**Introduction** Learning analytics, which involves the measurement, collection, analysis and reporting of data about learners and their contexts (SoLAR, 2011), may provide understanding and optimisation of learning environments by identifying appropriate instructional materials and methods to address challenges in bridging discipline content (i.e. chemistry) and pedagogy.

**Context** Learners were introduced to blended/online delivery of first-year chemistry at this university for the first time.

**Methodology**

1. First-year chemistry topics for online delivery *(Figure 1)*

   - Electron configuration
   - Lewis structure
   - Chemical bonds
   - Molecular shape
   - Polarity

   **Figure 1. First-year chemistry topics included in this study**

2. Learning design *(Figure 2)*

   - Introduction
   - Learning objectives
   - Learning resources and activities
   - Formative assessment (unassessed)

   **Figure 2. Learning design for the online delivery of first-year chemistry topics**

3. Data collection
   - Log data from Moodle
   - Total number of actions by students in the LMS (clicks) = 231,434
   - Number of active students = 958
   - Observation period = 16 days

4. Learning analytics
   - Analysis of learner behaviour and learner-resource interaction
   - MS Excel and RStudio *(Figure 3)*

   **Figure 3. Learning analytics framework**

**Findings** Learning design provided opportunities for:

1. Flexible and independent learning *(Figure 4)*
2. Variety of learning preferences *(Figure 5)*
3. Students to self-assess *(Figure 6)*
4. Students interacting with their peers and teachers *(Figure 7)*

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**Affiliations:** 1School of Chemistry, Faculty of Science, Monash University, Clayton VIC 3800, Australia; 2School of Chemistry and Molecular Biosciences, University of Queensland, Brisbane City QLD 4072, Australia; 3Faculty of Education, University of the Philippines Open University, Los Baños, Laguna 4031, Philippines