

VIGNETTES REPRESENTING PRACTICE TO SUPPORT MATHEMATICS TEACHING

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THEME:

Teacher education and professional learning in STEM

BACKGROUND

The study of mathematics in many countries is positioned as being significant, often associated with individual and societal benefits described in policy documents. As the study of science, technology, engineering and mathematics and STEM 'climate' has gained momentum, the central role of mathematics as foundational for establishing mathematical competencies is emphasised. The importance of learning and teaching mathematics is fundamental in initial teacher training as pre-service teachers (PSTs) critically examine subject knowledge and pedagogy. One way to stimulate activities and discussions amongst PSTs is through the use of vignettes, which can be designed as representations of practice and assist in identifying and re-imagining beliefs as professional knowledge is developed. Vignettes (in text, cartoon, video formats) are suitable for succinctly representing fictitious 'situations' which are discernible by participants as credible representations of practice and can be purposefully constructed to draw out the beliefs and meanings pre-service teachers ascribe to particular phenomena (Skilling & Stylianides, 2020).

METHODOLOGY

The 'Congruent Triangle' vignette (Figure 1) was used in an initial teacher training course in the UK and related to geometry topics taught in secondary schools. It aimed to draw out the PST's knowledge and beliefs about practice (Ball et al, 2008) and notions of deep versus shallow learning. The research questions were:

1. What forms of professional knowledge do pre-service teachers discern?
2. In what ways do fictitious vignettes provide opportunities for pre-service teachers to reveal their professional knowledge and imagined practice?

The vignette was sent electronically to 25 PSTs who were asked to respond to open-ended questions accompanying the vignette. The questions asked the PSTs about: content and pedagogic knowledge; beliefs about deep learning; approaches to teaching; and were analyzed according to these themes.

RESULTS

The PSTs identified the conditions of congruency with over half providing explaining possible pedagogic support for understanding the ambiguous conditions. When asked to consider the approach used in the vignette, the PSTs cited the importance of providing examples that promote developing understanding and reasoning about the relationship between sides and angles. The vignette situation and accompanying questions provide a realistic case-based learning situation that links theory to practice.

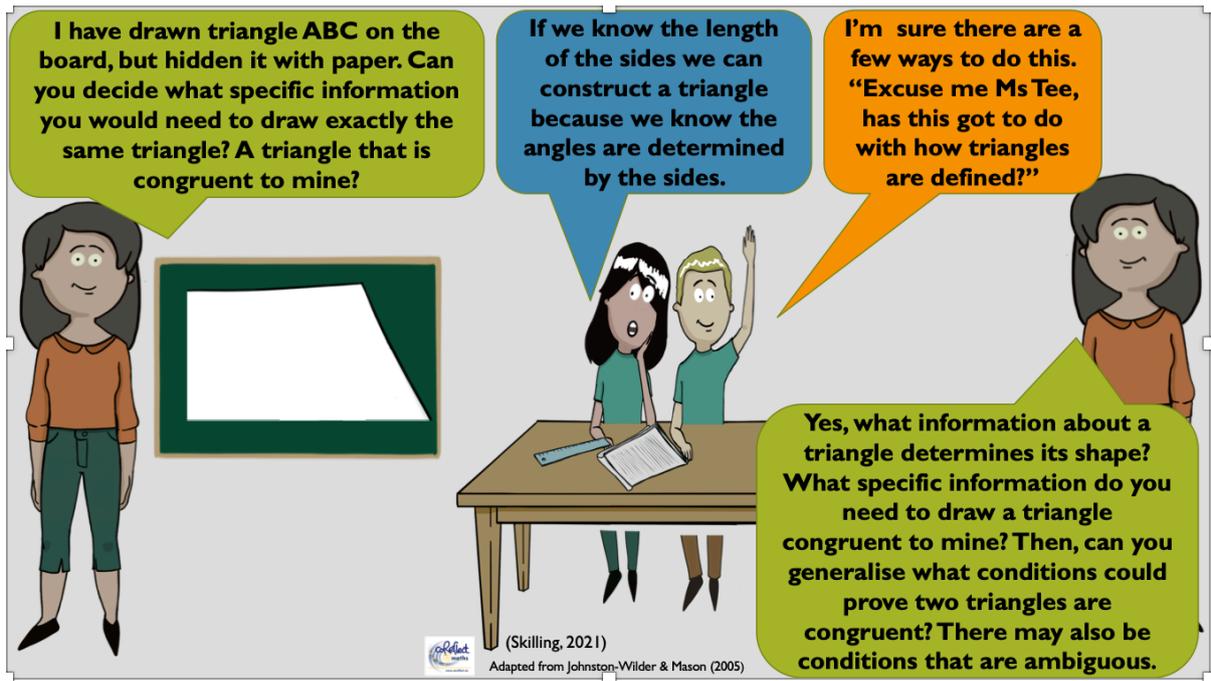


Figure 1: The Congruent Triangle Vignette

REFERENCES

- Ball, D. L., Thames, M. H. & Phelps, G. (2008). Content knowledge for teaching: What makes it special? *Journal of Teacher Education*, 59(5), 389–407.
- Skilling, K., & Stylianides, G.J. (2020). Using vignettes in educational research: a framework for vignette construction. *International*.