The importance of methodological detail and conceptual context when presenting laboratory animal science education tools

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Originally published in *Laboratory Animals*. Article first published online: May, 2013

DOI: 10.1177/00236772231175551

Letter to the Editor

As practitioners and researchers in the field, we welcome the Special Issue on Education. Here, we reflect on how to present work on laboratory animal science education, inspired by a paper in this forthcoming issue.[1] Balancing practical applicability and scholarly context is important in laboratory animal science, given the interdisciplinary nature of the field and its strong connection to practice. However, rather than seeing a conflict between practice and theory, we advocate for a combination of educational science and practical experience.

In their paper, Cicale et al.[1] present their education tool in detail, but with little information about its implementation. Similarly, the rationale for developing the tool is presented in its local context but not in the context of educational science. To make the paper more valuable for both practitioners and scholars, we encourage the authors to complement this information in their response.

Whereas the title refers to formative and summative evaluation, what these concepts mean in the context of this article is not elaborated on. Even when using the same tool, their different purposes and consequences for the learning process are relevant. Formative assessment aims to identify positive and critical aspects of a student's performance or of how they execute a task, to guide the learning progress through meaningful, personalized and constructive feedback.

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Summative assessment aims to evaluate how far a student has come at the end of a specific cycle, to judge performance and confirm whether the student reached a pre-determined level of knowledge or ability to carry out a task/procedure.[2,3] For the present paper, more detail would be needed to understand the role of the rubric in formative and summative assessment. How does the evaluation take place in practice? Who evaluates, and on basis of what information? Are students aware of when they are being evaluated? How many students are evaluated by each evaluator? How frequently are students evaluated and how do they receive feedback? Does this happen daily, as suggested in 'self-examination for the students, as they see reflected in the scores obtained daily [...] generating a stimulus to improve day by day'? Assessing trainee performance on a daily basis requires more spare capacity than at least European laboratory animal facilities typically have.

When deciding on type, format and design of assessment tools, it is also important to consider what they are intended to measure. The standard reference here is Miller's Pyramid, a conceptual model for medical education, defining the different stages of clinical competence as well as the challenges in using different assessment formats to evaluate those levels.[4,5] A rubric for application in the workplace would in theory correspond to the highest level ('does'). However, it is unusual to propose the same rubric to assess performance throughout an entire training programme, and the role of the rubric in formative versus summative assessment needs clarification. Only students failing the continuous evaluation were examined in a final exam, suggesting that for the remaining students the formative replaced a summative assessment. However, for four of the 16 courses, this corresponds to around 50% of the students (Figure 2 of Cicale et al.[1]). What do the authors think explains why so many students failed the continuous evaluation in TBII-2016 (3/5 students), TBI-2017 (7/15 students), TBIII-2017 (5/7 students) and TBIV-2017 (3/7 students)? If these students show no evident improvement in their performance', is there a problem with the formative role of the assessment?

This work has received no funding, it requires no ethical approval since it involves no trials with humans or animals, there are no underlying data to make available and the authors have no conflict of interest to declare.

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