
Return on Investment from Project Management Education: a case of British Project Management Professional Development Programme¹

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Abstract

Expenditure on project management education represents an investment for which there would be the expectation of a beneficial return to the investing organisation. However, corporate sponsorship for project management education programmes appears to have been to date a leap of faith. This paper presents the Return on Value (ROV) concept towards education and training evaluation, derived from a 4 years investigation into the effectiveness of a case study modular distance delivered Project Management Professional Development Programme (PMPDP).

A qualitative comparison of knowledge, application and job performance of PMPDP delegates and graduates with the control group is reported. Findings which are based upon 35 structured interviews explore differences between the knowledge levels, the way it is applied and changes in job performance of the two groups. The majority of these changes are central to individuals leading to tangible benefits for the companies. The extent to which there is a financial return arising from professional development programmes is difficult to assess. The paper draws upon the difficulties in quantifying benefits of such programmes. Suggestions are made how best to measure the effectiveness of CPD programmes.

1. Introduction

Due to the influence of numerous variables of improved organisational performance, project management education and training has not lent itself readily to evaluation. Alongside, the complexities in establishing clear causal relationships between education, training, and benefits are existing theoretical training evaluation models which do not appear applicable for measuring financial return on investment (Thiry 2004). However, to meet the competitive realities of the global economy, organisations invest heavily in project management (PM) training and professional development without really being sure that the investment is adding value (Daley 2001).

The paper, through briefly explaining the Phillips (2003) Return on Investment (ROI) model, presents the Return on Value (ROV) model which seems to be a more practical approach to evaluate the effectiveness of continuing professional development programmes. Using this approach, the paper investigates the effectiveness of the case study programme – Project Management Professional Development programme

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(PMPDP) from an industrial perspective. This is achieved by employing a control group and comparing their knowledge, application and its effects on their job performance with that of the delegates and graduates of the PMPDP. Practical difficulties in measuring the financial return on investment made through the PMPDP are discussed and recommendations made.

2. Return on Investment from Project Management Education

One of the apparent paradoxes of the management learning industry is its continuing success and growth in material terms which has taken place against a background of continuing criticism and doubts about its aims, methods and effectiveness (O' Connor et al. 2006). Justifying an investment in project professional development is a key priority for employers due to financial pressures as highlighted by Esterby-Smith (1994) and Phillips (2003) who suggest that economic pressures are putting onus on the evaluator to prove the value of training and education. For professional development to be effective in meeting individual needs and organisational goals, the process must be evaluated to make judgements about its cost effectiveness and to aid organisational learning and improvement (O' Connor et al. 2006).

Higher education institutions (HEIs), as providers, are equally interested in evaluating the extent to which their programmes are successful in meeting organisational needs. These (or similar) factors have created an increase in the application of ROI in project organisations (Alam et al. 2009). Departing from Kirkpatrick's (1979) four level evaluation model, Phillips (2003) proposes a ROI model. This model comprises five levels; each investigates different elements of a professional development/ training programme.

Level 1, Reactions: measures programme participant satisfaction. A favourable reaction, however, does not ensure that participants have learned new skills or knowledge.

Level 2, Learning: focuses on what participants have learned during the programme, using tests, skill practices, role plays, simulations, group evaluations, and other assessment tools. However, a positive measure at this level is no guarantee that what is learned will be applied on the job.

Level 3, Application and Implementation: determines whether participants applied what they learned on the job. Appraisal by a line manager and 360° appraisal are well recognised tools for tracking the application of knowledge. Though level 3 is important to gauge the success of the application of a programme, it still does not guarantee that there will be a positive business impact on the organisation.

Level 4, Business Impact: focuses on the actual results achieved by the programme participants as they successfully apply what they have learned. Typical level 4 measures include output, quality, cost, time, and customer satisfaction. Although the programme may produce a measurable business impact, there is still a concern that the programme may cost too much.

Level 5, Return on Investment: compares the monetary benefits from the programme with the programme costs. Although ROI can be expressed in several ways, it is usually presented as percentage or cost/ benefit ratio.

Measures pertaining to levels 1 and 2 are mostly quantitative and can be assessed easily at individual level. Levels 3 and 4 involve task and organisation oriented measures which are mostly investigated qualitatively (Thiry 2004). It is clear that it is necessary to measure programme effectiveness beyond individual performance demands, involving the setting of clear qualitative measures, which is not easy to achieve. Phillips (2003) writes convincingly on the relationship between competence and ROI. He is a devotee of developing algorithms for the calculation of real financial benefit in order to compare benefits with training, education, and development investment costs (Gale 2004). However, it is very difficult to see how project management development programmes with complex inputs and slow-to-develop intangible benefits can be fitted into this quantitative approach (Connor, *et al* 2006; Gale, 2004). Rowe and Esterby-Smith (1994) echo this point, stating that it is not possible to make measurements that enable ROI to be evaluated with respect to intangible benefits.

The link between education and training and individual/ corporate performance seems tenuous as discovered by Alam (2009) through his recent 4 years research into the effectiveness of CPD programmes. This is due to complexity of disentangling the effects of the CPD programme from other performance related initiatives such as experience, organisational strategy, market conditions, inflation and economy (Alam, 2009). His research seconded the first four levels of Phillips (2003) ROI model but level 5 is critically debated. Based upon the findings of his research, the level 5 of Phillips (2003) ROI model is extended through the introduction of Return on Value (ROV) level which allows the use of qualitative subjective measures to assess the effectiveness of CPD programmes rather than sole quantification of financial benefits from such initiatives. The ROV Model (fig. 1) integrates the widely debated link between investment in project management education, competence development and its impact on organisational performance.

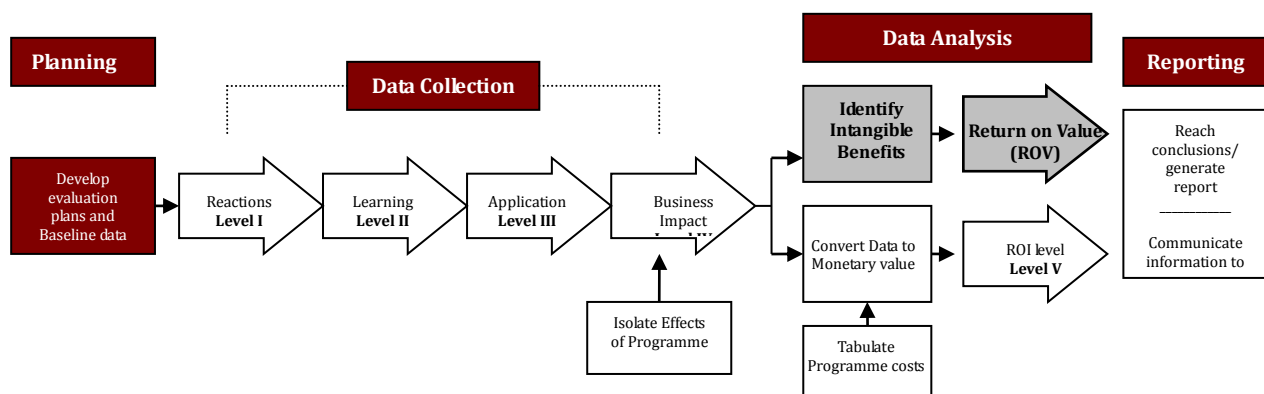


Fig 1: The New Return on Value (ROV) model (Alam 2009)

3. Case study: MSc Project Management Professional Development Programme

PMPDP is a modular distance delivered generic Project Management Professional Development Programme for cross-sector industrial training partners (Rolls-Royce,

Goodrich, AMEC and EDS). It is run as a project and the ongoing research reported here arises from a maturing academic-industrial educational partnership which has been running for over ten years. Over that time 170 students (delegates) have graduated with MSc in Project Management as well as others with postgraduate modules, certificates and diplomas. The PMPDP comprises 8 modules which are designed to cover almost all important areas of project management in various Bodies of Knowledge (BoKs) such as the PMI's Guide to PMBoK (2004) and the APM BoK (2010).

Being typical of an MSc provision in the UK, the PMPDP is used as a case study in this research. This paper focuses on levels II to IV of the Phillips (2003) ROI model and investigates the impact of the case study programme on knowledge levels of delegates and graduates, how it is being applied and its impact on their job performance in comparison to a control group.

4. Research Methodology

The working population comprised 35 individuals with different demographic profiles [(n=35) 14 from Rolls-Royce, 10 from Goodrich, 8 from AMEC and 3 from EDS] amongst whom 26 were the delegates and graduates of the PMPDP (group 1) and the remaining 9 were those who had not studied the PMPDP (control group-group 2). Arguably knowledge gained from the PMPDP may influence the job performance of respondents. Using the 5-level Phillips (2003) ROI model, semi-structured interviews were conducted with both groups. They were asked to characterise their knowledge, application of skills and job performance using the framework of the Project Management Institute's (PMI) Guide to PMBoK (2004) comprising 9 knowledge areas and 44 PM processes. The interview questions were open, giving freedom to respondents to express, in their own way, the impact of PMPDP and/ or experience on their knowledge, application of skills and job performances.

5. Research Analysis

5.1 Project Management Knowledge

Considering the replies of the sample (n35), fig. 2 illustrates the extent to which the PMPDP has contributed to an increase in the knowledge of group 1 in different PM knowledge areas whereas fig. 3 records the number of respondents in the control group (group 2) who on the basis of their experience, self learning and/ or short courses have or do not have knowledge in each of the 9 knowledge areas

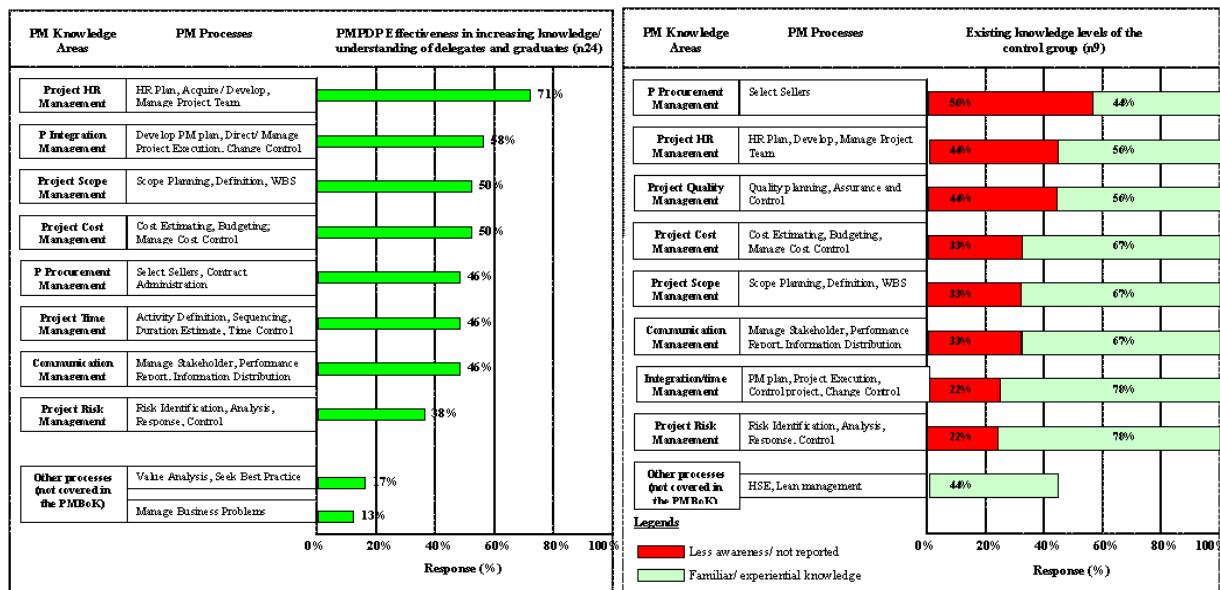


Fig. 2 and 3: Knowledge of group 1 and 2 in PM Knowledge areas (Alam 2009)

The interviews recorded evidences of how the knowledge of delegates and graduates improved in comparison to the control group. Findings suggest that almost 96 percent of delegates and graduates in the sample (n=26) reported improved awareness of the nine PM knowledge areas outlined in the PMBoK (2004). With regards to PM processes, tools and techniques, 71 percent reported improved knowledge in HR management, 58 percent in project integration, 50 percent in scope and cost, 46 percent in procurement, time and communications and 38 percent in risk management. Alongside, improved knowledge in philosophical aspects of organisation, people and culture, personality, team working and organisation maturity was well attributed to the PMPDP by a vast majority of delegates and graduates. Although the control group (n=9) also reported their existing level of knowledge in these hard and soft PM processes, the results from the qualitative comparison between the knowledge levels of both groups (delegates, graduates and control group) identified knowledge gaps in the control group which the delegates and graduates do not appear to display. For example in *HR Management*, group 1 reported a better understanding in HR planning and processes of team development and its management giving them more awareness of implications if such processes are not executed. The control group on the other hand which primarily rely on their experience appear to lack the theoretical construct behind these processes limiting their understanding the significance of processes concerned.

In *cost management*, both the groups seem to have a considerable knowledge and understanding in estimating; budgeting and controlling project costs. By studying the PMPDP group 1 apparently focus more on work performed as compared to cost incurred whilst using EVA. They have become more knowledgeable of different techniques such as NPV and IRR which do not appear to be reported by any member of the control group. Likewise, a considerable proportion of the control group (56 percent) despite experienced, reported less awareness in *commercial and procurement*. Probably, the remaining 44 percent of the control group have some awareness in areas such as how to deal with customers and purchase orders; but that also seems limited and

focused on their respective organisations. Conversely group 1 by studying the PMPDP reported a structured understanding of how to develop and interpret contracts; selection criteria for suppliers; legal terminologies; and contractual obligations. Prior to the PMPDP, their knowledge and understanding in these commercial aspects may not have been that developed.

Similar differences were explored between the two groups in the areas of *project integration, scope, time, communications* and *risk management*. The results suggest that the PMPDP, by filling the knowledge gaps in the reported knowledge areas, have contributed in developing delegates and graduates into more knowledgeable employees in comparison with the control group.

5.2 Application of Project Management Knowledge

Learning Transfer has received great importance in training evaluation as the job performance is considerably affected by the factor of knowledge that is effectively applied (Ellis 1965; Baldwin and Ford 1988; Robinson 1988; Holton 1996; Wills 1998). Although application of knowledge is dependent upon many factors such as job role and experience, the findings of the interviews suggest that knowledge gained from the case study programme is reasonably well applied. This seems to be true as the number of delegates and graduates (n=26) who reported the utilisation of knowledge in most of the key dimensions of project management (*integration, human resource, scope, procurement, communications, cost, risks, people and culture, and organisation*) is relatively higher than those who reported knowledge gain only (fig 4). A considerable proportion of the control group (n=9) also provided evidences of how they utilised different aspects of their PM knowledge (fig 5).

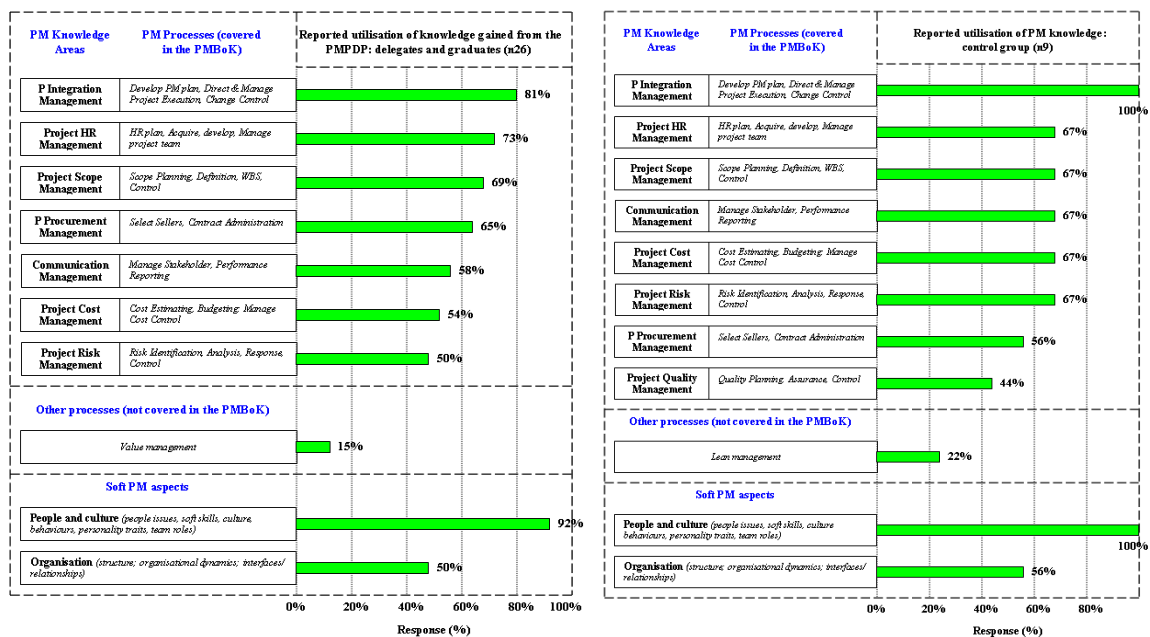


Fig. 4 and 5: Reported utilisation of PM knowledge by group 1 and 2 (Alam 2009)

The results of qualitative comparison revealed certain differences between the two groups when applying project management knowledge. In *project integration*, group 1

by studying the PMPDP is more aware about the interaction of project scope, WBS, cost estimates, resources, schedule, and other project items such as risks and procurement and address them in the project management plan. Though group 2 may possibly be considering some of these items, the way they reported the use of their planning and integration skills reflect less awareness of their interaction in the project plan. In terms of *soft skills*, group 1 being more aware of organisation, culture, and people utilise their soft skills such as negotiation, communication and team working skills developed/improved from the PMPDP in a better way. Alongside, the respondents of group 1 use their knowledge gained from the PMPDP in developing new softwares and processes such *project dashboard* to manage configuration and control projects. This type of knowledge utility was not reported by the control group.

In *HR Management*, group 1 attributed the PMPDP in giving more consideration to team roles (Belbin), stakeholders' expectations, project interfaces and constraints while developing responsibility assignment matrix for projects. Group 2 on the hand seem to lack this understanding and rely more on company's resource system. While *building teams*, group 1 as a result of studying the PMPDP prefer to collate team members wherever appropriate and apply a team building process (*forming, storming, norming, performing*) in order to create a harmony among team members. The utility of this process is lacking in group 2 when developing teams. In *commercial management*, the majority of group 2 do not appear to be involved in managing the commercial aspects of projects. However, few develop contracts, their terms and conditions but apparently are not well aware of their legal implications. On the other hand, a considerable proportion of group 1 use commercial knowledge gained from the PMPDP in developing contracts, drafting their terms and conditions while considering their legal implications as well. In *cost management*, group 1 by studying the PMPDP use techniques such as NPV, IRR and discounted cash flows and develop best case and worst scenarios to analyse the viability of projects. These practices are not reported in such a way by group 2. Arguably, use of these techniques helps delegates and graduates to develop more realistic estimates and budgets for projects.

Similar differences were explored between the two groups in the areas of *project scope, time, communications and risk management*. By complementing their experience with the theoretical knowledge of different PM processes and soft PM aspects, group 1 is able to apply their new and developed PM skills in a more systematic/ structured manner to coordinate, control, monitor and manage project activities; advantaging them over the control group. It could be argued from the analysis that knowledge gained from the PMPDP is applicable which may influence the individual/ business performance to a reasonable extent.

5.3 Business Impact

Both the groups reported improvements in their job performance as a result of applying the knowledge learned from the PMPDP and/ or by experience. However, the qualitative comparison revealed certain differences between the performances of both groups. These differences are summarised in table 1.

Table 1: Differences between job performance of delegates and graduates from the control group

Knowledge areas	Differences in individual job performance	
	Delegates and graduates	Control group
<i>Integration Management</i>	<ul style="list-style-type: none"> • More systematic in <i>project planning, execution and control</i> • Improved <i>project delivery</i> due to effective utilisation of soft skills • More effective in implementing <i>change control</i> 	<ul style="list-style-type: none"> • Limited impact of PM skills in <i>planning, executing and controlling</i> project due to less philosophical understanding of PM
<i>Human Resource Management</i>	<ul style="list-style-type: none"> • Improved <i>forecasting and resource allocation</i> by effective use of knowledge of Belbin roles, behaviours, stakeholders analysis and resource levelling • Better <i>team development and management</i> by use of team building process and soft skills 	<ul style="list-style-type: none"> • More reliance on experience in <i>HR planning, team development and management</i>
<i>Scope Management</i>	<ul style="list-style-type: none"> • Better <i>scope management</i> by aligning project with business strategy • Effective in <i>developing structured WBS</i> by including work packages and statement of works. 	<ul style="list-style-type: none"> • Not effectively aware of implications of misalignment between business and project strategies • <i>Developing WBS</i> using experience
<i>Procurement Management</i>	<ul style="list-style-type: none"> • Improved <i>contract development, interpretation and management</i> by use of legal awareness • More focus on value for money rather than lowest price while <i>selecting suppliers</i> 	<ul style="list-style-type: none"> • Less developed <i>commercial contract management skills</i> • Reasonably effective in procurement
<i>Communications Management</i>	<ul style="list-style-type: none"> • Employ more formal <i>communication</i> structure in projects • Maintain <i>seamless flow of information</i> • Improved <i>progress reporting</i> by use of earned value graphs • Better at <i>managing stakeholders expectations</i> as more knowledge on project and people needs 	<ul style="list-style-type: none"> • Reasonably effective in <i>developing, collecting and distributing information</i> with experience
<i>Cost Management</i>	<ul style="list-style-type: none"> • Effective in developing more realistic <i>cost estimates and budgets</i> • Developing best case and worst case scenarios—better ability to forecast the viability of project using techniques: NPV, IRR, DCF 	<ul style="list-style-type: none"> • Pure experience based cost management skills • Gradual improvement in <i>cost management skills</i>
<i>Risk Management</i>	<ul style="list-style-type: none"> • More systematic in identifying, analysing, quantifying and managing risks by use of RM knowledge • Proposing best practices of risk management 	<ul style="list-style-type: none"> • Following more traditional approach to manage risks
<i>People and culture</i>	<ul style="list-style-type: none"> • More capable to recognise the behaviours of stakeholders • Better at managing relationships • Improved interaction with people from different cultures and backgrounds 	<ul style="list-style-type: none"> • Gradual improvement in people skills and behaviours with experience
<i>Organisation Management</i>	<ul style="list-style-type: none"> • More effective in organising the right project structure • Able to identify the pros and cons of reorganising the business • Better able to resolve organisational problems by giving more considerations to people/ culture. 	<ul style="list-style-type: none"> • Reasonably effective in developing a project structure by working in different types of projects

Although, the experience of control group has fairly contributed in improving their job performance, yet group 1 by using their experience together with the knowledge gained

from the case study programme perform more effectively in majority of the reported dimensions of project management. With regards to project/ BU and company performance, both the groups perceived that their improved job performance could contribute more positively in improving project/ BU performance in comparison to the corporate. The two groups could not classify these improvements due to the difficulties in disentangling the effects of PMPDP and/ or experience from other performance influencing factors such as management strategies, working relationships, customers and suppliers, resources and external factors (dollar exchange rates, market forces, competition, material prices etc.). However, the likely differences in the job performances of both the groups make a reasonable argument that the improved performance of group 1 as a result of studying the PMPDP may influence project/ BU and/ or corporate performance to a greater extent than the performance of the control group.

6. Calculating the financial Return on Investment

When delegates and graduates were asked to quantify improvements derived from the PMPDP, almost all the respondents felt it difficult to do so. Some tried to guess and quantify improvements at an individual level, but the majority could not relate the PMPDP to measurable financial benefits, stating that the impact is difficult to measure due to the complexity of disentangling the effects of the PMPDP from other initiatives. These results are in accordance with the views of Hogan (2007), O' Connor et al. (2006) and Rowe (1994) who argue that it is not possible to equate management development initiatives to measurable financial benefits. However, considering the magnitude of perceived monetary improvements reported by few respondents, it appears that the CPD programmes like the PMPDP are likely to bring changes in individuals, projects and the business of substantially high value. In real business environments where employees are faced with pressures from clients to deliver projects, it appears to be highly unlikely that delegates and/ or graduates would invest efforts in tracking and recording the effects of the PMPDP in their day to day job performance. This notion explored in the interview analyses restricts the collection of accurate data for calculating ROI for the PMPDP. Recognising the industrial reality, the use of subjective measures as proposed in the Return on Value (ROV) model is more preferable to evaluate the effectiveness of CPD programmes.

7. Conclusions

Evidence is provided to suggest that the case study programme (PMPDP) appears to be benefiting employees personally as well as professionally. The qualitative comparison between both groups 1 and 2 identifies gaps in the PM knowledge, its utility and job performances of the control group which the delegates and graduates do not appear to display. By increasing knowledge and understanding the delegates and graduates on the case study programme appear to develop into more knowledgeable project managers who in turn perform more effectively. This arguably leads to conclude that CPD programmes like the PMPDP could have a positive impact on a multitude of organisational areas, affecting the very fibres of the organisation.

With regards to quantitatively justifying the investment in professional development programmes similar to the case study programme, it seems that the approach proposed

in level V of the Phillips (2003) ROI model is less applicable. This is due to the fact that if for instance the case study programme helps to develop leaders who guide people through change initiatives, how can one directly quantify the outcome of this initiative? The approach proposed in the ROV Model, which focuses on qualitative assessment measures of training and education, appears to be more realistic and pragmatic.

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