RELATIONSHIPS BETWEEN CONFIDENCE, GENDER, HIGH SCHOOL PERFORMANCE, A CONCEPT INVENTORY, AND SUCCESS IN FIRST YEAR CHEMISTRY

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ABSTRACT
We have profiled the range of existing conceptual understanding of first-year students entering chemistry at two major research-intensive tertiary institutions in Queensland in 2011 and 2012. Chemical concept inventory items (CCI) have been drawn from across a number of validated literature instruments and delivered in an online questionnaire in week 1 of the first semester of chemistry.

The number of students giving the correct answer for each concept inventory question did not change significantly from 2011 to 2012. High school performance (Queensland OP) was not a significant predictor of performance in the concept inventory. A significant gender difference emerged, with female students (across both institutions) receiving a lower mean score in the concept inventory than males.

In 2012, the students’ confidence in their answer to each question was also explored (Potgieter & Davidowitz, 2012). A number of unexpected results emerged that contrast with published findings (Sharma & Bewes, 2011); in particular, females were significantly more likely to be overconfident than males, and the most overconfident students were those in the mid-range band of high school achievement (Queensland OP 2-8) (see Figure). These results will be discussed in terms of factors such as program of study, age and institution, as well as metacognitive factors.

REFERENCES