Chapter 8
The Chemistry Clinic:
Collaborative Teamwork to Achieve Innovative Solutions

Debra Willison
University of Strathclyde, UK

Sharon E. Ingram
University of Strathclyde, UK

John J. Liggat
University of Strathclyde, UK

Brian George McMillan
University of Strathclyde, UK

ABSTRACT

Combining the authors' interest in developing student employability skills through authentic assessment with the desire to embed knowledge exchange activity into the curriculum led to the development and delivery of an innovative and unique module created at the University of Strathclyde. This model can be utilized by colleagues in the field of higher education in their own setting. Development occurred through existing research into the enhancement of employability skills, the importance of authentic assessment, and the knowledge exchange experience of the authors. This chapter describes the development of the Chemistry Clinic approach to enhancing student engagement with industry. Elements in the design of the module are discussed; their inclusion is justified based on existing research. This study will be a useful model for lecturers, tutors, career advisers, and other practitioners involved in work integrated learning.

INTRODUCTION

Equipping students with the necessary skills for success in the transition into employment has been a focus for the Higher Education sector for a number of years (Tomlinson, 2017; Succi & Canovi, 2020). A recent survey in the United Kingdom (UK) commented that:

Employers…expect the need for…workplace skills unattached to qualifications – such as communication and teamwork – to increase (+41%) in the next three to five years. (CBI/Birkbeck, 2021)

A variety of frameworks has emerged to support institutions to consider the development of these skills, including models such as DOTS (**D**ecision learning, **O**pportunity awareness, **T**ransition learning, **S**elf-awareness), CareerEDGE (Dacre Pool & Sewell, 2007) and USEM (**U**nderstanding, **S**kills, **E**fficacy, **M**etacognition) (Knight & Yorke, 2004; Erabaddage et al., 2015). The Quality Assurance Agency (QAA, 2016) has helpfully collated a wide range of resources designed to support the embedding of employability skills into the curriculum. Additionally, others have expressed their thoughts on pedagogy for employability (Pegg et al., 2012) and developed methods to evaluate student employability skills (Nuryake et al., 2021). A review by Small et al. (2018) summarizes many of these approaches. While these resources provide support to reflect on embedding employability into university programs, there is a lack of practical resources available for in-class use.

Reflection on the importance of employer perception of graduate employability (Chhinzer & Russo, 2018) and the scarcity of practical resources mentioned above, led to the development, by one of the authors, of a suite of practical employability tools (Scott, Willison, Connell, & Thomson, 2019), which have been shared with over 150 HEIs worldwide (Scott & Willison, 2021).

A well-established way to prepare students for the transition to employment is to provide support for them to gain work experience. Previous work (Watkins et al., 2018, Kamaliah et al., 2018) compares students who had completed supervised work experience with those who had not and there is clear evidence that the cohort which had participated in work experience had a higher level of employability skills. Undertaking volunteer work, where a range of similar skills can be developed, has also been acknowledged as positively impacting student employability (Barton et al., 2019) and the correlation between additional experience and increased confidence has been reported (Chammaa, 2017). The concept of work-integrated learning (WIL), which has broader goals, has gained traction over a significant number of years. This activity helps students gain a competitive edge, through forging authentic industry and community partnerships, to produce work-ready graduates.

The demand for work-ready graduates who are familiar with organizational practices in the workplace is increasing, and so the need for greater work integrated learning is a growing concern for the education sector. (Cooper et al., 2010)

In Australia there has been a shift from extra-curricular activity to work experience which is integrated into the curriculum (Jackson, 2017a; Jackson, 2018a). The extent to which this has developed in Europe has also become significant (Perusso & Wagenaar, 2021). Rowe et al. (2017) describe how the curriculum can be enhanced, and graduate employability skills and attributes developed through the use of WIL. Others have described how engagement in WIL can prepare graduates who have an entrepreneurial ap-

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