

# Students' vulnerability in educational research

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## ABSTRACT

Dental teaching institutions in South Africa recently implemented "learner-centred" curricula and expected educators to alter their teaching styles accordingly, but perhaps without providing adequate training in this paedagogical philosophy. At the same time, the lecturers were required to conduct evidence-based research to evaluate the outcomes. Thus, clinicians/lecturers also became researchers, using their own students or student material for assessment purposes. Previously, this form of educational research, which was carried out in normal academic settings, was not subject to review by Institutional Review Boards (IRB). However, concerns have risen that learners may be a vulnerable population due to their position in the academic institution, and the power and knowledge differentials that exist between them and the lecturer/researcher. This raises ethical concerns regarding their autonomy and ability to provide free, voluntary, informed consent to be research participants. This paper questions whether educational research may lead to student vulnerability, and proposes some recommendations for educators and institutions involved in educational research.

**Keywords:** Educational research; student vulnerability;

## INTRODUCTION

Following the introduction in 1997 of the Outcomes-Based Educational (OBE) system in South Africa, many universities also began to adapt their curricula towards a more "learner-centred" education, in keeping with the training of the newly emerging matriculants. Several used current international trends and re-shaped them to suit local conditions.<sup>1</sup> This represented a pedagogical shift from "traditional" teaching to a more humanistic influence on education, which stressed

the importance of holistic learning, the democratisation of the teacher-learner relationship and the notion of personal growth through an interactive learning process.<sup>2</sup> The justification for this educational shift was to improve learning outcomes, effectiveness, and progress in a learner's cognitive development.<sup>2-5</sup> However, learner-centred curricula are often imposed without prior orientation, or education of staff or appropriate facilities. This leaves educators blindly feeling their way into learner-based education. At the same time, there has been a call for evidence-based research to evaluate the outcomes and justify these changes,<sup>6</sup> prompting educators to conduct educational research directly amongst the learners, or using their performance scores to evaluate the new teaching methods. A number of ethical concerns arise such as whether this new educational methodology is practical or applicable (particularly in under-resourced settings such as South Africa); whether it is ethically justified for learners to be subject to a new curriculum, possibly taught in some cases by relatively untrained educators; and whether students, at Schools or Universities, could claim to be victims of the imposed curriculum, as they have a limited ability to oppose educational changes. In that sense, they are a captive audience and may be considered a vulnerable population in educational research.

This paper seeks to explore issues relating to University student vulnerability in educational research.

## RESEARCH, PRACTICE, EDUCATION, AND EDUCATIONAL RESEARCH

Research is defined as a "systematic investigation, which includes research development, testing and evaluation that is designed to develop or contribute to generalisable knowledge, theories, principles and relationships.<sup>7</sup> It tests a hypothesis, is validated by statistical measures and allows for conclusions to be drawn".<sup>8</sup>

Practice refers to interventions intended solely to improve the well-being of a patient, follows accepted standards, and has a reasonable expectation of success. Educational research is enquiry focusing on students, teachers, teaching methods, curricular initiatives, or educational processes and outcomes with the intention of sharing these with the

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broader community.<sup>9</sup> It is usually conducted in established or commonly accepted educational settings, involving normal educational practices. There is overlap between excellent teaching and educational research as both seek to evaluate feedback after introducing a new teaching approach; evaluate knowledge after providing instruction; and note which students perform well or are receptive to a particular area of education. Both involve being methodical, innovative, self-observing, forward-looking, and open to peer review, and both are scholarly activities.<sup>9</sup> Distinguishing between the two activities is often difficult, but clarification is necessary because there is a moral difference between education research and education practice.

In education, the teacher aims to serve the best interests of the student at that time, whereas the educator-researcher's duty is focused on gathering, sharing and promulgating knowledge that may only later serve the interests of the learner-participant. It follows that to improve the practice of dentistry, dental education needs to be adapted to meet current technological advances. The academics and clinicians involved assume the dual roles of both teacher and researcher in this process. Developing new and effective curricula requires experimentation and trial-and-error teaching, as well as data collection by the faculty members involved in the new methods.

## STUDENT VULNERABILITY

Vulnerability can be defined as "susceptibility to exploitation, attack, harm or injury, which may be either physical or emotional. It also refers to having one's guard down, to be open to censure or criticism, and to being liable to succumb to "manipulation, persuasion or temptation" (Oxford English Dictionary). The Council for International Organizations of Medical Science (CIOMS) defines vulnerable groups as adults without the capacity (relative, absolute, or temporary) to give voluntary consent, and children, who are considered to lack the capacity to grant consent themselves. It includes groups who are economically disadvantaged, educationally disadvantaged, illiterate, employees, those physically impaired, those with life threatening conditions or debilitating illnesses, mentally disabled, non-native language speaking persons, nursing home residents, pregnant women, prisoners, wards of State and university students. It may also result from being in a hierarchical relationship or when there are clear knowledge differentials.<sup>10-12</sup> Such groups are vulnerable if they have "insufficient power, intelligence, education, resources, strength, or other needed attributes to protect their own interests, and are unable to provide free, voluntary, informed consent".<sup>11</sup> As a result, "special justification is required for inviting vulnerable individuals to serve as research subjects and, if they are selected, the means of protecting their rights and welfare must be addressed".<sup>11</sup>

### Do students have a particular vulnerability in educational research?

Students are often in potentially coercive situations, especially when the research in question is being conducted by an educator-researcher who will later assess them.

This asymmetrical power relationship (hierarchical) constitutes subordination vulnerability where the student's relative feeling of powerlessness tends to thwart their ability to decline participation. They may be even more pressurised to participate if they perceive that the researcher is also in control of their grades.

In order to safeguard learner-participants in educational research, many countries have IRBs who oversee all aspects of educational research. These boards have safeguards which can be applied to student participation, the collection of their data and the dissemination of curriculum evaluation outcomes. The fact that much medical educational research was previously exempt from IRB review, adds to the misconception that these investigations do not have to conform or adhere, to basic research principles.<sup>13,14</sup> Roberts *et al.* noted, "Clinician educators, as opposed to clinician investigators, conduct the majority of the education research, because they have access to learners, work in the field of education, and seek to publish to achieve academic promotion. As such, they should be aware of federal and institutional human research guidelines needed to protect the confidentiality of student participants in research and to build safeguards to protect students from coercion and maximise their ability to give true consent".<sup>15</sup>

### How are clinical educators trained to teach?

In South Africa, most dental educators are clinicians, few of whom have received any formal training in education and in educational research, the latter, it has been observed, is common with many school teachers.<sup>16</sup> The lecturers generally instruct in the same teacher-centred manner that they were taught.<sup>17</sup> These old paradigms are difficult to shift, especially as more time and effort is required to implement new thematic curricula with authentic assessment methods that are in alignment with the teaching practice as well as being relevant to real-world situations.<sup>18</sup> In addition, they were still expected to teach a set curriculum within a specified time, and could still modify the intended outcomes to suit their own purposes, which could result in a similar outcome as that experienced at school level where the ideals of learner-centred teaching were never being fully attained.<sup>19</sup>

## AUTONOMY, FREE INFORMED CONSENT, AND VOLUNTARINESS

Educational research as with all projects involving human subjects must respect the autonomy of all participants, and the study design must maintain ethical principles of beneficence, justice, fair subject selection, value, scientific validity, have a favourable risk: benefit ratio, be subject to independent review, and ensure respect for enrolled subjects.<sup>9,20</sup>

Autonomy implies that consent is voluntary, uncoerced, informed, and an actual explicit agreement.<sup>10</sup> The research subjects must know in advance why their participation is necessary, how the information gathered will be used and how and to whom the results will be reported, and should then give free and informed consent before participating. Active consent implies that an individual gave verbal or written consent before engaging in the activity. Passive con-

sent means that they had the opportunity not to participate, and understanding the implications of the activity, chose to participate anyway i.e. opting in versus not opting out.<sup>21</sup> In educational research, it is inappropriate to assume consent is given by virtue of the fact that an opportunity provided to “opt-out” of participating has not been taken up. Researchers must also maintain the privacy and confidentiality of their students during the study, allowing them to withdraw at any time without penalty if they wish, provide them with any new information that becomes available during the course of the study, should monitor their progress and inform them of the outcomes after completion.<sup>22</sup> Particular care should be taken to ensure there is no discrimination, including the use of non-discriminatory language in all research communications, in the construction of research instruments and in the reporting of results.

### ASSESSMENT OF RISKS VERSUS BENEFITS

Research can only be justified if the potential benefits to the participant/society outweigh the anticipated risks.<sup>23</sup> Educational research may result in inconvenience to participants, even to the extent of an inferior education but also causing frustration at wasted time and lost opportunities. Students could fear a hidden agenda may be motivating the study and worry that their participation, or lack of, will affect their grades and may perceive their participation as inviting stigmatisation or disapproval amongst their peers. The researchers may be restricted by economic factors and become apprehensive about promotion opportunities.<sup>10,24</sup>

Some researchers feel that students should be ideal and willing participants in educational research, as they will be directly affected by the results obtained, and are readily accessible. However, these same advantages may also make them vulnerable subjects as their autonomy and voluntary participation could be compromised if they feel coerced to participate due to the researcher’s position of authority, or they may volunteer in the hope of gaining better grades.<sup>24</sup>

Whilst there is a valid apprehension that students worry about negative academic or personal consequences if they decline participation, Forester & Mc Whorter (2005) found that medical students wanted medical educational research in order to improve their own education.<sup>24</sup> They viewed themselves as “stakeholders” within the medical school community and did not feel coerced to participate because of the positions of authority of the faculty member or the promise of better grades or other favours. Indeed, Forester & Mc Whorter (2005) suggest that IRB protection for medical students involved in educational research studies may be over-protective, paternalistic, unnecessary and inappropriate.<sup>24</sup> It is of course important that they have the right to withdraw at any time without prejudice or penalty.<sup>25</sup>

If student participation in research is part of their academic work then their involvement may not be made mandatory and the researcher must provide a reasonable academic alternative for those not wishing to participate.<sup>26</sup>

### THE USE OF INCENTIVES AND COERCION

Educational research is needed to ensure best-practice in teaching; however, it cannot be achieved without active input from the learners. This led some researchers to offer incentives or rewards in exchange for participation, which raises an ethical concern of possible inducement, undue pressure, or coercion. Vulnerability to inducement refers to a person taking unwanted risks in order to obtain rewards or credits of some sort, while coercion refers to a threat or intention of harm by one person to another in order to gain compliance.<sup>10</sup> Students may be susceptible to both coercion and inducement. Money for example can be a coercive factor if it makes subjects take chances they would not otherwise have taken<sup>26,27</sup> but simply put, there should never be any form of coercion to participate – be it overt or covert.

Initial recruitment should be done through circulars, notices and announcements to groups and not to individuals (the method of recruitment should be mentioned in the study protocol); the potential subjects must be reassured that refusal to participate or their subsequent withdrawal will carry no negative consequences academically or socially. Ideally, the lecturer/researcher should not offer excessive financial incentives or other hidden benefits; not participate in the initial recruitment; avoid the use of his/her own students if they could possibly investigate another class to gain the same results; allow a different instructor to carry out the recruitment process; use coded data; arrange collection of data by a different instructor; and not use class time for recruitment or data gathering.<sup>26</sup>

Some researchers have proposed giving extra credits to student participants as a reward for their efforts, arguing the benefit that students will be exposed to the research process first hand, that they will see and appreciate research from a subject’s perspective, and, during their debriefing sessions, from the investigator’s position. However, in order to remove the threat of coercion, researchers should provide an alternative activity, which involves comparable time and effort for equal rewards for those who do not wish to participate in the research. This poses some difficulties, as short papers, quizzes, and special assignments require more effort from the students in order to be good enough to get a passing grade. On the other hand, research participants who merely spend time being involved in the research could gain the same credits. Thus, rewards are not proportional to time spent, effort or educational benefits achieved.<sup>23</sup>

An alternative may be to offer monetary compensation to research students as this may not be as imposing as extra credits and is unrelated to career goals. This also treats students in the same way as other research participants, helps divorce their participation from academic and professional benefits, and allows participants to consider all the risks, and benefits more rationally.<sup>23,29</sup> However, the level of payment should be set at a rate that will not in itself be a form of coercion.<sup>30</sup> Researchers must acknowledge the use of incentives in the design and reporting of the research especially where it may create a bias in sampling or in participant responses. In general, the use of incentives for participation should be the exception rather than

the norm in educational research and when used, must be carefully considered by the local Ethics Committee. Additionally, there should be no penalties or loss of credits for those who have already earned these by enrolling, if they fail to complete the study.<sup>23,26,27</sup>

Undue influence is an offer of an excessive amount or an unwarranted reward in order to gain compliance. It may take many forms including offers of benefits, inducement, deprivation, or the exercise of control and authority over prospective subjects. It negates the voluntary aspect of the consent. Similarly, imposing penalties for students who withdraw is considered a negative undue influence and runs contrary to the rights of participants to withdraw at any time without prejudice, and is also considered as coercive behaviour.<sup>23,27,29</sup> However, some researchers argue in favour of penalties saying that missed appointments mean wasted time, effort and resources and imposing these helps instil in students a sense of responsibility and respect for the scientific enterprise.

Coercion versus appropriate reward can be distinguished by asking whether the instructors present students with a threat or an offer, and how the consequences for them change from the normal or expected course of events. If instructors make the situation better for students, they are making an offer, and if they make it worse, it is a threat.<sup>23</sup>

## DISCUSSION

Educational research aims to improve teaching methods, revise and update curricula, impart new knowledge and techniques in keeping with the latest developments and materials, modify lecture style and content to suit students from diverse educational and social backgrounds, and aims to produce knowledgeable, competent students who are fully prepared to enter the workforce. Educators implement changes based on a mutual trust relationship, believing that they are acting in the best interests of the learners and the institution. However, students could perceive that they have a limited capacity to object to being subject to new, untested, teaching methods which conceivably could ultimately result in their receiving an inferior education, wasting time and money. At the same time, educators who discover their failures may become despondent and unwilling to try new approaches in the future. A worse situation, of course, would be if they failed to acknowledge the short-falls and continued to teach the new, but actually inferior curriculum.

Action research is a practical approach to professional enquiry in any social situation. In education, the "actors" are the teachers or lecturers who are engaged with students on a daily basis. It encourages educators to become knowledge-makers rather than mere knowledge users, and should be a dynamic process where the situation changes resulting from deliberate actions.<sup>31</sup> As Lawrence Stenhouse stated, "Curriculum research and development ought to belong to the teacher."<sup>32</sup>

Coghlan and Holian<sup>33</sup> stressed that "researchers doing research in their own organisation undertake an explicit research role in addition to the normal functional role that they hold in the organisation". The motivation for the project should be clearly stated and understood, the need for dispassionate objectivity is paramount, the manner in which the results are utilised and disseminated are all critical to

an appreciation of the dual roles being played. Any ambiguities that may involve role confusion, role conflict and role overload have to be managed by balancing the requirements of future career plans with those for the success and quality of the action research. Individuals who try to make radical changes may be looked upon as "saboteurs" of the organisation.<sup>33</sup> However, Shi (2006) believes that this can be managed if the ethical behaviour is shaped by the research institutions themselves and suggests that ethics review procedures be instituted or enforced in Dental Schools to help support educational research.<sup>34</sup> Researchers would then need to illustrate to the committee how the research being conducted would benefit both the current students and future learners. They should also highlight to the students the beneficial learning opportunities that will be on offer when taking part in such research. Students could even participate as co-researchers and help identify research issues of mutual interest to investigate, thus improving their own learning. The seminal paper by Emanuel *et al.* on the benchmarks of ethical research may be invoked to emphasise how students may commit to participation with greater confidence in the knowledge that a collaborative partnership has mutual benefit, that the educational research has direct social value, that their enrolment will lead to enhancement of scientific validity of the study and that they can rely on the process of informed consent.<sup>35</sup> Shi (2006) suggests this form of research should have more freedom than traditional research, and that investigators should monitor their own activities and have the freedom to revise them during the project if situations or the needs of students changed.<sup>34</sup> Researchers should focus more on demonstrating the benefits of building research into practice, collaborating with participants, and dealing with emerging research questions, than on their own concerns for publication.<sup>34</sup> However, this stance may be opposed by educationalists, as it is an ethical obligation for researchers to impart their knowledge in the form of lectures, communications or publications, which of course helps to justify the time, money and inconvenience spent conducting the research.

The critical factor remains the voluntary participation of students, which can be enhanced by ensuring that there are impeccable processes of information and consent. The perceived vulnerability of students will thereby be minimised and the validity of the research entrenched.

## CONCLUSION

There is no doubt that educational research is needed in Dentistry in South Africa, given the ever-changing student profiles, varying education levels and backgrounds, patient demands, technological advances and Government mandates for learner-centred education. The focus towards learning rather than teaching aims, laudably, to give students more independence, decrease their reliance on lecturers, encourage them to work in groups, stimulate lateral thinking, prompt self-directed learning, and establish a mentality of "life-long learning". Educational research is a relatively new field in South Africa, and researchers need to document and publish both their positive and negative results. The advent of the IRB path places important protocol and procedural obligations of consent, autonomy, confidentiality and IRB monitoring on researchers and their institutions.<sup>36</sup>

If the review deems the project to offer students a no-pressure choice as to whether to participate or not, the project may be exempted. Adequate educational opportunities should be offered to all students, and ideally there should be no rewards (in grades, money or other favours) for participation. Consent must be given by the students at the outset of each individual study.

In conclusion, dental educators must constantly remember that they are involved in both research and education, and should be committed to the progress and welfare of their students by ensuring that their research is both scientifically sound, and that it makes a positive contribution to education. At the same time, researchers have a responsibility to conduct educational research ethically and to minimise reliance on techniques that may have negative social consequences for participants or could deprive them of important core knowledge. Students will participate in these research projects without the disquieting apprehension of vulnerability.

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