

CHEMISTRY TEACHER CONTENT KNOWLEDGE PROFESSIONAL DEVELOPMENT THROUGH PARTNERSHIP

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Background

In 2015 the national curriculum for senior secondary chemistry commenced implementation in Western Australia. The Science Outreach office of Murdoch University was approached by a number of chemistry teachers in the local area enquiring about professional development (PD) in particular content areas of the new curriculum that have not previously been taught. The name given to the PD session, *Divide and Analyse*, reflected the new curriculum topics requested by teachers: mass spectrometry, atomic absorption spectroscopy, and chromatography.

Aims

The main aim of the study was to obtain information on the professional development needs of chemistry teachers, and teachers' perspectives on how ongoing education and support could be provided by the chemistry discipline at Murdoch University. In addition, the PD activities provided on the day were evaluated.

Description of intervention

Three 45 minute vignettes, one on each of the subject areas, were developed and small groups (6-7) of chemistry teachers rotated through the sessions over the course of the PD day. Common features of the vignettes were, presentation of chemistry theory underpinning each topic, contextual examples and applications of each analytical technique, and links to resources that may have been helpful for development of teaching materials.

Design and methods

Teachers participating in the PD completed pre and post survey questions about their reasons for attending, confidence in chemistry teaching, previous professional development experiences and their impressions of the *Divide and Analyse* PD. Focus group interviews of one hour duration were conducted after the PD activities to gather information about the ongoing professional development needs of chemistry teachers. Audio recordings of the focus groups were transcribed and analysed for themes.

Results

Analysis of survey responses and focus group transcripts gave a clear picture of available support and professional development opportunities for chemistry teachers, as well as information about what they need and how their needs might best be met. One area of the PD activities where teachers would have liked more focus related to practical examples that they might implement in their classrooms. The main themes emerging related to: teachers' desire to refresh their chemistry knowledge, accessibility of new curriculum content, and improving teaching through storytelling/contextualisation and partnership with the University.

Conclusions

Divide and Analyse was a successful pilot chemistry teacher content knowledge PD that is being translated to an annual offering. Changes are being made based on the results, with the inclusion of more content that teachers can implement in their classrooms being considered for future PD sessions. Feedback from teachers indicated another area of the new curriculum where content knowledge PD would be helpful. A second session called *Amino Acids, Peptides and Protein*

Structure was developed in response to this. The developing partnership with chemistry teachers has resulted in some of the participants returning to campus with groups of their students for a modified version of *Divide and Analyse*.

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