
Introducing Personal Development Planning: Educating Engineers for the Workplace of the Future*

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In this article, the author aims to discuss the recent decision by the Caledonian College of Engineering (CCE), Muscat, Oman, to introduce compulsory modules in personal development planning (PDP) at each level of study. The primary objective of PDP is to improve the capacity of individuals to understand what and how they are learning, and to review, plan and take responsibility for their own learning. It is clear that the CCE is able to educate engineers, providing them with subject-related skills necessary for the workplace. By introducing PDP, students are encouraged to become more aware of themselves as learners, colleagues and future managers, and to develop life-long learning skills. In the article, the author describes the Omani context, the main topic areas covered in PDP and the learning methodology, how these are assessed and evaluated, how these areas relate to the needs of current and future employers, and the challenges that have been faced during the implementation of these modules.

INTRODUCTION

Oman is the oldest independent state in the Gulf region, founded in 1650. The current head of state, HM Sultan Qaboos bin Said, came to power in 1970 in a country that, up until his rule, had been resistant to modernisation, and with little investment in infrastructure. This historical perspective has implications for the scope of this article as firstly, the implementation of national education and training policies has been a relatively recent development and secondly, the rapid construction of an Omani infrastructure has meant dependence on an imported labour force.

To give an indication of the rate of development, at the time of Sultan Qaboos' accession 34 years ago, there were two schools in the Sultanate compared to the current number of 1,019 schools, as well as one national university (founded in 1985), five higher colleges of technology, 19 institutes/teacher training colleges and 14 private colleges and one private

university. The challenge currently facing Oman is the development of a competent and effective Omani workforce, with limited dependence on expatriate expertise.

In 1995, the *Vision 2020 for Oman's Economy* was launched, with a key focus on two areas, namely:

- Economic diversification in order to reduce oil's domination of the economy (so that it accounts for less than 20% of GDP by 2020);
- The policy of *Omanisation*, ie the replacement of migrant workers with Omani nationals, which will underpin education, training and employment policies and practice.

As Prof. Frank McIntosh, Principal and Dean of Caledonian College of Engineering, pointed out in his recent opening address at the 4th *Global Congress on Engineering Education*, private higher education institutions were initially reliant on affiliations with overseas universities in order to ensure quality and standards. In 2003, the Sultanate of Oman developed through the Higher Education Council and the Accreditation Board ... *mechanisms to conduct the accreditation of all private higher education institutions ... irrespective of the individual institution's affiliation* [1].

*A revised and expanded version of a lead paper presented at the 4th *Global Congress on Engineering Education*, held in Bangkok, Thailand, from 5 to 9 July 2004. This paper was awarded the UICEE diamond award (joint first grade with one other paper) by popular vote of Conference participants for the most significant contribution to the field of engineering education.

This has implications for the scope of this article as the Omani framework for undergraduate awards places an emphasis both on developing generic competences and ensuring that the programmes offered in the private sector reflect both the context and priorities of higher education in Oman.

In the context of these policies, this article will discuss the decision to introduce personal development planning as a core curriculum subject for engineers studying at the Caledonian College of Engineering in Oman.

CONTEXT FOR PERSONAL DEVELOPMENT PLANNING (PDP)

The Caledonian College of Engineering (CCE) was founded in Oman in 1996. It is a private university college, run under the auspices of the Omani Ministry of Higher Education, and affiliated to Glasgow Caledonian University (GCU), Glasgow, Scotland, UK. The CCE currently offers diplomas, ordinary degrees and honours degrees in the following fields:

- Electronic, telecommunications and computer engineering;
- Mechanical and industrial engineering;
- Civil engineering/built environment.

All courses are delivered in English, and are recognised both in Oman and in the UK, hence internationally.

When students join the CCE, they are given an entrance test in English, mathematics and science. Based on the outcome of this test, students are enrolled either directly into the engineering programme or given an opportunity to address their areas of weakness by attending courses, for at least one semester, in the so-called *Foundation* programme.

In September 2003, an implementation programme began in order to offer core modules in personal development planning (PDP) to all engineering students. This happens to be in line with the forthcoming move in UK higher education to introduce *Progress Files*, along with transcripts and personal development planning, for all students from the academic year 2005/2006 onwards. These PDP modules were developed by colleagues at Glasgow Caledonian University in the UK in order to provide a core component for the recently introduced modular Caledonian degrees.

Personal development planning has been described by the Quality Assurance Agency for Higher Education as follows:

A structured and supported process undertaken by an individual to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development [2].

It is believed that the skills acquired through PDP will enable students to be more effective in the workplace in response to the needs of Omani employers. Engineering students will benefit from having a greater awareness of themselves as learners, by being more confident communicators and by adopting a more proactive approach in their studies and extracurricular life.

This means that newly-qualified engineers will be ready for the workplace, not only in terms of subject knowledge, but also equipped with key life skills to enhance their employability. These skills are important beyond the shores of Oman; they are becoming an integral part of what global professional engineering bodies value in engineers. The context of these skills must, therefore, be national, regional and global.

PDP CORE MODULES

What is being covered in these PDP modules? PDP is offered as a 20-credit module out of a total of 120 credits at each level of study. As these PDP modules were originally developed by module leaders in Glasgow, there has been a need to adapt the content and delivery for the Omani context, particularly with regard to helping students with the rigours of academic writing. Collaboration with engineering departments at the CCE has also been necessary so as to avoid repetition of common content areas in some engineering modules, such as in *Communication in Industry*, which focuses on core communication skills.

The main areas covered in the modules are described below.

PDP Module 1 covers the following:

- The nature of higher education;
- Personal development planning;
- Reflective practice;
- Critical thinking skills;
- Learning strategies;
- Core communication skills

This module was delivered for the first time in September 2003. Students have been encouraged to reflect on the differences between the demands of school education (rote learning, teacher dependent,

examination-focused) and the expectations of higher education. A number of questionnaires and tasks have been used to develop an understanding of how individuals learn and how to optimise learning skills. There has been a strong emphasis on academic writing skills, note-taking, research strategies and taking responsibility for one's own learning.

Also, there is a perception in student culture that an assignment or examination mark is something bestowed by the teachers and detached from the student. In PDP1, it has been made clear that the mark is directly related to the student's own efforts and commitment.

Local professionals from engineering fields have been invited to give presentations to the students on what they expect graduates to bring to the workplace, thus promoting the validity of PDP for engineers of the future.

PDP Module 2 includes the following:

- Theories of learning;
- The role of the organisation;
- Organisational behaviour;
- Understanding human personality;
- Research strategies;
- Problem-solving.

This module will be introduced in September 2004. The focus will be on encouraging students to have a greater awareness of how individuals work and interact in the workplace, as well as developing an understanding of how organisations are run. Although problem-solving has been touched on in earlier modules in level 1, both in PDP and other engineering disciplines, there is a greater stress on the cognitive skills involved and problem-solving as part of a collaborative process.

PDP Module 3 incorporates the following elements:

- Researching the labour market;
- The value of networking;
- Case studies of local issues;
- Analysing success and personal goals;
- Professional CV writing;
- Interview techniques and preparation.

In this module, which was introduced in September 2003, there is an opportunity to contextualise the content areas and look at the nature of employment in Oman. Students are expected to show an understanding of the recruitment process in different organisations, the types of opportunities available for engineers and the breadth of skills employers are looking for.

A realistic appraisal of strengths and weaknesses is encouraged and assessed through critical incident analysis and reflective logs. As there is little career guidance prior to entering tertiary education in Oman, this is an ideal opportunity for students to develop an awareness of the career options open to them. It also presents the opportunity for national, regional and global contextualisation.

PDP Module 4 facilitates the following areas:

- Ethics and professional practice;
- Entrepreneurship;
- Leadership skills and development;
- Emotional intelligence;
- Team-building and collaborative skills.

This module was introduced in February 2004. The idea behind it is to groom engineers for future roles, not only as team members, but as managers and leaders, in keeping with the spirit of Omanisation. Students are expected to carry out an in-depth study on essential life skills and to look into the framework for continuous professional development within the Omani public and private sectors, in the rapidly changing world of globalisation.

LEARNING METHODOLOGY

The majority of students in Oman come to higher education with a background of teacher-centred instruction and skills in rote learning. One of the roles of PDP is to encourage the spirit of the independent learner and to create a less teacher-dependent culture. Students are encouraged to develop an awareness of themselves as learners, to think about their learning preferences and learner styles, thereby gaining a better understanding of themselves and how they operate. Workshops are delivered in preference to lectures, with an emphasis on task-based learning and problem-solving from early stages. Collaboration and group work are key features of the learning methodology, with a focus on the *process* of learning as opposed to an overemphasis on the *product*. However, the responsibility for creating independent learners spreads beyond the boundary of one module and depends on the flexibility of teaching staff in all departments. Indeed, it has been stated that:

Teaching style should be governed not by subject matter but by the balance between teacher directiveness and student control, usually set by the student's ability to participate as a self-directed, self-motivated, responsible learner [3].

Developing students as self-directed, motivated and responsible learners has repercussions beyond their time at the CCE. One of the aims of PDP is to produce qualified and competent engineers who have an awareness of the importance of continuous professional/personal development and have a good grounding in life-long learning skills. Learning for engineers never stops, and statistics in many countries show that three career changes during a working life are not unusual.

ASSESSMENT AND EVALUATION OF PDP

PDP modules are not assessed by examinations, but rather by formative assessments, presentations, personal development plans, reflective logs and critical incident analysis, case studies, and project work. In Module 3, students are expected to produce a CV to a professional standard and include an outline of the key skills relevant to their particular field of engineering. In Module 4, students are encouraged to show their research on life skills through a video, Web site and by delivering a training session to their peers.

All these approaches are a new challenge to students' ideas of assessment and evaluation. Peer assessment is also included in order to encourage students to analyse each other's work and to stimulate critical reflection. Students will often take better advice from peers than from tutors and learners develop an ability to critically appraise other's work from a tutor's perspective. One of the goals of assessment is to give students tasks that have currency outside the classroom and are related to their future needs as engineers.

CHALLENGES FACING PDP

All new developments in engineering education have their challenges. In the case of implementing PDP modules, there have been issues in relation to students' linguistic skills and the culture of education in Oman. Students are focused on receiving a diploma or degree at the end of their period of study – how they get the piece of paper is not considered to be important. The issue of student motivation and lack of maturity towards their studies is pertinent among all disciplines. Students come from a background with a limited focus on taking responsibility for their own learning. However, in the context of engineering studies at the diploma and degree levels, students also have problems relating the relevance of PDP to their field of study; PDP tutors themselves are concerned about the integration of PDP into other subject areas.

With regard to students' linguistic skills, it has been imperative to ensure that PDP tutors have some grounding in EFL/ESL teaching methodology; linguistic and academic support can then be built into the PDP timetable at all levels. Therefore, students are able to obtain credit for developing their language and communication skills within the PDP programme.

A key focus has been on how students can avoid plagiarising and how to use effective research and referencing strategies in written assignments. The problem of plagiarism, particularly with regard to Web-based resources, is not unique to the Omani context. Plagiarism due to increased Internet accessibility and advanced browsers has been reported as on the increase at many universities. However, students in Oman currently have little awareness of the concept of ownership and perceive the Internet as a legitimate source that does not require acknowledgement. How to increase students' awareness of the seriousness of submitting plagiarised work and the consistency in how it is dealt with throughout the College are issues at the top of the CCE's staff development agenda.

Integration of PDP

The integration of PDP into engineering modules is an ongoing process. Initially, teaching staff across all disciplines at the CCE were given presentations on the introduction of PDP and its College-wide implications. The CCE is currently holding focus group meetings with senior teaching staff to assess its impact one year down the line. Feedback so far has highlighted the importance of integrating the PDP modules and its role in providing support for students' work in their engineering-based modules.

It is imperative that PDP is not perceived to be a standalone subject out of touch with other disciplines. Embedding these new core modules calls for consultation and cooperation at every level. Elements of PDP can be introduced into other subject areas, eg encouraging reflection and action planning through assignment rubrics, just as the needs of other disciplines can be brought into the syllabus of PDP, eg numeracy and statistics through surveys and case studies. Staff from all departments need to be convinced of the value of PDP in order to support its implementation within an engineering education environment.

PDP AND THE WORKPLACE OF THE FUTURE

What role does PDP have to play in developing Omani engineers for the workplace? Clifford V. Smith Jr,

President of the US-based General Electric Fund from 1991-1995, once stated:

General Electric hires a lot of engineers. We want young people who can do more than add up a string of numbers and write a coherent sentence. They must be able to solve problems, communicate ideas and be sensitive to the world around them [4].

There continues to be a healthy debate on the extent to which engineering education should be liberalised. There is no doubt in engineering education circles that the core subjects key to an engineering education should not be diluted in order to make way for *soft skills*. However, there is a clear responsibility to future employers in providing engineering graduates with *employability skills*, a notion endorsed in a 1996 report from the UK Committee of Vice-Chancellors and Principals: *It is one of higher education's purposes to prepare students well for working life* [5].

In 1998, TMP Worldwide Research published the results of its survey, identifying the key skills areas desired by employers. The most important of these included oral communication skills, teamworking and listening. The incidence of these skills amongst graduates were seen by employers to be significantly below the level required [6]. The development of these skills is not only within the domain of PDP modules, where achievement in these areas is measured through continuous assessment and evaluation. The importance of these skills can also be acknowledged when evaluating success in other traditional engineering-based disciplines.

Graduate engineers being introduced into a rapidly changing world of technology need to leave university with a keen awareness that their education has not ended. The profile of education and training in Oman is *front-loaded*, with an emphasis on initial education and training.

Apart from some organisations in the petroleum and telecommunications industries, there is limited government incentive for investment in upskilling, retraining employees or developing environments for life-long learning. Through PDP modules, students are encouraged to take an active role in the learning process, thereby fostering independence and autonomy. By being aware of their own learning processes, students are in a position to appreciate a learning culture and the role that learning plays in their evolution as an engineer throughout their working life.

CONCLUSION

In the long term, the introduction of PDP will help students take greater responsibility for their own learning and facilitate a more effective monitoring of student progress. For employers, the aim is to produce engineers with effective workplace skills and an awareness of how their skills relate to employer interests. Through exposure to PDP, students will develop a solid grounding in life-long learning skills and a commitment to continued personal development. Grow commented that *In times of change the learner shall inherit the earth, while the learned will be equipped for a world that no longer exists* [3].

The goal is to view engineering education from a holistic perspective – not only training engineers but also developing effective colleagues, managers and leaders, contributing to Oman's vision for the future.

ACKNOWLEDGEMENTS

The author gratefully acknowledges the support of Prof. Frank McIntosh, Principal and Dean, of the Caledonian College of Engineering, Muscat, Oman; Prof. Colin U. Chisolm, Glasgow Caledonian University (GCU), Glasgow, Scotland UK; and Ms Margaret Davis, PDP Module Leader, GCU.

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BIOGRAPHY

Tess Goodliffe has been Head of the Educational and Personal Development at the Caledonian College of Engineering in Muscat, Oman, since 2003. She has been involved in education since 1987 and has worked in Turkey, Italy, France, Japan, Bahrain, Saudi Arabia and Oman. Her initial experience

was in English language teaching and she has been involved with teacher training and teacher development since 1990 in both the private and public sec-

tors. In 1996, she was a key figure in establishing the Middle East and North Africa Teacher Training Network.

Tess worked for the British Council from 1996 to 2003 and ran teaching centre branches in Riyadh, Saudi Arabia and Muscat, Oman. This also provided an opportunity to train future managers and deliver management development courses at the local, regional and international levels. Her academic interests are in student motivation, nurturing talent, life-long learning skills and continuous professional development for teaching staff.

Her other interests and activities include writing articles on personal development skills in the local press, and producing a children's radio show for Oman's English radio service.