

Thyme room  
3.30-3.55pm

## Supporting students' academic literacy: A social semiotic case study in STEM disciplines

**Laetitia MONBEC**

Centre for English Language Communication, National University of Singapore

[elclm@nus.edu.sg](mailto:elclm@nus.edu.sg)

English for Academic Purposes (EAP)/Academic Literacy provisions aim to equip students with academic literacy skills to enable them to engage and perform successfully in their tertiary disciplinary studies (Hyland & Hamp-Lyons, 2002). While many tertiary educationalists would agree that language is central to teaching and learning, and that our students' academic success is likely impacted by their varying confidence in the language of instruction, language is rarely a focus of attention (Coffin & Donohue, 2014; Halliday, 1978; Martin, 2009). This knowledge blindness regarding the role of language in academic meaning-making and in teaching/learning processes can be observed in various disciplines where, understandably, subject lecturers may not always be suitably equipped to support their students' academic literacy (Hyland, 2006). More surprisingly, this knowledge blindness also exists in academic literacy provisions: EAP programmes, for example, are often described as 'intuitive', and as lacking a systematic engagement with language theory (Cowley-Haselden & Monbec, in press; Ding & Bruce, 2017; Hyland, 2006; Turner, 2004). In some literacy programmes, notably social semiotic approaches, the centrality of language in learning and teaching processes and in disciplinary meaning-making is addressed through a visible, systematic and coherent knowledge about language (Coffin & Donohue, 2014; Halliday, 1993).

This paper reports on a study which investigated the impact of a social semiotic approach to academic literacy on students' disciplinary writing. Grounded in systemic functional linguistic (Halliday & Matthiessen, 2014; Martin, 1992) and Legitimation Code Theory (Maton, 2014), an EAP module was developed which aimed to enable students to understand how language functions to make meanings in academic disciplines (Monbec, 2018). Learners engaged with an explicit and systematic knowledge of language resources (or toolkits) used to express three main areas of meaning: a) the disciplinary field and its logical relations; b) the text organisation and flow; c) the relation between the writer and the reader and the writer's evaluative stance. After briefly describing the approach, the paper then presents the ways twelve participants were able to apply this knowledge in their written assignments in a range of STEM disciplines core modules – namely Life Science, Math, Chemistry, and Engineering. The methods involved a triangulated perspective addressing students' perception of academic literacy requirements in their discipline and their assignment, a textual analysis of their assignment as well as the discipline lecturer's evaluation of the text. Results indicate that a social semiotic approach to EAP course design impacts STEM students' academic literacy positively by making visible a linguistic framework to analyse and make appropriate language decisions in disciplinary contexts of communication. However, while nine of the participants showed a greater confidence and knowledge of academic literacy skills needed in their discipline, three of the twelve participants reported no application of the EAP knowledge. Further analysis of the interview data revealed that students' dispositions towards knowledge structures (that of their disciplines and that of the EAP module) as well as their affiliation to their disciplines may play a role in developing academic literacy skills. The paper therefore argues that students' deep orientations to knowledge structures and the concept of affiliation should be addressed explicitly to support STEM students' academic literacy development.

To conclude, the paper uses these findings to argue for the need for an institution-wide social semiotic academic literacy solution. It shows how the toolkits can be used by lecturers of any discipline, and in any year of study, to provide not only a coherent and systematic development of academic literacy skills for our learners, but also a common language we can use across faculty departments to discuss the shared challenge of academic literacy.

### Keywords

Academic literacies; English for Academic Purposes (EAP); Systemic Functional Linguistics (SFL); Legitimation Code Theory (LCT); STEM (Science, Technology, Engineering and Math)

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