

Encouraging Early Stage Undergraduate Chemistry Students to Engage with Scientific Discourse

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We Welcome Your Input...

This project is nowhere near where we expected to be by August 2020 but we wanted to take this opportunity to engage with others working on and interested in enhancing student literacy in the chemical sciences.

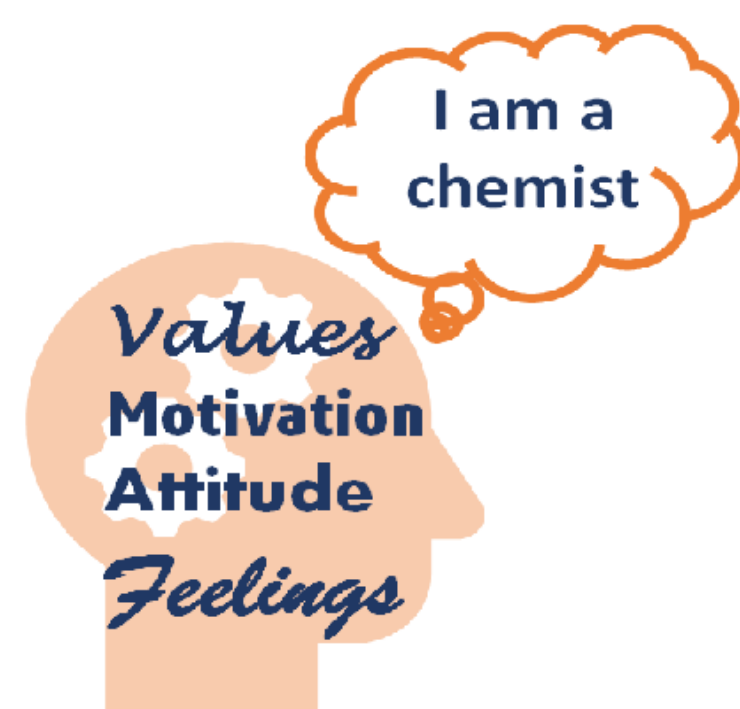
We'd also be very interested in any advice or ideas you have on running virtual Outreach events.



Aim & Rationale

Positive attitudes and feelings towards chemistry as a discipline have been shown to correlate with student persistence and performance.^{1,2} Students who enthusiastically join the chemistry community when they enter Higher Education are very likely to value its knowledge and practices. To do so, they should have the confidence to participate in its scientific discourse, which could include discussions and debates with their peers and academic staff, for example.

They should also be empowered by their developing / emerging expertise to communicate their ideas, enthusiasm and interest to the broader non-science community of friends and family to which they belong.



The Affective Domain
(For further reading see reference 3)

The central aim of the project is to provide opportunities for early stage undergraduate students to develop, alongside subject knowledge, the tools and skills needed to be effective chemistry communicators. We plan to have them practice these skills by becoming the experts for discussions with a lay-audience of their families and friends at the first TU Dublin 'Chemistry for Everyone Festival for Family and Friends'. The students' work will be assessed as part of their first year Professional Development module.



However... Is There a Skills Gap?

For our students, one of the first steps in preparing their presentation is to research a topic which requires critical reading (i.e. the ability to analyse, evaluate and construct knowledge from texts). Experience teaching these groups indicated a likely gap in their literacy skills with many students reluctant and / or lacking the confidence and experience to engage with the relevant literature. This was suggested by surveying these groups about their reading habits and attitudes. Therefore, funding was sought (and awarded by the RSC Outreach Fund) to both hold the Outreach event and to investigate and address this apparent skill deficiency.



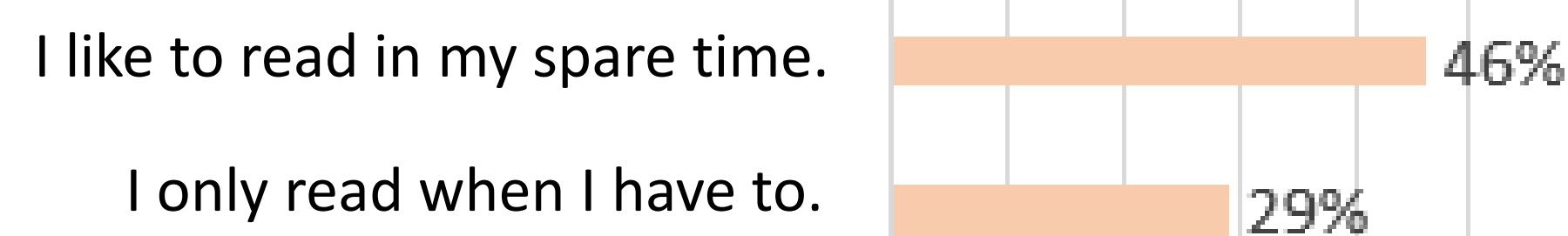
Progress to Date

Survey data gathered to date show that many of our students do not read or engage with text books regularly.

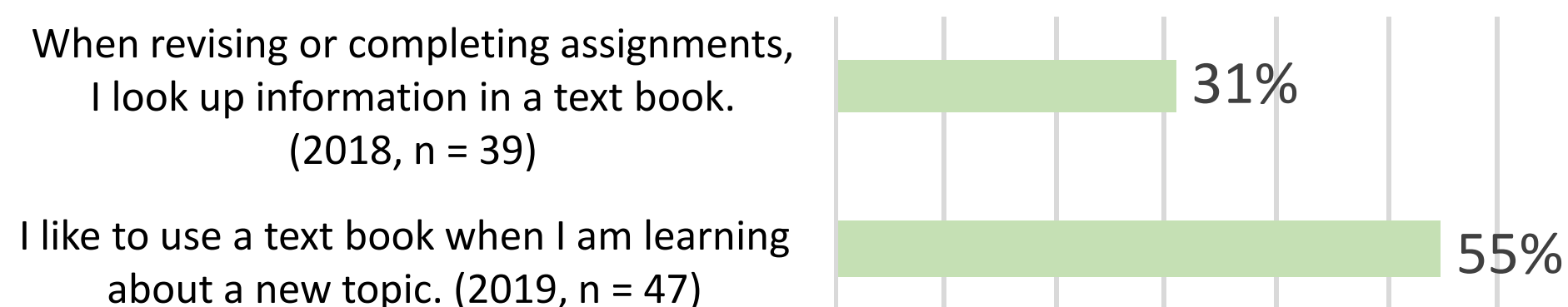
When was the last time that you read a printed text outside of class time for recreation or for college work (including comics, news and magazine articles, non-fiction and fiction books, text books)? (n = 86, 2018 & 2019 data)



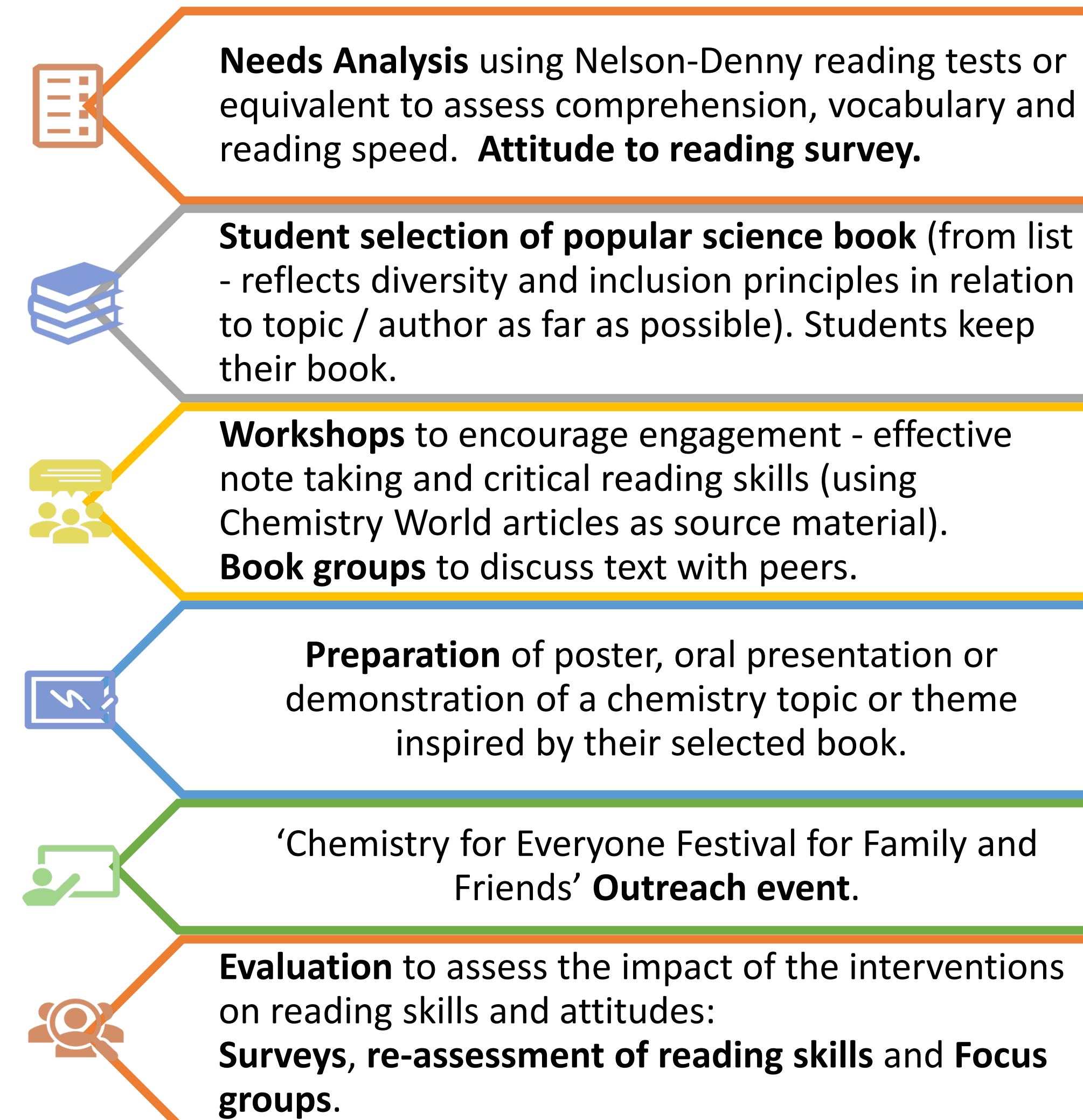
Attitudes to reading - number who agreed or strongly agreed (n = 86, 2018 & 2019 data)



Text book use - number who agreed or strongly agreed



Proposed Implementation 2020/2021



Changes Due to Covid-19 Restrictions

Reading tests – these are paper-based and it may be necessary to source an online alternative.

Workshops and book groups – blended approach with the aim to have at least one socially distanced f2f interaction.

'Chemistry for Everyone Festival for Family and Friends' outreach event – virtual, socially distanced or postponed?



References and Acknowledgements

- Villafañe, S.M. and Lewis, J.E., 2016, Chem Educ Res Pract, 17(4), pp.731-742.
 - Xu, X., Villafane, S.M. and Lewis, J.E., 2013, Chem Educ Res Pract, 14(2), pp.188-200.
 - Kahveci, M. and Orgill, M. eds., 2015. Affective dimensions in chemistry education. Springer Berlin Heidelberg.
- Many thanks to Leslie Shoemaker & the RSC Outreach fund.