Graduates are expected to demonstrate a wide set of soft skills in order to compete successfully in the current job market. Evidence of effective skills in teamwork, organisation, time management and interpersonal relationships are ultimately very important in determining levels of success as they show how one leads, relates and works along with other people. Experiencing leadership roles in the microbiology laboratory classes encouraged the development of soft skills and provided examples to support job applications.

Employers often seek to hire staff that will work well in a team and be able to communicate effectively with colleagues and customers. It is important therefore to create opportunities to develop strong and effective interpersonal skills alongside scientific skills. For example, ‘I completed all my assignments on time’. Would this statement serve as evidence of effective organisation and time management skills? Or would ‘I worked in a group’ infer that teamwork had been effective and active listening, decision-making, emotional intelligence, social awareness, leadership – the varied components that make up interpersonal skills – had been developed? Guides on addressing selection criteria in job applications would suggest otherwise.

Herein is a case study where principles of Process Orientated Guided Inquiry Learning (POGIL), implemented in the microbiology laboratory learning environment encouraged the development of soft skills and provided examples to support job applications.

The group-specific feedback therefore provided each member with the opportunity to identify and target personal soft skill areas requiring further development. For example, a group achieving only part of the expected weekly outcome could reflect a Manager, which might have delegated an inappropriate time frame for completion of a task i.e. the team member’s capabilities in relation to the complexity and time required to complete the task were not considered effectively. Therefore, this manager needs to develop aspects of his/her organisation/time management skills further; a Recorder submitting a progress report that is dissimilar or contradicts the content delivered by the Presenter reflects poor communication links between the team members, inferring the lack of cohesiveness and transparency within the group; natural discord due to differences in opinion/personality will force the group to reflect in unity and the ability of the group to develop and implement interpersonal strategies that allow them to work in harmony, or at least in agreement, becomes a measure of the success of the group in progressively delivering project outcomes. Consequently, each group progressed steadily, with each member becoming increasingly aware of the importance of investing in effective interpersonal skills that form the mainstay of successful work/social life interactions.
Table 1. Components of Main and Auxiliary roles designed to encourage development of soft skills.

<table>
<thead>
<tr>
<th>Week</th>
<th>Presenter</th>
<th>Manager</th>
<th>Recorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main role</td>
<td>Designs and presents the weekly seminar</td>
<td>Manages time for activities; leads and delegates; ensures outcomes are achieved. Manages roles of group members. Facilitates discussion; reviews and manages feedback.</td>
<td>Records all laboratory work in the project folder. Preparers weekly progress report.</td>
</tr>
<tr>
<td>Aux role</td>
<td>Participates in laboratory work; reflects and contributes to discussion; maintains active communication links with Recorder.</td>
<td>Participates in laboratory work; reflects and contributes to discussion; supports the design of the weekly seminar. Reviews project folder.</td>
<td>Participates in laboratory work; reflects and contributes to discussion; maintains active communication links with Presenter.</td>
</tr>
</tbody>
</table>

Whilst Learner Experience of the Unit surveys revealed an overwhelming preference for empowered self-directed group work in learning, interpersonal interactions, as lifelong learning outcomes are difficult to measure\(^9\),\(^10\). Therefore we sought comments from our microbiology graduates to determine whether their experience of group work in our laboratory classes influenced both their personal development and the outcome of job applications.

- I enjoyed being a manager, presenter and recorder. I had to take charge of the group but I worked hard to concede that leadership to better work as a team and allow another's ideas to drive the direction of the group.

- The projects allowed us to explore and understand cultural differences and effectively communicate with one another. This has allowed me to work well in a team environment, both socially and through my work life. When attending interviews I now have firm examples of when I have applied these skills.

- When going for the job, I spoke about how we worked in groups to solve a case study or task in a certain time frame; bow these exercises have enhanced my understanding of working in a team where everyone has different ideas and personalities and how to adjust to those differences. I got the job!

- When applying for both my current and most recent jobs, I used the microbiology projects as examples of bow I met the selection criteria. Both jobs demanded demonstrated ability to work as a part of a multidisciplinary team, and the ability to organise and prioritise workload. Completing these projects enhanced both of these skills, and I was particularly grateful that I could use specific examples of my university experience to meet the job criteria. I was successfully employed in both of these positions, and I believe the knowledge gained was invaluable.

The view of an industry representative commenting on the soft skill capability of our graduates is also included:

- The microbiology students from Macquarie University have shown good aptitude for the work. They are able to communicate with referring practitioners, patients and staff at all levels and adapt quickly to most situations. I feel confident that that we will be able to offer more students employment in the future now that we are confident of the calibre of students.

The above comments would suggest that implementing components to encourage the development of soft skills at undergraduate level could be as important in maximising employability as achieving the scientific skills required to do the job.

**Acknowledgements**

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**References**


**Biography**

Dr Josie Lategan is currently an honorary academic at Macquarie University having lectured Microbiology at this university from 2009 to 2015. Her research interests are in both the medical and environmental fields of microbiology. She also holds a special interest in microbiology education, particularly in developing active learning techniques.