The skills for success in engineering

Successful engineers require both technical competence and ‘soft’ attributes such as collaboration and communication skills. These are crucial to personal and career development, but are difficult to assess before and during an academic programme. This challenge prompted the Università Della Campania Luigi Vanvitelli, in Italy, to trial the Cambridge Personal Styles Questionnaire® (CPSQ), from Cambridge Assessment Admissions Testing, an online assessment which assesses the behavioural competencies relevant to successful study. We asked Professor Nunzio Cennamo and Professor Ciro Natale of the university’s Department of Engineering to tell us more about the trial.

Why did you decide to trial CPSQ, and what were your first impressions?

We wanted to test the effectiveness of what is clearly an ambitious assessment, and to evaluate whether we should use it with our students. All our postgraduate students on the Electronic Engineering and Computer Engineering programmes were invited to take part and it was fascinating to see how CPSQ revealed their personal traits in a relatively short time. There is clearly a huge amount of research and development behind the questionnaire, and our first impressions were very positive.

“...It was fascinating to see how CPSQ revealed [the students’] personal traits in a relatively short time.”
CPSQ results map onto a competency framework, covering Thinking, Study, Coping, Collaboration and Communication – how useful was this?

Almost all students scored highly in Thinking and Study, which was not surprising given that the trial group were all postgraduates. An engineer must be intellectually curious, and a tool which can measure this attribute shows that the student has chosen the right academic path. Scores for the other attributes were more varied, however, and Coping was a particular concern, especially resilience and dealing with the unexpected. Our students clearly need to improve their coping skills, and we are already considering how to provide additional support. For example, we can better promote the university’s psychological counselling services, and we will also suggest that every programme includes specific training on how to deal with ‘unexpected circumstances’.

You trialled CPSQ with postgraduates – could you also use it with undergraduates or in the admissions process?

Certainly – by analysing their personality traits, CPSQ could help us identify those undergraduates who made the wrong degree choice. This is important because a good engineer needs both ‘hard’ technical skills and soft skills such as creativity, imagination and resilience. Currently, admissions tests evaluate mainly hard skills, so if we can identify students who lack softer skills earlier on in their studies our drop-out rate could decrease. This is particularly relevant to study skills, given how different university is compared to school.

What did your postgraduate students think of CPSQ?

In a post-test survey, 75% of those who took part were very satisfied with the experience, and everyone said that their CPSQ results would help their personal development. This tells us that CPSQ increased our students’ awareness of their personal weaknesses, and encouraged them to address these, and we can follow this up once our students enter the workplace, where soft skills are essential.

Given the trial results, would you like to introduce CPSQ into the Engineering department?

Yes, we would, and we will be discussing the results of the trial with our department colleagues. We are also looking at possible solutions to the issues raised by the trial, not just training on how to cope with stress, but also perhaps the introduction of more modules focused on human science, to compensate for the ‘rigidity’ of an engineering programme.

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**About CPSQ**

The Cambridge Personal Styles Questionnaire (CPSQ) is an online, psychometric assessment that provides an insight into an individual’s attitudes and behaviours. Used by schools, universities and employers worldwide, CPSQ supports selection decisions and helps people understand personal development needs.

**About Università Della Campania Luigi Vanvitelli**

Founded in 1991, the Università Della Campania Luigi Vanvitelli was formerly the Second University of Naples with around 24,000 students. The Department of Engineering teaches a range of undergraduate and postgraduate degree programmes in civil and environmental, industrial, and information engineering.