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Student's plagiarism — a challenge for paramedic educators

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Abstract

Student's plagiarism is a growing problem not only in the writing of controlling essays, but above all in the writing in BSc./MSc. diploma theses, which sometimes can be simply bought from ghost-writers. This is a major challenge for medical educators, particularly in paramedic professions. The aim of this paper is to overview the frequency of plagiarism among students, the factors influencing plagiarism, the ways of detecting it and potential countermeasures.

Key words: medical students, plagiarism, scientific misconduct

Introduction

Radiographer education is shifting towards medical universities [1]. In many countries radiographers are trained at BSc. level, MSc. level or both. During the time of their studies students have to complete many controlling essays, but above all to produce BSc./MSc. diploma theses, which is a good thing, but, especially in the era of Internet, may tempt students to fall into plagiarism, which is a growing problem. Apparently, in many cases and forms, the Internet has created a new generation of students, who view online information as public knowledge and re-use it [2]. When searching the Internet it is not a problem to find the advertisements of virtually hundreds of ghost-writers, eager and willing to write a diploma thesis for a relatively moderate price.

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Student's plagiarism is dangerous for many reasons. Probably it is unavoidable in the era of mass university scholarisation, but it significantly lowers the quality of the graduate, leading to the devaluation of the titles of BSc. and MSc. Secondly, if a biomedical trainee performs research misconduct, this is twice as likely to do it as a postgraduate [3]. In the well-known case of Dr. Darsee, who fabricated his results at Harvard University, it was discovered that he did the same as a medical student [4]. The aim of this essay is to show the extent of the problem and appropriate countermeasures.

Definition

Plagiarism is defined as the appropriation of another person's ideas, processes, results or words without giving appropriate credits and usually claiming them to be one's own [5, 6]. The other definition is "…the intentional or unintentional use of another's work or ideas, published or unpublished, without clearly acknowledging the source of that work or idea" [7].

Forms of plagiarism

To make the definition more complicated, R. Markiewicz, an eminent specialist on authorship law in Poland, underlines that the definition of plagiarism has at least three meanings:
— firstly, plagiarism may be a simple appropriation of the whole content or a fragment of another author's paper, i.e. "individual creativity"; therefore a violation of the authorship is the appropriation of even few sentences and dissemination under a new author's name, also as part of a larger paper or book; the plagiarism is also in transforming the other author's creation in the sense of adopting the original narration, choosing the illustrated cases or examples, alternation of arguments, etc.;
— secondly, plagiarism is an appropriation of the other author's invention project; here commercial/industry law foresees also criminal law punishment;
— thirdly, plagiarism is an appropriation of the other's scientific discoveries, i.e. everything which has a meaning for scientific research and is not protected by authorship or industrial law [8].

Plagiarism may be overt or hidden. Overt plagiarism is taking the other's text as a whole or with minimal modifications, whereas hidden plagiarism is more refined, as the plagiarist appropriating the other author's text modifies it, more or less, in order to mask the plagiarism.

There are documented cases of plagiarism at least 200 years old [9], but probably it may be older than that — as old as science.

The temptations for students and a challenges for teachers are probably never-ending, but today plagiarism is easier than ever before, because of the use of computers and the development of Internet. It allows plagiarists to simply "click, copy and paste" the information from an electronic source [5].

The extent of plagiarism among medical students

The extent of plagiarism probably varies with particular branches of science, and data on plagiarism among medical students is conflicting. It is probably high, although in the authors' specific terrain — education of radiographers and other paramedic professions in our school — not as high as reported elsewhere.

General prevalence

Kraus states that in an Academic Integrity Survey, 72% of students admitted to having plagiarized written work by copying from a friend or public source [10]. A national survey of 4,500 high school students conducted by McCabe for Rutgers' Management Education Centre found that more than half of the students plagiarized material from the Internet [12]. In a huge survey of 3,500 students of universities in the USA and Canada 23–25% acknowledged at least one "copy and paste" episode [13].

Medical students

Some authors believe that in the medical sciences the rate of plagiarism is higher than in humanistic studies [5, 13]. A survey carried out in 1980 among 428 American students, found that 58% reported cheating during medical studies [14]. In a survey of Kalichman and Friedman carried out in the University of California, San Diego, 129 students (23%) responded that they had received no training in research ethics; 195 out of 549 biomedical trainees (36%) admitted that they had observed some kind of scientific misconduct (although not necessarily in the sense of research fraud defined in federal regulations); and 81 (15%), that they would be willing to select, omit, or fabricate data to win a grant or publish a paper [3]. According to Rennie 56% of medical students from Dundee University Medical School, Scotland reported having done or considered copying text directly including the source, and 14% would do it without acknowledging the source [15]. Hrabak et al (Zagreb University School of Medicine, Croatia) found 94% of students admitting some kind of academic misconduct during the time of their studies [16]. More optimistic results come from Baldwin et al, who questioned 3,975 students attending 31 schools, of whom, when reporting about themselves, 31.4% admitted cheating in junior high school, 40.5% in high school, 16.5% in college and only 4.7% in medical school [17]. This report's basic disadvantage is that it included students of year two, probably less apt to cheat [18].

Contrary to the belief of more popular plagiarism in the medical student population is the opinion of Hendershott et al. who conducted a survey with students from five academic units in a mid-sized comprehensive university and suggested that "…while only 18% of the nursing students, 28% of the Education students and 36% of the Arts and Sciences students believe that plagiarism occurs often or very often at the university, 46% of the Law students and 40% of the Business students believed that plagiarism occurs often or very often" [19].

Bilic et al. performed an interesting test on a group of 198 medical students writing a medical informatics essay. Only 9% of students did not plagiarize at all; in the remaining, the average percentage of plagiarized text in this essay was 19% [5].

Radiology

Research misconduct in radiological sciences is fairly rare. Gilbert and Denison found redundant or duplicate publication reported infrequently in the five most popular English radiological journals — just a few cases [6]. We are not aware of publication on plagiarising among radiography students.

Factors influencing plagiarism

There are several factors that may influence student's plagiarism: the availability of plagiarised text: electronic or written, the complexity and length of the text, previous warnings and even gender. The data are scarce. Bilic et al found no relations between the rate of plagiarism and all the above factors [6]. In her study she found only one significant parameter, which was the exam grade. Better students plagiarize less. Pure and simple. Exposure to ethics training was shown not to make a difference in past or potential unethical behaviour [3]. There was also no effect of gender. Baldwin et. al claim that females cheat less in general school, but this difference disappears in medical school [17]. The length of study seems to have some influence. Younger students are less apt to cheat, whereas the students of older years cheat more, including forgery of doctors' signatures on their work [18].

Detecting plagiarism

An early approach to identify plagiarism was the Cloze test, developed by Taylor in 1953 as a tool for measuring reading comprehension [20]. In this test every fifth word is deleted and the student is asked to fill the deleted words anew. Originally developed to assess comprehension, the Cloze test was used for detecting plagiarism in the eighties [21]. An assumption is that everyone has a very personal style of writing, therefore the student who did plagiarize will make a significantly higher number of mistakes in filling deleted words in comparison to the one who did not plagiarize. In a computerized form it is also in use today, although it may fail in some circumstances [22].

Today correlation techniques are more popular, i.e. electronically comparing a given text with www.web resources and other databases. A substantial number of identical strings of text of 6 consecutive words in length or longer is considered significant. This rule is currently criticized, due to the fact that in any highly hierarchical and organised language, such as English, 6 consecutive word sets are frequently met. Therefore plagiarism should be defined more but the data show and less by the words user [23].

Some anti-plagiarism services are available on the Internet and some are free of charge.

An example is Turnitin® (www.turnitin.com) and EVE® (Essay Verification Engine; http://www.canexus.com/eve/). They detect similarities between the given text and documents collected on the Internet or from different databases. These services can be used only for English texts.

Another computer program based on correlation techniques is WCopyfind® (http://plagiarism.phys.virginia.edu/home.html). It is free of charge. This program examines a collection of document files. It extracts the text portions of those documents and looks through them for matching words in phrases of a specified minimum length. When it finds two files that share enough words in those phrases, WCopyfind generates .html report files. These reports contain the document text with the matching phrases underlined. It handles non-English characters, so that it can compare papers written in most Western languages.

In Poland in 2003 two Warsaw University computer science graduates, Tomasz Skalczyński and Kamil Nagrodzki, introduced a computer programme called Plagiat.pl. (www.plagiat.pl). It compares the texts of BSc. and MSc. theses with the content of www public domains as well as with the texts of diploma theses published in previous years. On average it detected plagiarism of varying degrees in every 6th (!) diploma thesis, mostly in humanities and economics. In the authors' own University this rate was much smaller, less than 1%, which might be an underestimation, probably due to a smaller amount of medical texts in the public domain and relatively short period of applying Plagiat.pl programme in medical universities, not including the diploma theses published earlier than 2003. Another disadvantage of Plagiat.pl is the fact that only the minority of Polish universities apply it, as the service is charged and rather costly. Plagiat.pl essentially checks all texts based on Latin alphabet languages, but the best results are achieved in ones written in Polish.

Disadvantages of anti-plagiarism computer programs based on correlation techniques

Firstly, they are somewhat blind and "hypersensitive", i.e. require the second check by the student's supervisor. There are many phrases routinely used in scientific writing, such as "it should be remembered that" or "many of them were considered more complex", which will be detected by such programs. In the authors' own experience, a BSc. thesis on medical law, checked by Plagiat.pl with lots of law citation acts copied from the Parliament web page was particularly memorable. The plagiarism rate detected by the programme was 28%, despite the fact that the student was of course innocent in this given case, merely citing the original law act paragraphs. Therefore each suspicion of plagiarism found by this programme should be double-checked by the student's supervisor.

Therefore, for example in Poland when utilising the Plagiat.pl program, a manuscript with a 5% Similarity Coefficient, when written in Polish is considered as "clean", and 10% when written in English.

Remedies

These may include education, prophylaxis, improved detection of plagiarism and increased penalisation. Some authors postulate moral reasoning as a criterion for student and resident selection [24], but it seems to be difficult to apply in practice. Data on the usefulness of the two first remedies and the last one are pessimistic. As mentioned above, ethics training was shown not to prevent potential unethical behaviour [3]. Strict student warnings not to plagiarize were shown to have the strange effect of extending the paper's volume (average total word count), but did not affect the plagiarism rate [5]. The others indicate that students become more demoralised during their studies [18]. Therefore the improved detection methods described above might play a crucial role in combating student's plagiarism, along with a moderately harder penal policy, for the reason that inevitability of fraud detection is in its prophylaxis better than the severity of penalty, although, of course, both factors work together. High quality reviewing is one of the most important factors to stop plagiarism as well [25], here an important role is played by the promoters of diploma theses.

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