

Gateways Development Fund Project
Flexible Pathways to becoming a Professional Engineer

INTERIM REVIEW

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Gateways Development Fund Project: Flexible Pathways to becoming a Professional Engineer

INTERIM REVIEW

1 EXECUTIVE SUMMARY

A project led by the Engineering Council and initiated in 2006 has resulted in the development of a model for a workbased pathway for working engineers who wish to achieve professional engineer status through their workplace activity. This report provides an interim evaluation of the five-year project. It presents feedback from each of the key stakeholder groups, an assessment of how far the original aims, set out in the bid for funding, have been met, and makes some recommendations.

Whilst the project is a little behind in terms of the numbers of individuals (43) participating, a broad methodology has been developed, and MSc Professional Engineering (PE) programmes are being offered by four universities (HEIs) with the support of three professional engineering institutions (PEIs).

Individuals commonly cited the opportunity to continue working and gain a professional qualification, and the anticipated better promotion prospects as their reasons for enrolling on this pathway. Learning is taking place as envisaged ie through work-based activities and projects, with many individuals also accessing university resources electronically. Most individuals indicated that they are satisfied or very satisfied with their MSc PE programme, and some are already bringing tangible benefit to their companies through their masters work.

The employers surveyed have welcomed the pathway, in particular its flexible nature, the learning contract approach that incorporates UK-SPEC and a focus on actual work, and the good level of support from the HEIs and relevant PEIs. Chartered Engineer status is viewed by employers as beneficial for the company and for the individual, and the companies have not found supporting individuals on the MSc to be onerous.

The HEIs and PEIs report that the pathway is meeting their needs. It is providing the opportunities for academics to develop flexible work-based learning (WBL) programmes and update their engineering skills. Knowledge exchange is occurring and there may be further opportunities such as for placements, research contracts, in-house training. PEIs welcome the early engagement with future potential members and are already giving consideration to what structures and processes need to be in place should the numbers applying via this pathway increase markedly.

No major changes to the model are suggested by any stakeholder group. Concerns relate to ensuring that workplace opportunities enable an individual to achieve the required standards, and some mis-alignment of industry expectations with the time taken for completion and approval of the individual's documentation.

Most of the aims are being met.

All stakeholders are committed to continuing to support and promote the Engineering Gateways pathway.

2 CONTEXT

2.1 Background

In response to recommendations in the 'Gateways to the Professions' report¹, the Government established a development fund for projects that tackled issues and barriers faced by people seeking to enter the professions through higher education. The Engineering Council submitted a proposal that aimed to address the issue that working engineers who were eligible did not, for whatever reason, progress to become professionally qualified.

Funding was awarded in 2006 and the Engineering Council embarked on a five year project to develop and roll out a flexible pathway into and through Higher Education, enabling individuals to become professionally qualified (registered) engineers, and meeting the needs of the profession, the individual² and their employer.

The project has been strongly collaborative and for practical reasons initially involved a limited number of partners: four higher education institutions (HEIs) with experience of workbased learning (University of Hertfordshire, Kingston University, Northumbria University and Staffordshire University) and three professional engineering institutions (the Institution of Engineering & Technology, IET; the Institution of Mechanical Engineers, IMechE; and the Royal Aeronautical Society, RAeS). The involvement of the professional engineering institutions (PEIs) is important, in particular to ensure that the programmes enable individuals to seek professional registration. The intention was to expand HEI and PEI participation once the pathway had been developed and put into practice.

2.2 Project Aims

The primary aims of the Project³ were to:

- Develop and pilot a model pathway leading towards the professional registration of engineers in which higher education and professional development are combined through a work-based approach;
- To minimise the level of debt incurred by individuals whilst at the same time maximising their employment and earnings prospects;
- To attract to the profession those who might not otherwise have aspired to professional status;

¹ Langlands, Sir Alan (July 2005) *The Gateways to the Professions Report*. Nottingham. Dept. for Education & Skills.

² The 'individual' is the person enrolled on the MSc PE working towards CEng status, and so includes the terms 'employee' and 'student'

³ *Guide to the MSc Professional Engineering. A work-based postgraduate route to Chartered Engineer registration* (Aug 2008) London, Engineering Council

- Target groups who are under-represented in the engineering profession at present;
- Help address the shortage of engineers and have a positive impact on retention;
- To engage employers in the development of the profession.

2.3 Overview of the model

The pathway is based on a work-based learning (WBL) framework by which individuals may concurrently acquire and utilise underpinning knowledge, understanding and skills in work in order to meet the required academic and competence standards for professional qualification.

It was agreed that the first programme to be developed would be for those aiming for CEng status. Thus work has focused on the development of an MSc in Professional Engineering (MSc PE) that provides a pathway to CEng registration through work-based learning.

At the start of their programme, each individual undertakes a Professional Development Audit (PDA), a reflective examination and assessment of their current education, qualifications, experience and competences. This enables a comparison to be made with the UK-SPEC requirements and helps to define the scope of the MSc learning contract.

A learning contract⁴ or equivalent is drawn up for each individual in discussion with their academic adviser and their employer. This sets out a schedule of WB activity intended to provide the individual with the opportunity to meet the academic and professional competence requirements, without the need to attend a taught programme. It states the outcomes to be met, the activities to be undertaken, the assessment criteria, the mode of assessment, and the evidence to be presented.

A mapping exercise, within or alongside the learning contract, illustrates where the evidence produced to meet the MSc PE academic requirements will contribute to the demonstration of achievement of the UK-SPEC requirements.

The PEI reviews the learning contract along with the PDA and confirms to the individual and the HEI whether they are acceptable. Alongside this, the individual records the development of their competence to meet UK-SPEC.

⁴ The term 'Learning Contract' includes equivalents such as Learning Agreement.

3 OVERVIEW OF METHODOLOGY FOR THE INTERIM REVIEW

The overall research aim was to measure the progress of the Engineering Council-led project against its primary aims, and specifically to find out if stakeholders' needs were being met by the programmes established so far.

3.1 Interim review participants

The key stakeholders within the project were invited to contribute to the interim review:

- Individuals enrolled on the MSc PE, and aiming towards CEng status
- HEIs
- PEIs
- An employer organisation
- Employers of participating individuals
- Engineering Council

The work was conducted by a small research team that included an independent consultant and was advised by a Project Evaluation Task Group (Task Group) reporting to the Project Steering Committee. Data was collected using either on-line questionnaires or structured interview schedules. The areas studied covered:

Context evaluation: assessment of the programme's appropriateness to its context

Impact evaluation: assessment of the impact of the MSc PE programmes on key stakeholders

Process evaluation: assessment of the project management, delivery and materials

Future evaluation work will include the collection and dissemination of case studies. A final report is due to be published in March 2011.

4 FEEDBACK FROM INDIVIDUALS

4.1 Overview of the sample

Out of 43 individuals enrolled on the MSc PE, twenty responses (46.5%) were received from those enrolled at three of the four HEIs.

These individuals were working in a wide variety of roles and engineering sectors. All had a professional qualification at level 4 - first year of a degree level – or above and most (18) were members of the three PEIs involved from the start. Nineteen (95%) reported that it was important or very important to have CEng status, with 15 individuals (75%) reporting active encouragement from their employer.

4.2 Reasons for enrolling on the programme

Figure 4.1 shows that most of the individuals gave more than one reason for enrolling on the programme, with 90% citing the ability to continue working and gain a professional qualification. 55% envisaged better promotion prospects.

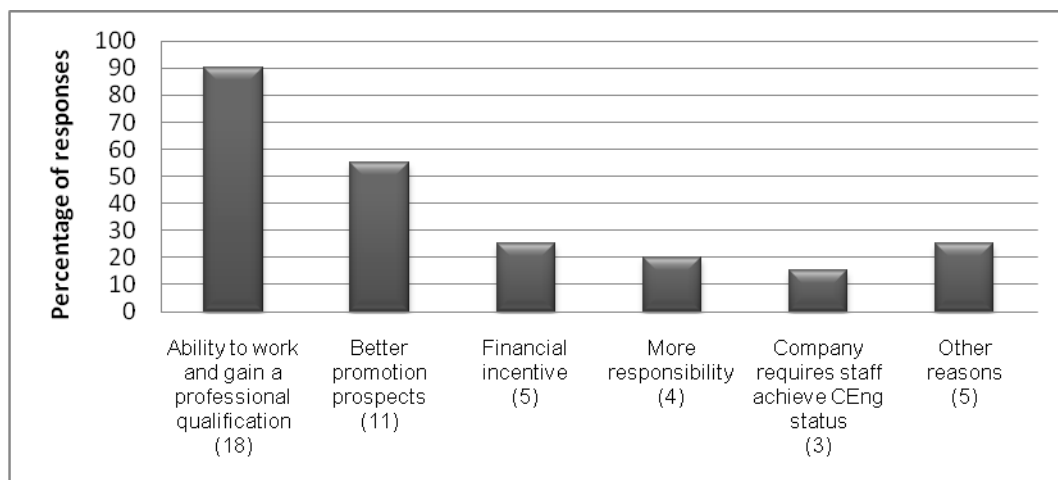


Figure 1 Reasons why individuals enrolled on the MSc PE programme
(The figures in brackets give the number of individuals)

Individuals had not pursued CEng status earlier for a variety of reasons, in particular not being able to take time away from work and the prospect of debt.

4.3 Delivery of the programme

Most individuals found their university induction programme useful. All confirmed that there was negotiation within their MSc programme, with 90% (18 individuals) reporting that the whole programme was through a negotiated learning contract. A range of methods of learning is used, with work-based activities and projects most commonly cited. The individuals did not access all of the HEIs' facilities, but focused on specific areas such as electronic resources. Although six individuals felt part of the HEI student community, 14 did not. Most individuals were aware of the key people who could provide support for academic work, for the development of professional competence, and for becoming a Chartered Engineer.

4.4 Satisfaction with MSc Professional Engineering programme

Most individuals indicated that they are satisfied or very satisfied with their MSc PE programme.

'The course gives a very clear direction to gaining an MSc as well as providing clear direction towards gaining chartered engineer status. I wouldn't hesitate to recommend this course.'

Bar charts developed from respondents' comments about specific aspects of the programmes are at Appendix A. In each case, a number indicated that it was too early to comment.

Other comments covered:

- Some frustrations about this being a new course, but noted that the HEI is doing a lot to improve (the course) and the benefits are beginning to show
- The need for more manpower to administer the programme
- Whether some of the academic support is at a high enough level.
- The need for more guidance about some of the learning tasks such as the reflective writing

Ten (50%) reported that the knowledge and skills gained on the programme had helped them to undertake their job better. Of the remaining 10, nine anticipated that their programme of study would help them in the future; only one did not.

4.5 Chartered Engineer Competence Standards

Nineteen individuals (95%) were aware of the CEng competence standards, and of these, 17 had seen details. Most felt that there were workplace opportunities for the development of CEng competence. However, of note is that twenty per cent (4 individuals) had identified either limited, or virtually no, opportunities. Employers tended to be more positive about this (section 5.1).

45% of individuals (9 individuals) thought that, having gained CEng status, they would stay within their current company but gain a higher position. 15% (3 individuals) thought that they would leave the company for a higher position. 40% (8 individuals) felt it was, as yet, too early to say.

5 FEEDBACK FROM EMPLOYERS & AN EMPLOYER ORGANISATION

5.1 Overview of the sample

Responses are reported on from six organisations: five companies of varying size and reach, and an organisation representing employers that is sponsoring 12 individuals at two of the HEIs. Individuals from the five companies are enrolled on the MSc PE at only one of the four HEIs, therefore the findings give only an indicative perspective of the programme.

All the interviewees were aware of the basic principles of the pathway, with two having a good understanding. Four out of five companies confirmed that the company was able to, or would be able to, provide the appropriate work opportunities to enable the individual to achieve the requirements of the CEng competences. The fifth response referred to future uncertainty about the company in general.

Two of the five companies, and the employer organisation, considered it very important for staff to have CEng status, with a third identifying it as important.

The prime driver for company involvement was the individual member of staff seeking to gain CEng status. In one case, the Engineering Gateway opportunity had been identified by the employer organisation as an appropriate pathway, and funding had followed. In one case, the Knowledge Transfer Partnership scheme has been a vehicle for involvement.

5.2 Costs

It would appear that companies have not found that supporting individuals on the MSc PE to be onerous, though no interviewee was able to specify a precise level and hence cost of company support.

The MSc PE fees were either fully or partly covered by the company, or funded by the employer organisation. Some individuals have benefited from a discounted fee for the first year.

5.3 Advantages and benefits of the MSc Professional Engineering programme

There was generally a positive view amongst the employer respondents about the MSc PE programme. The following positive aspects were mentioned:

- The ability to negotiate a personalised Learning Contract with a focus on actual work
- Aligning work required by the company with the negotiated focus of the HEI modules
- The documentation required by the MSc PE programme was felt to be beneficial to the company as it provides a rigorous documentation of the process, not just the system, and the framework provided enables an individual to meet specific goals
- The flexible nature of the pathway and that there was minimal, or no, requirement for attendance at an HEI. This was particularly appreciated by companies operating

internationally, as the individual could undertake their work anywhere in the world and still continue with the MSc PE programme.

- There was recognition of the value-added, when identifying the work and/or projects that would be the focus of the MSc PE. Several examples were cited where an individual's project that is contributing to their MSc PE would either save money, bring in money, or improve company processes.
- The structure of the pathway has helped to mesh an academic process with work / business based processes, which has been very hard in the past.
- The visits by HEI staff to the company, and the good level of support from both the HEI and relevant PEI(s)

5.4 Suggestions for improvement

There were no suggestions for major changes. The following issues were mentioned:

- Ensuring that the HEI administrative process meets the sometimes more demanding deadlines of the individual and/or company
- The speed of completion of the PDA and learning contract, and the gaining of approval from the relevant PEI
- The conflicting pressures that could arise; it could be difficult for an individual to meet all of the commitments of their job and the additional requirements of a Masters

The employer organisation felt that the development of a database of mentors would particularly assist individuals in small companies as it would enable them to find an appropriate mentor based in their region.

5.5 Overview and future

From their experience to date, all five companies felt that the Engineering Gateways pathway was a good model and met the needs of their staff and the company. All five companies and the employer organisation felt it was too soon to evaluate the project fully.

One interviewee felt that an increased emphasis on publicity directed at directors of companies, focusing on the benefits of the pathway to the company and including case studies of quantifiable success, could ease the process of implementation.

All of the company interviewees said that they would encourage other staff to work towards CEng status and, where appropriate, would recommend the Engineering Gateways pathway.

The employer association was waiting for further employer feedback which would inform future decisions and felt it was too early to comment on any longer term impact of the Engineering Gateways project.

6 FEEDBACK FROM HIGHER EDUCATION INSTITUTIONS

6.1 Overview of the sample

All four HEIs had been involved in the Engineering Gateways project from an early stage. A range of reasons for involvement were cited including strategic, operational, existing links with the Engineering Council, a recognition of the need and an opportunity to develop a WBL framework. Of the 43 enrolments, numbers ranged from 25 enrolments at one HEI to 3 at another.

All four HEIs had some experience in delivering WBL programmes, although the level of negotiation within these programmes varied. Three of the HEIs took the MSc PE through full validation; the fourth required only the approval of a minor modification to an existing framework.

Programme structures and processes varied, and aligned with frameworks already validated within each HEI. However, they all met the requirements set out in the Protocol and Guide. Various strategies had been used to market the MSc PE programme and recruit students, with personal contact with companies or former students being a major strategy. All were aware of the need to ensure that prospective students did not presume that gaining the MSc PE ensured achievement of the CEng status.

6.2 Flexible entry and programme delivery

All four HEIs have at least two start dates during the year, and considered three years to be the average time needed to complete the MSc PE programme. They were aware of the different needs of individuals, and that this time-scale could be optimistic for an individual with a heavy workload within their company. There is a marked variation in fees and fee structure.

Entry requirements varied, with the typical applicant having a relevant accredited first degree, but other combinations of qualifications and experience are acceptable, subject to approval from the PEI. Assessment of prior learning is offered, to a maximum of 50-60 credits, though so far there has been only one case.

More than one HEI had arranged for additional meetings of their Board of Examiners to facilitate feedback in a timely manner that was in line with company demands.

Various strategies were in place, such as video lectures, access to on-line discussions, video conferencing for those individuals who were unable to attend seminars or give presentations.

One HEI had employed paid 'professional supervisors' who acted as the work-based mentors, had CEng status, and had been agreed with the relevant PEIs. This role and their payment were being reviewed and it was anticipated there would be changes.

6.3 Advantages and benefits of the MSc Professional Engineering programme

The HEIs generally felt that it was too early to comment on whether the pathway was fully meeting its aims as none of the individuals had yet progressed to CEng status. However, all HEIs felt that the new pathway was meeting the needs of their institution particularly in relation to employer engagement, widening participation, student progression and lifelong learning. It built on WBL practice within their HEIs at a time when WBL was high on the government's agenda.

The HEIs identified the following specific positive aspects:

- The development of an MSc PE programme which incorporated UK-SPEC and supported individuals aiming for CEng status – a meshing – not previously seen
- Being able to develop WBL frameworks that were structured but not prescriptive, and which aligned with normal HEI mechanisms: existing evaluation tools, academic supervisors, external examiners, examination boards
- A learning contract with explicit links with UK-SPEC, and perceived as a living document
- Collaboration with the Engineering Council and the PEIs, apparently benefiting all
- The feedback from PEIs about an individual's documentation; where a submission had not been successful, this informed the re-submission
- The opportunity for HEI staff to gain further experience in developing flexible WBL programmes
- The potential for knowledge exchange, and providing opportunities for academics to update their skills by engaging with real-life projects. A tutor commented that *'through the process of reading/working with a student on a piece of work I have learnt a great deal'*
- Enabling further collaboration with companies which could lead to placements, research contracts, in-house training, Knowledge Transfer Programmes

6.4 Areas of concern

One HEI expressed concern about resourcing for company visits if individuals were accepted from further afield, and video conferencing was being considered.

One interviewee felt that the rate of progress for individuals had been a lot slower than they would have liked, particularly in gaining approval of PDAs and learning contracts.

There were some minor queries relating to the PEIs' requirements which appeared to vary.

Other concerns mentioned included: ensuring that an individual achieved the MSc PE and had potential to achieve CEng status, in order to protect the brand name; the need to do more to raise awareness amongst employers; some mentors not knowing enough about the Engineering Gateways pathway and the MSc PE. This was often addressed by a briefing from the MSc PE team. The implication in the responses was that there is a case for this being either the

responsibility of the PEI, or a joint responsibility between the HEI and PEI. Finding a workplace mentor could be an issue for a small company.

6.5 Future plans

All the HEIs are committed to continuing to offer and promote the MSc PE programme, and the linked pathway to CEng status. They expect numbers to grow, and there had been increased interest in the programme at all four HEIs.

Through development and delivery of the first programme, interviewees had identified further opportunities for development within their HEIs and these included:

- Development of innovative web based delivery strategies, such as embedded lectures, and streamed videos
- Formalising the induction process if higher numbers were recruited; this would also enable the individuals to progress as a cohort
- Identification of cohorts within a company so there would be additional peer support, and it would help balance the cost of the programme
- A yearly conference for MSc PE individuals, companies, PEIs and prospective students
- Consideration of strategies to help the individuals bridge the world of Higher Education and the world of work, and to feel part of a learning community, though one HEI commented that individuals currently on the programme had never expressed the wish, nor the expectation, to meet with other individuals
- Development of mechanisms to improve programme progression rates. As the MSc PE is a self-directed programme of study, at least one HEI was finding it difficult to provide hard and fast cut-off points for completion of modules
- Improvements in administration processes for individuals, and consistency of approach
- Rationalisation of resources where it was perceived that current processes and structures were expensive to operate, and a consideration of other models of resource use. Two HEIs anticipated that a different model of costing, and therefore charging, would need to be considered, particularly in light of the staff time needed to negotiate a personalised programme with an individual, and the time involved in supporting the individual.
- The use of the MSc PE to provide a process, a framework, for postgraduate training within a company and a way of measuring performance. One HEI was investigating the further alignment of the MSc PE with existing company graduate training programmes to assist companies with performance management.
- Development of undergraduate negotiated WBL programmes, influenced by this model

One HEI saw an opportunity for the programme to be developed internationally under the auspices of the Engineering Council.

7 FEEDBACK FROM PROFESSIONAL ENGINEERING INSTITUTIONS

7.1 Overview of the sample

The survey involved the three PEIs involved from the beginning of the project. All three welcomed involvement in the project as it matched their aims and objectives, particularly the provision of flexible routes for people to become professional engineers. Appropriate PEI committees had been kept informed about the work, and the PEIs felt very satisfied with the information received from the Engineering Council.

7.2 Programme administration

Dealing with and approving learning contracts was the main new process involved. This did not appear to be too much of a burden for the PEIs, particularly with such small numbers. All three PEIs had provided feedback on anonymous examples of draft learning contracts provided by the HEIs early in the project, and the HEIs had made adjustments accordingly. Currently there was no additional charge levied for dealing with these individuals and their documentation.

The PEIs had made different judgements about the quality of the learning contracts received ranging from being satisfied (with perhaps a slight tendency towards there being too much information) to dissatisfaction with the level and detail, such that approval was withheld until these issues were addressed.

The pathway was being 'loosely marketed' by PEIs, but could be more aggressively marketed once individuals had successfully achieved professional status. One PEI felt that they had probably not spent enough time with the HEIs that were recruiting the individuals. Another felt that implicit in their commitment to the scheme was an intention to market to employers later.

There appeared to be no formal allocation of a PEI approved mentor to each work-based individual. Two PEIs commented that they preferred the process to be student driven. If an individual was having problems in identifying a mentor, each PEI was willing to give assistance. One PEI commented that they would like the HEIs to be the prime drivers in the identification of, and relationship with, the mentors.

7.3 Advantages and benefits of the MSc Professional Engineering programme

The model provides an additional route to CEng status, with the flexible nature of the pathways meeting the needs of individual employees with differing circumstances.

Development of learning contracts which made explicit links with UK-SPECs was welcomed, although not all HEIs yet had a template for a learning contract all PEIs were comfortable with.

The PEIs valued the opportunity for involvement with an engineer aiming for professional status at an early stage.

7.4 Issues and concerns

Ensuring that the individual is appropriately supported by the PEI. Few learning contracts had been received to date, despite 43 enrollments, so some individuals may be starting their programme without any liaison with the relevant PEI. Some learning contracts received were from individuals who were not yet members, causing problems as the PEI could not provide support.

Discussion with the HEIs had tended to be about the process, with very little about the programme content.

Whether the individual's workplace activity can offer appropriate experience

A risk that the pathway attracts only engineers from the larger companies, and is seen as being only viable in large companies, where staff time and high levels of support are available. This would lessen the impact of the project. Although this involvement was welcomed, it was not the main target market.

If the numbers remained very small, then it was likely that it would not be seen as a successful project, and its viability and impact could be in doubt.

Ensuring that individuals are fully aware of the published details that this pathway does not automatically to CEng status.

7.5 Future

All PEIs reiterated their commitment to the programme. It was hoped that the impact would be increased numbers of professionally registered engineers, particularly from those currently under-represented in the engineering profession.

It was acknowledged by the PEIs that if numbers grew considerably, then different charging and other structures could be needed. One of the PEIs felt that if a strong shared understanding was developed with an HEI about PEI-specific requirements, they could foresee delegating approval of the learning contracts to the HEI, with a sampling of the learning contracts by the PEI for quality assurance purposes.

Another PEI is likely to set up a subgroup of a current committee who would be specifically tasked with looking after the applicants from the Engineering Gateways pathway.

It was anticipated that there would be different relationships with the HEIs who were new to the scheme.

8 FEEDBACK FROM THE ENGINEERING COUNCIL

The Engineering Council views professional engineer status as very important, and the benefits of this to the individual, company, the profession and society are widely publicised. Professional qualification gives a clear indication of professional competence and also commitment to professional obligations such as ethical codes, and commitment to lifelong learning.

The Engineering Council had been aware for some time that there are large numbers of individuals working in engineering who partly met the academic standards for Chartered Engineer registration but who had not progressed to professional qualification. The Engineering Council had embarked on this work as it was keen to find ways through which such engineers could achieve CEng status without the need to leave employment to follow a conventional campus-based programme.

8.1 Project management

The Engineering Council had provided time for specific members of staff to develop and support the programme, and to make presentations about the pathway at national and international events. A website had been developed and literature produced. In the early stages, a large amount of time was devoted to the development of documentation, and in trying to manage differences in expectations between the HEIs, and between HEIs and PEIs. The Engineering Council had met a number of challenges in developing and implementing the project, and these included:

- Managing expectations, and sharing expectations, both internally and externally. There had been the need for those involved to understand that there would not be an immediate mass take-up, but a gradual build-up of numbers. The Engineering Council felt there may have been some over-ambitious expectations relating to numbers at the beginning.
- Remembering that the aim was to establish a model and show that it could work, and reminding people of this
- Securing an even level of HEI participation
- Securing more employer 'buy-in' had been difficult partly due to the tight timescale for the bid. With more time, employers would have been the starting point, however employer buy-in has been secured via other means such as through the HEIs
- One employer organisation has been very active in helping to drive the work forward and it is hoped that the Sector Skills Council will feel able to follow suit

The Engineering Council felt that it was too early to say whether the project was fully meeting its aims. It is a bit behind at the moment in terms of numbers, however, a valid model has been developed. The project was meeting the needs of the Engineering Council and it had helped the Engineering Council promote the concept of WBL more than before.

8.2 Future

The Engineering Council will continue to promote the Engineering Gateways model as a pathway towards professional qualification. A lot had been learned from the work so far, and an aspiration is to ensure that the pathway is more widely known, as well as ensuring it is sustainable.

The impact would be high if the pathway enabled a wider range of individuals to enter the profession than had been seen in recent years. The Engineering Council accepted that not all the pathways developed would necessarily be under the Engineering Gateways umbrella and there could be lots of local adaptation. It did, however, provide a broad methodology.

The Engineering Council had found it worthwhile undertaking the project, despite some of the frustrations.

9 KEY FINDINGS AND RECOMMENDATIONS

9.1 Addressing the key aims

Feedback from those interviewed indicates that, at this interim stage, the project is meeting a number of the aims set out in the submission for funding and supporting documentation.

AIM Develop and pilot a model pathway to professional registration of engineers in which higher education and professional development are combined through a work-based approach

This aim has been met. Four HEIs have developed, taken to validation, and recruited individuals onto an MSc PE. All the programmes adhere to common agreed principles. As the PEIs have slightly differing requirements, work is continuing to ensure that the individual's documentation is acceptable regardless of the PEI or HEI.

Recommendations

- 1. Utilise the recently established Stakeholders' Group to enable an exchange of information relating to different negotiated MSc PE models, and document templates, particularly with HEIs new to the project**
- 2. Consider the establishment of a task group on documentation to review the principles previously agreed and how these are working in practice**

AIM To minimise the level of debt incurred by students whilst at the same time maximise their employment and earnings prospects

It would appear this aim is being met. Individuals and their employers appreciate the structure of pathway that enables the individual to follow the MSc PE without the need to take time off work, regardless of where they are based nationally and internationally. The majority of individuals indicated that they had not pursued professional status earlier as they could not afford to take time away from work, and they wished to avoid incurring further debt. The Gateways Pathway enabled them to progress.

85% of individuals saw the potential of higher positions when CEng status was achieved, whether within their current company or another.

Recommendation

- 3. Continued monitoring of the aim**

AIM To attract to the profession those who might not otherwise have aspired to professional status

This aim was aspirational and, as yet, there is no strong evidence that is being achieved. Some individuals indicated that they aspired to professional status but had not been able to pursue this until the opportunities presented within the Gateways project

Recommendations

- 4. Continued monitoring of the aim**
- 5. Relevant case studies could be useful**

AIM Target groups who were under-represented in the engineering profession at present

There appears to be no evidence to date that this aim is being met.

Recommendation

- 6. To identify groups who are under-represented in the engineering profession and who may benefit from this flexible pathway, and, working with external organisations where appropriate, develop and implement strategies targeting these groups**

AIM Help address the shortage of engineers and have a positive impact on retention

It is too early to say whether this aim is being met or whether the pathway will help address a shortage and have a positive impact on retention.

The number of individuals enrolled on the programme across the four HEIs is small, and therefore it is unlikely to have an impact on the profession as a whole in the short term. Evidence suggests that the addition of this pathway to the suite of routes by which individuals may achieve CEng status is welcomed by all stakeholders.

The motivation engendered by this pathway could have a positive impact on retention. Only 15% of individuals felt that they would leave their present company for a higher position, 45% considering they would stay within their current company but gain a higher position.

Recommendations

- 7. Monitor the impact of the pathway on the shortage of engineers**
- 8. Review numbers currently on the programmes, monitor anticipated growth, and identify any strategies which can be implemented to aid growth**
- 9. Ensure that issues relating to retention are reviewed in the next project evaluation**

AIM To engage employers in the development of the profession

There has been some employer engagement because the programmes are workbased and employers are involved in supporting staff enrolled on the MSc PE.

Recommendations

- 10. Develop and implement strategies to raise awareness amongst employers and turn perceived interest into demand**
- 11. Identify specific strategies which may be necessary to encourage greater participation by SMEs.**

9.2 Addressing further findings

Role of Engineering Council

There is appreciation of the role of the Engineering Council in drawing together interested parties, the facilitation of streamlined strategic and operational meetings, provision of clear information and guidance, and the development of the website.

Recommendation

- 12. Continued facilitation by the Engineering Council**

Importance of gaining chartered engineer status

The importance of gaining chartered engineer status is generally seen as important by all the stakeholders. Benefits, both current and potential, were identified for the company and the individual. All company representatives said that they would encourage staff to work towards CEng status, and would recommend the pathway to appropriate members of staff

Recommendation

- 13. The benefits identified by individuals and employers be incorporated into future marketing material and information**

Value to the company of staff on the Engineering Gateways Pathway working towards chartered engineer status

Evidence suggests that there is either current or potential value-added to the company through the individual focusing on specific work within their company, including projects, as part of the MSc PE programme. The examples provided by employers, individuals and HEIs indicate that there is potential to either save money, bring in money, or improve company processes.

Recommendation

- 14. Case studies be developed which illustrate the value-added identified by individuals and employers**

MSc Professional Engineering programme operation

Most stakeholders have expressed concern over the time taken for the completion and approval of the PDA and the learning contract, and the slow progress of some individuals on the MSc PE programme.

Although HEIs' regulations allowed for the assessment of evidence from prior learning, both certificated and experiential, there appears to be reluctance on the part of some tutors to highlight this opportunity to prospective students.

Recommendations

- 15. Strategies be identified to facilitate an exchange of practice, and lessons from practice, between HEIs and enable the identification of good practice**
- 16. Review, and continue to monitor, the length of time for an individual's PDA and learning contract to be completed, and also the time taken for approval by the relevant PEI, identifying any strategies which can be implemented to aid the process**
- 17. Ensure that issues relating to the speed of progress of an individual enrolled on the programme are reviewed in the next project evaluation**
- 18. HEIs to be encouraged to recognise prior learning where appropriate**

Marketing

A variety of strategies were used by all stakeholders. The PEIs are placing limited emphasis on marketing the pathway to employers by the PEIs; it is anticipated that more will be done when there is evidence of success, and individuals achieve CEng status. It was suggested that the pathway is promoted to senior management within a company, particularly through the use of case studies illustrating value-added to the company.

Recommendation

- 19. Identify, and implement, strategies to raise the profile of the Engineering Gateways pathway with employers, including senior management**

CEng competence in current role and company

There is a mis-match between the responses of individuals and their employers about the in-company opportunities to develop CEng standards of competence. All company representatives considered there were opportunities within their organisations to enable staff achieve the required standards, and 80% of the individuals agreed with them.

Recommendations

- 20. Continued monitoring of opportunities available for staff to achieve the required CEng standards of competence**
- 21. Ensure that issues relating to achievement within the workplace are reviewed in the next project evaluation**

APPENDIX A Bar charts illustrating individuals' satisfaction with their MSc Professional Engineering programme

Total number of respondents 20
Number of individuals in brackets

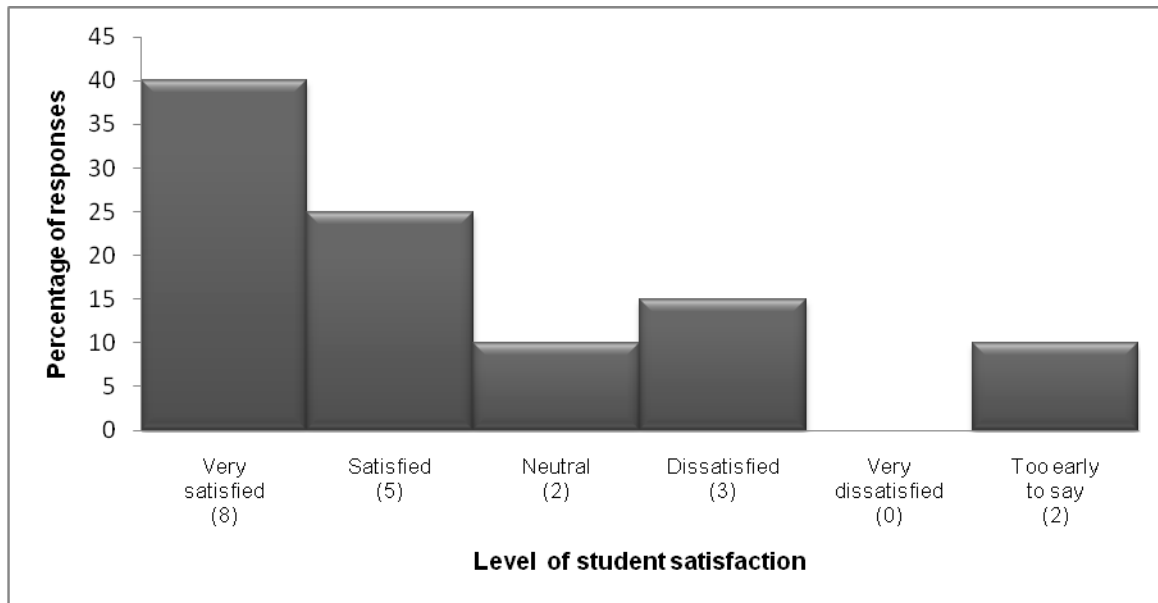


Figure B.1 Satisfaction with the quality of the HEI's Academic Supervision

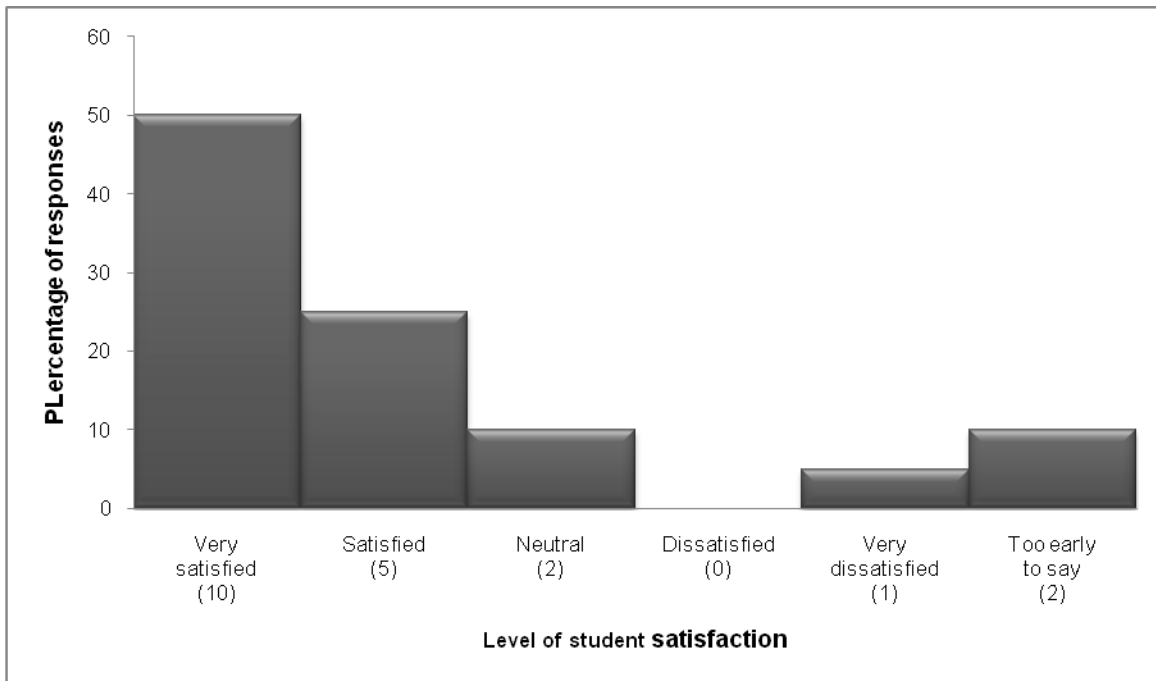


Figure B.2 Satisfaction with the quality of the company mentoring

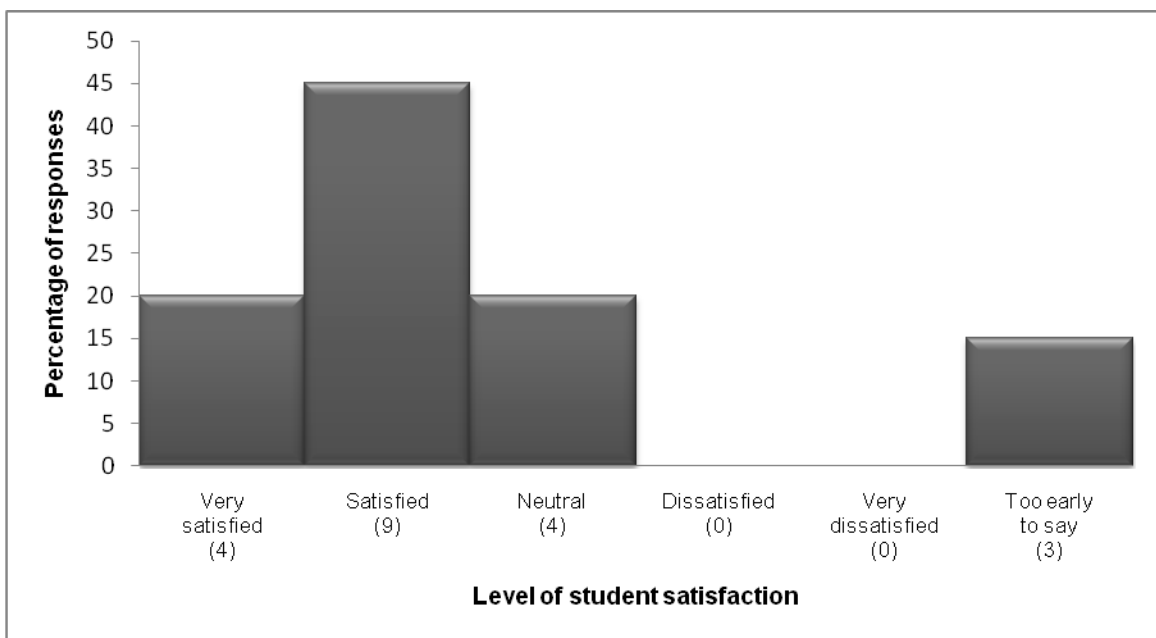


Figure B.3 Satisfaction with the HEI's academic assessment process

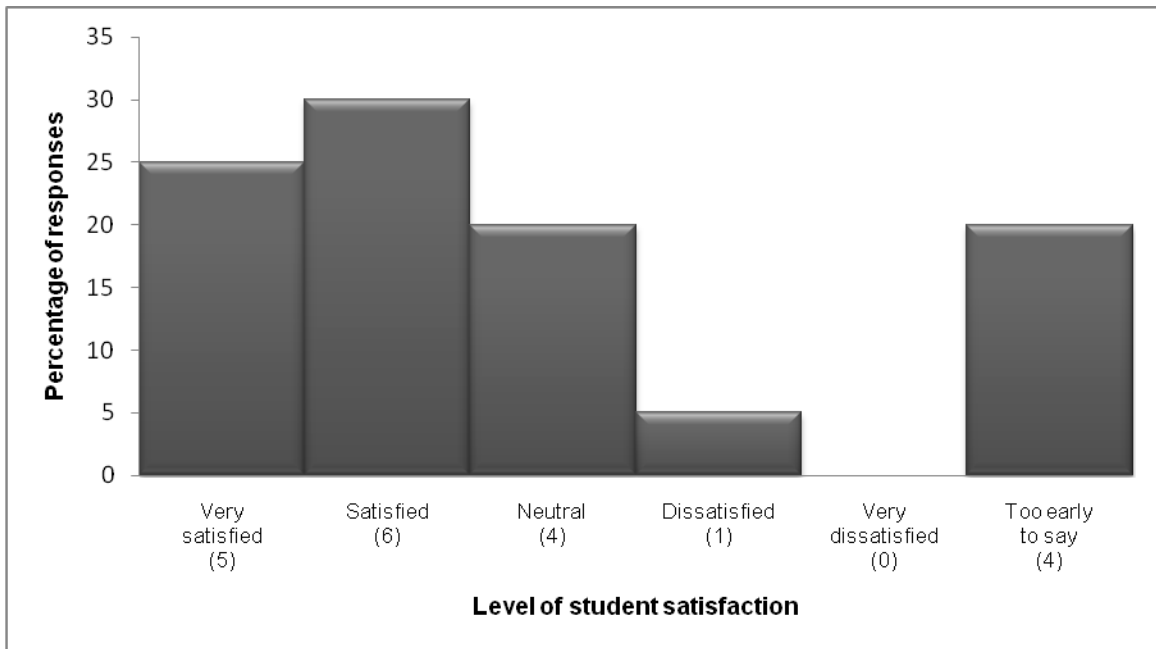


Figure B.4 Satisfaction with the extent to which the HEI programme has contributed to the development of professional engineering competence

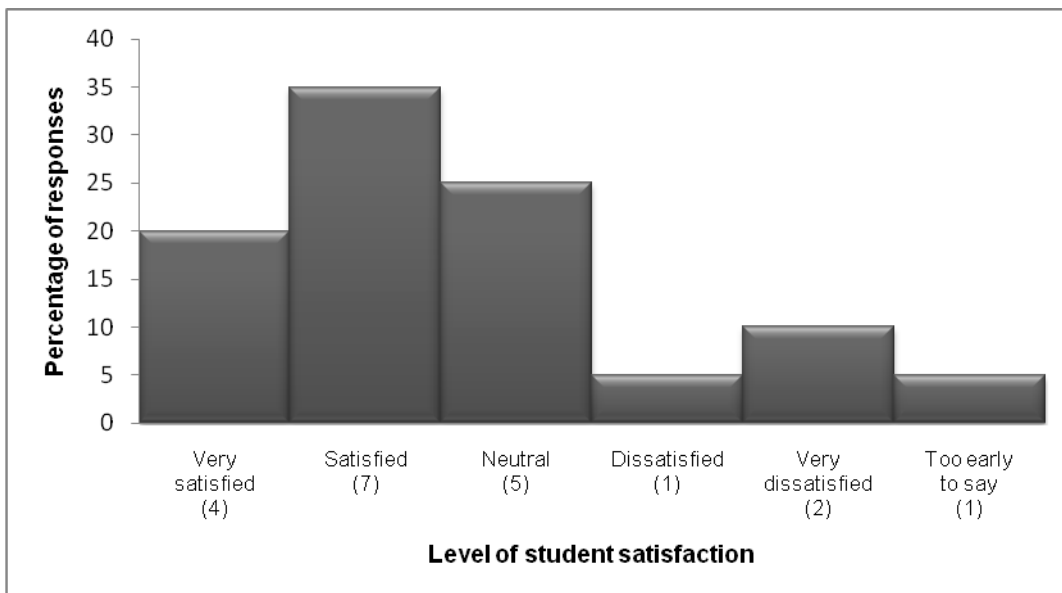


Figure B.5 Satisfaction with the general course organisation and management by the HEI

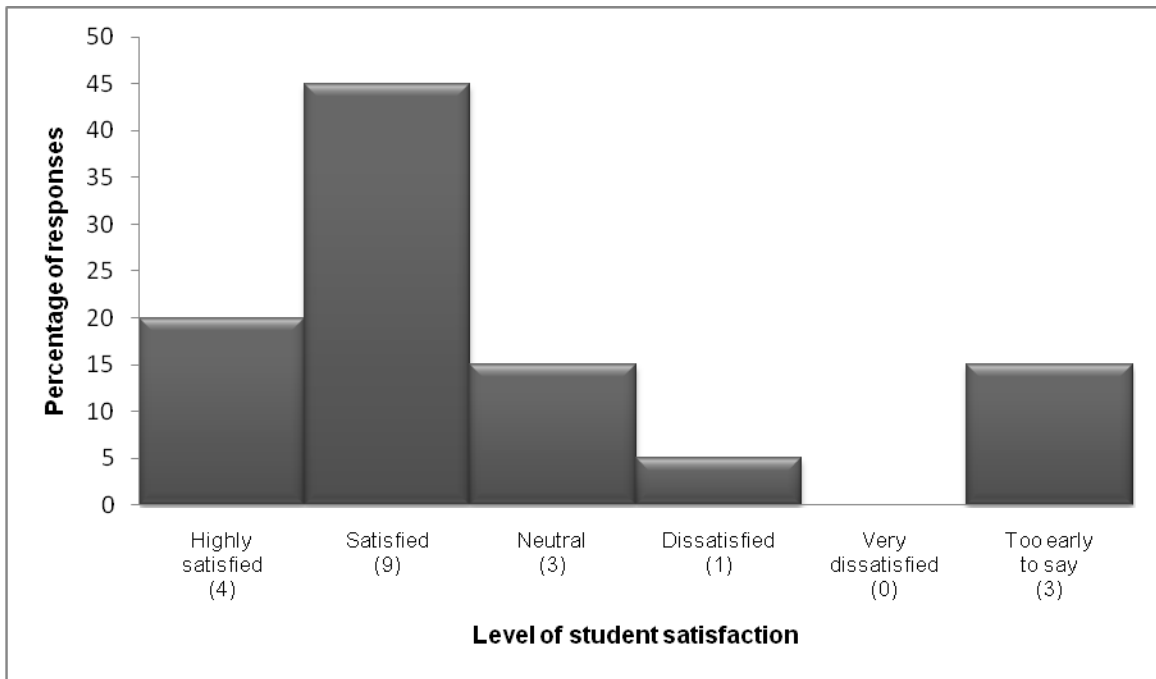


Figure B.6: Satisfaction with the overall quality of the HEI programme



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