



Is it ethical for undergraduate students to conduct research?

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During our undergraduate education as dentists, or as any health professional, we are taught all the different competencies we must acquire in order to get our degree. These competencies are based on academic and clinical performance. For example, in endodontics, it is not enough to learn the theory on how to diagnose and treat a pulp disease, we must actually diagnose and treat one in a real patient.

In order to achieve the latter, the endodontic treatment must be perfectly executed. During this process, the clinical tutor first interrogates the student, in order to check that he knows the patient's diagnosis, the treatment needed and how it is going to be carried out. The same happens with oral rehabilitation, periodontics, pedodontics, and so on.

All of the above may seem obvious to everyone, since we, as dentists, must know how to diagnose and ease our patients' dental ache. Therefore, my particular concern arises when students in their final years, according to the dental curriculum, must conduct research.

Why does this process doesn't involve the same thoroughness as the above-mentioned? It has been already shown that less than 15% of undergraduate dental theses in Latin American universities are getting published, mostly because of inconsistencies and poor statistical analysis, materials, method and design of the study; lack of motivation of the students in the tough process of publishing, and/or lack of qualified professors (*Werlinger et al., 2014; Castro et al., 2018*).

So, if it is not rigorous, is it ethical to conduct this research? It is important to point out that these theses often demand time and commitment from participants, expressed in different types of oral examinations, x-rays, photographs, measurements, surveys and scales, which can be highly time-consuming. Unfortunately, if these theses are not getting published, the efforts from students and participants and the limited resources are wasted.

What is the point of doing this research if it is not going to get published? As most of these theses are poorly designed, there is no real benefit for anyone but for the students to get their degree. We must never forget that a well-crafted thesis is an act of professional ethics. Not publishing an investigation breaks the link between the researcher and the scientific community, as professionals will not be able to apply the results and contribute to the different disciplines of health sciences.

If dental faculties want to maintain research in their curriculum, it is imperative to improve their research's outcome. I strongly recommend to motivate freshmen students in research and let current labs and/or research groups from their institution socialize with them, in order to encourage them into academia. Also,

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research tutors must improve their rigorousness and, for those that don't feel qualified, institutions should provide them with advanced training courses in the matter.

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