What do we gain from cruise-based teaching in marine science university education?

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Scientific teaching cruises are a popular part of marine science courses in undergraduate and graduate education, but cruise time is under severe pressure due to financial and logistical constraints. In this study, we investigate the role of ship-based fieldwork in facilitating student learning in marine science education. In particular, we explore the contributions of different course components, such as lectures, seminars, and laboratory exercises, towards student learning in two undergraduate and one graduate course. Results from an online survey and interviews with students, teachers, and teaching assistants suggest that undergraduate students tend to learn most during the lectures and the cruise. Conversely, graduate students appear to learn most when conducting ship-based experiments and during the preparation of the cruise report. While the teaching cruise is probably a course component that is less focussed on transfer of knowledge in forms of facts and theories than e.g., lectures and seminars, they are effective for students to consolidate and to learn to apply their knowledge. In addition, the teaching cruise contributes considerably towards the development of practical and soft skills, such as group management and communication, which are highly valued by potential future employers. We therefore argue that teaching cruises provide a valuable teaching platform that goes beyond the mere dissemination of scientific content and train students in skills applicable to any future career.