Operations Management Module Content

The curriculum of the module includes the following:

1. Business strategy & global competitiveness

    - How can operations support the business strategy and mission?
    - Which of the 5 performance objectives must we especially focus on?
    - How global are our markets and how should we organise to service them?
    - What degree of outsourcing and vertical integration is required?

2. Quality management

    - How do we define quality and how can we compete based on quality?
    - Which quality methods are relevant for monitoring and improving our operations?
    - Which quality standards need to be developed and maintained?

3. Service and product design

    - What are the stages in new product and service design ("NPSD")?
    - What are the trade-off factors in the product design stage?
    - What the key aspects of standardisation, modularity and computer-aided design?
    - What are the key factors involved in the management of NPSD process?

4. Transformation & System Design

    - What do our operations' characteristics (e.g. volume and variety) imply for the processes we should use?
    - What equipment and technology is necessary for these processes?
    - How should we arrange the facility and material flow?

5. Capacity management

    - How much capacity do we need to have available to meet forecast market demand?
    - How can we manage our capacity to meet fluctuating (e.g. seasonal) demand?

6. Location

    - Where should we put our production, storage and other major facilities?
    - On what criteria should we base the location decision?

7. Planning and Control

    - How can we forecast demand?
    - How do we schedule our operations?
    - To what degree do we load our operations?

- In what order do we sequence our operations?
- How do we monitor and control our activities?

8. Supply-chain management

    - How do we organise activities from the customer's order through to final delivery for speed, efficiency and quality?
    - Should we make or buy this component? What should we outsource?
    - What are our criteria for selecting suppliers?
    - Can our suppliers integrate into our supply chain IT systems and our e-commerce programme?
    - Where should we locate our distribution facilities and what types of transportation should be used?

9. Inventory management

    - How much inventory of each item should we have?
    - When do we re-order? And how much should we reorder?
    - Can we prioritise our inventory requirements?

10. Material requirements planning (MRP)

    - Should we use an MRP information management system to order, schedule production and manage our inventory based on a master production schedule?

    - Should we use an Enterprise Resource Planning (ERP) system to integrate inputs and outputs of our MRP production system with other dependent functions within our organisation, as well as with suppliers and customers external to the organisation?

11. Just-in-Time (JIT)

    - Can we use any JIT techniques or philosophy such as simplification to eliminate waste and non-value-added activities?

    - How far can we approach the JIT ideal of making to order and zero inventory?

12. Improvement

    - How can we use operations management theory to improve operations at our workplace?