PEDAGOGICAL BEHAVIOUR IN PRE-SERVICE TEACHERS DROPS WITH INCREASING CONTENT KNOWLEDGE

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KEYWORDS: Pedagogical content knowledge, pre-service teachers, astronomy education research, science education, science teacher education

We present the results of a novel study investigating the relationship between pre-service science teachers’ content knowledge and pedagogical behaviour and how these evolve over time. Forty-one pre-service science teachers at the largest teacher education institution in Norway (Oslo Metropolitan University) were tested before and after a 12-hour module on astronomy at the end of the second and final physics course in the Bachelor of Teaching degree. Three free-response questions in the established Norwegian Introductory Astronomy Questionnaire (NIAQ) elicited astronomy knowledge and gave respondents an opportunity to engage in pedagogy. Student responses were analysed along two separate dimensions—content knowledge and pedagogical behaviour (student-centred vs. teacher-centred)—and interpreted in the framework of Pedagogical Content Knowledge (PCK). Overall, we find that the pre-service teachers become more knowledgeable after instruction (responses marked as ‘knowledgeable’ increased from 39% to 61%), even though a significant fraction remain disconcertingly ignorant. More notably, however, the pre-service teachers also displayed a strong trend of becoming less student-centred (from 36% to 11% of responses) as their content knowledge increased, merely stating the correct—or presumed correct—response without showing any concern for the hypothetical students in the question.

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Sydney and University of Technology Sydney, 2 - 4 October 2019, page 70, ISBN Number 978-0-9871834-8-4