

Sharpening graduate skills

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Abstract

It is increasingly recognised that a university education is about much more than gaining technical skills. As important to graduates as their degree classification is their portfolio of softer, transferable skills¹. Consequently, undergraduates now seek to build such skills as part of their core studies. Significantly, not only do the students report improved skills, they also report greater confidence in utilising these skills.

The Chemistry Clinic

This consultancy, as well as supporting inventors and SME's offers a learning opportunity for a team of undergraduate students. This Knowledge Exchange placement year takes place in the penultimate year of study for Chemistry Masters students.

The students work on a range of projects to solve problems and innovate solutions, for inventors and SMEs. Actively participating in client meetings, and coordinating projects with University staff members.

The cohort also develop workshops and actively participate in school outreach activities, as trained STEM Ambassadors. They also generate content for Chemistry Clinic Blogs and Social Media.

During the academic year the students are involved in multiple industrial chemistry-based projects with inventors and SME's. They have the opportunity to work on early stage concepts, creating imaginative solutions, for both the products and the experiments.

As part of their experience, students self-assess their skill set. Over the year, they consistently document a considerable increase in a range of skills, most markedly an increase in written and oral communication skills. These self observations are reflected closely by supervisors as well as through feedback from clients.

The students complete a reflective report at the end of the year, this also facilitates this skill reflection.



Industrially facing projects

- Problem solving
- Team work
- Application of learning
- Awareness of economic and risk elements to science project

Managing projects

- Multiple projects to coordinate
- Self and team management
- Management of deadlines

Communication

- Speaking with academics
- Meetings with commercial stakeholders
- Leading school outreach activities

Figure 1: The students enhance a range of graduate skills by working at the Chemistry Clinic



Figure 2: Self evaluation grid for students

Sharpening skills

The students are trained and mentored covering a range of topics to enhance scientific and graduate skills during their placement year. As illustrated in figure 1, above. Through a combination of commercially facing projects, client meetings and school outreach activities the students notably enhance their communication skills and build confidence.

As well as supervisor led assessment to meet academic criteria, each student self-evaluates at the beginning and end of their experience, see figure 2. Although a range of competency values are indicated, consistently a marked increase is noted in with respect to communication skills. This is especially pleasing as most students determine least ability in this area before placement year.

Conclusions

Academic appraisal while critical for learning activities, it is also imperative that the students take notice of the progression of their skills during the placement year. As well improving scientific skills and report writing, the students built confidence and perceived improvement, particularly in communication skills.

References:

1. Habets, O.; Stoffers, J.; Heijden, B.V.d.; Peters, P. Am I Fit for Tomorrow's Labor Market? The Effect of Graduates' Skills Development during Higher Education for the 21st Century's Labor Market. *Sustainability* **2020**, *12*, 7746.