



Editorial

Teacher Knowledge: Perspectives on Teaching, Curriculum and Geospatial Technologies in School Geography

Jeana Kriewaldt

Melbourne Graduate School of Education, University of Melbourne.

Lee Shulman (1987) articulated the concept of pedagogical content knowledge (PCK), defining it as the knowledge teachers use to take specific subject matter and integrate it with tailored pedagogy to effectively design instruction for student learning. It is composed of two main components: knowledge of useful ways to represent and formulate the subject matter, and knowledge of students' conceptions, misconceptions, and learning difficulties related to the subject matter. PCK is one of seven categories of teachers' knowledge identified by Shulman, which also include subject matter knowledge, general pedagogical knowledge, curriculum knowledge, knowledge of learners and their characteristics, knowledge of educational contexts, and knowledge of educational ends, purposes, and values. PCK is considered an essential aspect of teacher knowledge because it helps teachers effectively teach their subject matter to students and support student learning.

Each of the four articles in this issue connects with one or several of Shulman's seven categories of teachers' knowledge.

Alaric Maude's article recognises the importance of the *curriculum* in providing teachers with a conceptually-coherent guide to what to teach. He rightly contends that primary school geography has the potential to make significant contributions to the education of young people. It can help students develop personal attributes such as place attachment, identity and belonging, spatial abilities, and environmental attitudes. It can also provide students with an understanding of their place and how it is changing, as well as an understanding of the world and their relationship with other places and the environment. However, in his critique, Maude shows how the current version of the Australian Curriculum: Geography for primary schools falls short in many of these

areas. While it may help students develop spatial intelligence and understand their dependence on the environment, it does little to contribute to students' personal development, teach about the world or basic concepts, or encourage local citizenship. Australian Curriculum, Assessment and Reporting Authority's revision of the curriculum could have done more to address these issues and better achieve its stated objectives. The article proposes an alternative revision, which still achieves a considerable reduction in content, and better develops the educational objectives identified in Maude's article.

Mick Law's article about using geospatial technologies (GSTs) in schools connects to *pedagogical knowledge*. GSTs have been shown to have numerous benefits for students to promote spatial thinking, help students understand geographical content, enhance geographic inquiry, and increase student engagement. However, more research is needed to fully understand the connection between spatial thinking and GSTs, how students use GSTs, how teachers teach with them, and how they can be best implemented in the classroom. Overall, his analysis of research suggests that GSTs are a valuable resource for teaching geography and should be more widely utilised by teachers in this subject. It comes as no surprise to teachers that integrating GSTs is a signature pedagogy in geography and is a timely reminder to integrate GSTs into teaching programs.

The third article connects with standards as an expression of Shulman's categories of *teachers' knowledge*. Susan Caldis, with colleagues Michael Cavanagh and Mary Ryan, report on a study that provides evidence that incorporating theory-practice reflection, based on the GEOGstandards, into initial teacher education can significantly

enhance the development of pedagogical practice amongst pre-service geography teachers. By actively and purposely incorporating these standards into reflective discussions and unit design, teacher education programs can better support pre-service teachers in developing their capacity to teach geography effectively. They recommend that geography methodology units and professional experience opportunities adopt this approach to better prepare pre-service teachers for the challenges and opportunities of teaching this important subject.

The final article offers national data on out-of-field teaching, which remains a significant issue in Australian geography classrooms and raises questions about the effects of its prevalence. This practice involves assigning teachers to teach subjects outside their area of expertise, is potentially harmful to student learning and risks driving teachers away from the profession. In order to address this issue, the authors recommend a concerted effort to educate and recruit in-field teachers who have studied a subject for at least one semester at the tertiary level and received subject-specific teaching instruction. This would help to ensure that teachers are prepared to teach their subject with the necessary disciplinary and pedagogical knowledge that Shulman has identified and categorised. It calls on school leadership in

secondary schools to employ staff in their cognate areas and to provide intensive training and support for out-of-field teachers.

As the incoming editor of *Geographical Education*, I am pleased to publish this collection of articles that are readily aligned with Shulman's conceptions of teacher knowledge, with its focus on curriculum and pedagogical practices, in the context of initial teacher education, and in light of the shortage of in-field geography teachers in Australia. Importantly, this issue also pays tribute to Don Biddle.

On behalf of AGTA, I extend my thanks to both the writers of the articles and the book reviews. I thank Geoffrey Paterson, Reviews Editor, for identifying relevant publications and his capable liaison with the review authors. The book review titles reflect a range of topics in geography and offer the reader insights that will guide their professional reading in the coming year. I also thank Geoffrey for his meticulous contributions as the proofreader for the entire volume.

AGTA looks forward to contributions to the next edition of the journal, Volume 36, 2023.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57, 1–22.