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# Academic Cyberplagiarism

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## Dossier “Academic Cyberplagiarism”

# Academic Cyberplagiarism: Tracing the causes to reach solutions\*

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Two figures on the prevalence of academic plagiarism among Spanish university students suffice to give an idea of the scale of the practice: 61.1% of Spanish university students acknowledge having copied excerpts from websites on at least one occasion and included them in the work they hand in as their own; and 3.3% state that they have bought work and handed it in as if they themselves were the authors (Sureda *et al.*, 2008).<sup>1</sup> Accusing fingers were immediately pointed at the internet – wrongly in our view. It is certainly the case that the net has led to an increase

in cases of academic plagiarism among university students: the internet and ICTs “facilitate” the perpetration of that practice, which runs counter to academic integrity. However, the roots of the ill spread far and run deep.

Blaming ICTs for the rise in cases of plagiarism in academic settings is like blaming bank robberies on the presence of cash in those buildings. There would indeed be no robberies if there were no money in the banks, but there would be more if bank staff left their safes open. Obviously, bank staff do not leave piles

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- 1. The data emerged in 2007 from a sample of 560 students from around Spain. A more thoroughgoing study carried out on a representative sample of students at the University of the Balearic Islands (727 respondents) revealed still higher percentages: 76.6% acknowledged having copied content from websites and presented it as their own and 4.7% said they had bought work. These figures square with the results found in recent years in research carried out in other countries using the same research method (Underwood *et al.*, 2003; Chapman *et al.*, 2004; Bilić-Zulle *et al.*, 2005; Teixera *et al.*, 2006; McCabe *et al.*, 2006; Rey-Abella *et al.*, 2006; Agnes 2008).



of cash sitting beside the main door of their banks. In the field of education, however, incitements to fraud are constant, running from unreasonable academic tasks being set by teaching staff to the existence of portals offering *à-la-carte* academic papers (Sureda *et al.*, 2007b). To return to the example cited above, it is also important to be aware that guarding against bank robberies is not the sole responsibility of the security staff or the judges and statutes. The vast majority of people would never rob a bank, even if given the chance. As we see it, much the same is the case with academic plagiarism: the problem does not concern teaching staff alone, nor does it concern all students. Be that as it may, it is nonetheless an ill that can only be cured if it is properly diagnosed and not hastily attributed to some likely-looking suspect.

Plagiarism in academic settings was not engendered by the internet, though the internet has most probably made it easier (to commit, but also to detect). Plagiarism is a complex cultural phenomenon. Our current attitude to creation, authorship and intellectual property, copyright, authors' rights in general and indeed plagiarism itself goes back a little over three centuries, and is closely bound up with the way we perceive other notions such as individualism, autonomy, originality and private property (Swearingen, 1999). The notion of authorship and intellectual property in connection with written texts emerges very clearly in Europe at the time in history when the Protestant Reformation and the coming of the printing press converged (Mallon, 2001). The promotion of individualism and originality fostered by the Enlightenment and Romanticism are also key factors in understanding how authorship evolved in operational terms. Enlightened Humanism elevated the ideas of Locke to lofty heights – the idea that knowledge is the fruit of the mind and human capacity viewed as individual exercises. That was the origin of the notion of the private ownership of ideas and knowledge, and also of the concepts of authorship and copyright in a sense close to their modern one (Foucault, 1968). However, we must stress that the issues of creation, originality and authorship were not always viewed in the same way; they are social constructs that have changed slowly over time, and will no doubt continue to change.

Howard (1999) discerns four basic pillars supporting the modern notion of "authorship": autonomy, originality, ownership and morality. The starting point on the path marked out for us by Dr Howard is that authors must be autonomous in relation to their creations, and then that their creations must be original. As a second step, the authors' autonomy and originality demand proprietary rights of ownership over their creations to ensure that they are safeguarded. Lastly, authors who do not follow the principles of autonomy and originality in their creations show, in Howard's words, "a lack of morality" (Howard, 1999), and deserve to be punished accordingly. From our present-day standpoint, the four properties of authorship singled out by Howard may seem perfectly natural and even scarcely open to question.

However, it must not be forgotten that the four characteristics of authorship, like plagiarism itself, are still cultural constructs and ideological expressions of a specific model of society at a specific time in history. In any creative expression at any time in the history of humanity, there are two contrasting pairs of terms and conceptions: imitation vs. originality, and collaboration vs. autonomy. Those twin aspects appear in one form or another throughout the centuries, and whether one or the other is stressed depends essentially on the social, economic and political factors at work at any particular time. Hence, as noted above, plagiarism is not a phenomena spawned by the internet, and how it is viewed has not remained constant over time. Furthermore, we make bold to venture that its defining coordinates will change again in the future.

The internet environment and the potential associated with ICTs are shaping the writing and the notion of authorship in the future. The content posted on the net (and more especially its transmission and exchange), along with the new forms of communication made possible by the internet, amount to another step – maybe a decisive one – in reformulating authorship, originality and creation. A new specific status in the transmission of knowledge can be seen to be emerging in the new colloquial writing styles (eg, in "chats" or synchronous communication systems) and new forms of contact, exchange and presentation, and in terms of immediacy, the democratization of authorship, the "horizontalization" of production, interactivity, the various forms of identity associated with the use of the internet, the vast amount of information compiled there, the ease of exchange and cooperation, and so on; and this new emerging status will upset many things in the years to come, if it has not done so already.

When delving into the analysis of academic plagiarism, the coexistence of two clearly distinct positions can be seen: the first one, already mentioned at the beginning of this paper, "blames" the internet and ICTs in general for plagiarism, and suggests establishing detection, control and regulation measures. The second stance involves recognizing that present-day students are facing an array of complex social, economic and technological challenges, and that new tools are needed if they are to be tackled appropriately. In that context, academic plagiarism emerges as just another strand in the generational spectrum, and various factors are picked out to explain its causes.

The factors that can help to throw light on the background to the phenomenon of plagiarism in students are many. To simplify our position, we can distinguish factors closely associated with the education system (which we could call intrasystem factors) from ones that are external to it (extrasystem factors). Even so, they all interact to form a complex mesh, a complex system, that should be carefully appraised.

The following are to be singled out from among the intrasystem factors:



- The impoverishment of the teacher-student relationship, owing principally to massification in universities. It has been shown in various studies that a closer interpersonal relationship between the teacher and the student brings a decrease in academic plagiarism (Underwood *et al.*, 2003; McCabe *et al.*, 2006).
- The lack or inadequacy of documentary strategies (both in finding and in managing and citing resources) in university students. In many campuses, "information literacy" is still a pipe dream (Comas *et al.*, 2004; Jansen *et al.*, 2005; Comas *et al.*, 2006).
- Asking students to produce kinds of work that "incite" plagiarism in them. Examples might include: setting work in the same ways year after year; not following up the tasks being undertaken, contact being made only when the student hands in the work; setting work assignments without explaining the significance of the task; not demarcating the subject or subjects on which work is expected to be done; not giving clear guidelines as to the sections the finished work is to include.
- Excessive workloads. The transformation of assessment processes over the last twenty years in universities, with fewer examinations to be done from memory and more assessment based on course work, has led to an increase in the number of pieces of work required, and thus in the temptation to resort to plagiarism.
- Poor management by the students of the time and resources available.
- Superficial and insufficiently explained assessments of student projects.
- The lack of clear rules on this issue (particularly in Spain).
- The education system, which stresses results over the process involved. By making the mere capacity to perform a task the prime objective in education, there is little time or recognition for metacognition, creating and thinking. It is surprising, in this information and communication society of ours, that the students are less creative, innovative and dynamic in the sphere of the education system than they are in other contexts – even when using the same tools or resources (Conley, 2003; Rollnick *et al.*, 2008; Kempkes *et al.*, 2008).
- The change of mentality regarding the role of students at universities:<sup>2</sup> students as client-consumers, and *fast-food* learning (Marcus, 1999; Harburg, 2006).
- Competitiveness among students, leading them to seek the "best" way of getting the "best" results.
- Economy of effort on the part of the students.

2. This factor is at present much more evident in English-speaking contexts than in ours.

3. Again, more particularly in English-speaking contexts.

- The convenience, ease and anonymity afforded by ICTs in plagiarizing.
- The lack of collaboration and coordination among teaching teams.
- A lack of understanding among students (and among teachers in some cases) of what academic plagiarism is. A great deal of plagiarism is unintentional, prompted by ignorance of academic norms and standards in producing pieces of work.

As for the factors external to the education system, the following may be highlighted:

- The idea, widely embraced among young people, that everything on the internet belongs to everyone, and can be borrowed, used, appropriated and disseminated at will.
- Social models and schemes based on the culture of reproduction rather than on the reproduction and production of culture.
- Factors relating to the videoclip generation (Funes, 2005; Garcés Montoya, 2006): seeing and doing many things in a short time, thereby extending the scope of the action though detracting from its depth.
- Examples encountered almost daily of fraud and a lack of ethics in many areas of our life: political corruption, academic fraud, speculative moves in finance, the justification of wars by false evidence, doctored accounts in big companies, the mass production of articles imitating well-known brands, etc.

In facing the growing issue of academic plagiarism, universities<sup>3</sup> have reacted in the form of measures that can be illustrated by referring to three professional roles: the judge, the policeman and the educator. After issuing norms of conduct on the issue of plagiarism, academic institutions take on the role of judge when they penalize offending students. The penalties concerned range from failing the students in the subject concerned to cancelling and withdrawing a previously-awarded qualification when infringements are discovered and proved after the students have completed their studies.

Institutions taking a policing role can be seen particularly when they adopt and use software for detecting plagiarism, such programs being increasingly popular in higher education. It is probably an effective method for dissuasion and for achieving immediate goals. However, if we believe that technology is just another factor in the ill rather than its cause, we cannot cling solely to technology as our saviour. Moreover, we find, paradoxically,



that some of those anti-plagiarism programs run counter to the protection of authors' rights, since they use databases fed by academic work handed in by students who have not given their consent to their work being used by the software company behind the program. And then 100% effectiveness cannot be claimed for those computer tools, since ways have been found to dodge their scrutiny (McKeever, 2006; Chaudhuri, 2008). Some (Sureda *et al.*, 2007b; Comas *et al.*, 2008) also think that the use of these systems has prompted a rise in the marketing of original academic papers and the appearance of an industry devoted to that field. The fraud occasioned by these academic-paper "factories" generates a new factor for inequality among students: only those with purchasing power can dodge the institution's control systems, while those who cannot must either take their chances or resign themselves to doing the work that others have procured with very little effort.

Thus we come to the third of the roles taken on by the institutions: the role of educator. Education professionals have been devoting great efforts recently to chasing up and detecting fraud, but little effort to remedying the situations that foster it. Detection work – the policeman's role – is necessary, and may well be effective in the short term. Over the long term, however, little will be achieved unless what students are asked to do puts the emphasis on original, personal work, on work involving methods for tracing and solving problems, and on critical analysis. Furthermore, the capacities and skills of students must be enhanced.

Plagiarism in the academic world may be like herpes, the skin disease that is known to be containable but not curable as a disease. To understand the spread of this disease of plagiarism, certain characteristics of the "biotope" in which it develops should be borne in mind. We must remember that we are teaching a cohort of students who in many cases are members of the first generation in their families to be given the chance of university education; a generation that has felt the impact of part-time work and videoclip culture; and a generation that has grown up using technologies requiring a reformulation of the principles of authorship and intellectual property, they being its chief standard-bearers. The proliferation and popularity of internet and ICTs in education has led to literacy not being a sedentary, closed affair or a skill to be acquired, but rather an itinerant development process. The process by which information becomes knowledge lies in the capacity to decode a text and interpret it in the first person. Classic forms of literacy, based on coding and decoding, must be combined and translated into an environment featuring the media and mixed information. Mechanisms need to be put in place to guard against and to clear up the confusion encountered regarding looking for, locating and using information; for therein lies one of the main reasons behind the emergence of plagiarism as a burning issue in the current educational scenario.

Plagiarism is a symptom of a crisis in positioning, the tip of the iceberg of the necessary reshaping of the roles of the teaching staff, the students, the library staff and the administrative staff

in our universities. Similarly, the various arguments and stances associated with academic plagiarism also point to the relationship between knowledge and society. In short, in-depth discussions and reflection are needed for remedying a situation we perceive as dangerous.

The collection of articles we have drawn up for this paper – articles we hope will be of assistance in the debate that is needed – tackle academic plagiarism from various standpoints. On the one hand, Santiago Cavanillas (lecturer in Law at the University of the Balearic Islands, Spain) introduces the regulatory side in connection with academic plagiarism. Lecturers Lidija Billić-Zulle and Mladen Petrovečki (School of Medicine, University of Rijeka, Croatia) draw up a present-day overview of the issue on the basis of the research done on academic plagiarism in Europe in recent years. Karl Jones (Liverpool John Moores University, UK) presents and describes the main plagiarism-detection tools implemented in universities. Lastly, the authors of this introduction and Mercè Morey present a compendium of websites, portals and bibliographic references that may awaken readers' interest in this subject.

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## Dossier “Academic Cyberplagiarism”

# Cyberplagiarism in University Regulations

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### Abstract

The article examines the legal framework for plagiarism, and its twofold nature of illicit appropriation (from the author of the plagiarized work) and fraud (with regard to the target audience of the plagiarism). Based on these premises, academic cyberplagiarism is analysed as a form of plagiarism carried out using electronic tools in the university setting. The question of responsibility (who can regulate the legal consequences of plagiarism?) before and after the Ley orgánica de universidades (organic law on universities, LOU) is studied, as is the disciplinary handling of cyberplagiarism with the limited regulations currently in place at universities.

### Keywords

plagiarism, cyberplagiarism, disciplinary system, academic regulations

### Resum

L'article examina, en primer lloc, el règim jurídic del plagi en general, en el doble vessant d'apropiació il·lícita (contra l'autor de l'obra plagiada) i de frau (respecte dels destinataris de l'obra feta amb plagi). Amb aquestes premisses s'analitza el ciberplagi acadèmic com una forma de plagi portada a terme amb eines electròniques en l'àmbit universitari. S'estudia la situació competencial (qui pot regular les conseqüències legals del plagi?) abans i després de la Llei orgànica d'universitats, i també el tractament disciplinari del ciberplagi amb la normativa limitada de què disposen actualment les universitats.

### Paraules clau

plagi, ciberplagi, règim disciplinari, reglament acadèmic



## 1. Legal framework for plagiarism: an intertwining of regulations

### 1.1. Plagiarism as illicit appropriation and fraud

#### A. Plagiarism: a double-edged sword

Let us assume that plagiarism means "stealing from the author and deceiving the target audience of the plagiarism". An act of plagiarism affects two groups of interests: a) the interests of the author (and, where applicable, the owner of the exploitation rights of the work; for example, the publisher) and, b) the interests of the target audience of the work, who is deceived into thinking that the work belongs to the plagiarizer.

In this article, only the second aspect of plagiarism will be studied: as fraud for the target audience of the work.

#### B. Prejudicing the target audience of the work

Plagiarism, as we have said, is not only detrimental to the author of the plagiarized work, but is also a fraud that is detrimental to the target audience. Regardless of the fact that this fraud is at the expense of the author, the truth of the matter is that the harm to them is instrumental, a necessary evil to achieve the main objective, which is to deceive the target audience of the plagiarism.

In terms of private law relationships, both the publisher or the person who has requested the work, and the person who finally acquires it could end up affected, as all of them are deceived with regard to the authenticity of the work.

In terms of public law, the deceit could lead to the plagiarizer appearing to have greater merits than those that they actually have, by claiming the authorship of another person's work or part thereof. This way they could, for example, fulfil the requirements for obtaining a degree or certificate, pass an exam or gain a civil service position, etc.

In some cases (particularly civil service examinations), the interests of the public and those of the other candidates that are excluded due to the false merits shown by the plagiarizer could be affected.

### 1.2. Regulations applicable to plagiarism as fraud

The regulations applicable to the other aspect of the plagiarism – plagiarism as fraud – vary according to whether it is considered from a civil, administrative or criminal viewpoint.

From a civil or private law position, plagiarism, firstly, could lead to actions that protect against non-compliance from the defrauded consumers who acquired a work by someone other than its real author. Secondly, the publisher or producer of the plagiarized work would be able to bring actions derived from the breach of contract (termination of the contract and/or compensation for damages and losses) against the alleged author<sup>1</sup>.

From an administrative perspective, the verification of the plagiarism could result in the annulment of any action based on the mistaken attribution of authorship of a work, in accordance with article 62 of Act 30/1992, for the legal system governing Public Administrations and the common administrative procedure, either in terms of section *E*, which refers to the acts "undertaken totally and absolutely disregarding the legally established procedure or the regulations included in the main rules to ensure goodwill among constituent bodies", or section *F*, regarding "express or alleged acts against the legal system by which they acquire faculties or rights when they lack the essential requirements for their acquisition".

On frequent occasions the possibility of annulling university or public examinations or appointments as doctor has been considered, due to the declaration that all or some of the merits of the person were the result of plagiarism.

The legal response<sup>2</sup> can be summarized along the following lines:

- Initially, the annulment is accepted as possible, conditional of the accreditation that we are faced with a real case of plagiarism. A mere "functional" or partial imitation is not usually considered sufficient.
- The assessment of the plagiarism must be reconciled with the discretion of the public examination or doctorate boards. The "technical discretion" factor is of particular importance when it is not a "slavish copy" or when the plagiarized work is not the only object assessed.
- Legitimization to dispute the corresponding appointments has been widely recognized. For example, the possibility for a professor from the same area of knowledge and a different university to dispute the appointment of a doctor has been recognized.

Lastly, from the criminal viewpoint, in extreme cases the possibility of a crime of fraud concurring with that of plagiarism could arise. However, I am not aware that such a case has been brought to court, and it is more than likely that the affected third parties – rather than the actual plagiarized author – are content with filing a civil or administrative claim.

1. As in SAP Madrid, February 25 2005 (AC 2005\340).

2. STSJ Galicia, April 17 2002 (JUR 2002\184238); STSJ Galicia, October 17 2001 (JUR 2002\16098); STSJ Valencia, November 13 2000 (JUR 2001\92534); STSJ Valencia, March 15 2006 (JUR 2006\243488); and STSJ Castile-León, April 30 2007 (JUR 2007\131995).



## 2. Legal framework for cyberplagiarism in universities

### 2.1. Introduction

Having examined the general legal framework for plagiarism, we will now look at the peculiarities presented when it takes on the form of "academic cyberplagiarism".

We can already reveal that these characteristics will come from two points common to this sort of plagiarism: that it occurs in the academic university environment and is carried out using electronic means.

Again, in terms of the twofold aspect of plagiarism, as illicit appropriation (at the expense of the author) and fraud, here we will only deal with the second, cyberplagiarism as fraud.

### 2.2. Applicable regulations

#### A. Introduction

As previously explained, plagiarism does not only mean a violation of the author's rights, but it is also deception of the target audience of the plagiarism, which could warrant its own legal consequences.

It is this aspect of plagiarism that is most visible in academic plagiarism. The student intends to be assessed for the plagiarized work as if it was their own creation. We therefore find ourselves in the field of assessment fraud, which forces an examination of the particular disciplinary system for university students, as the acts of fraud in assessments tend to entail an administrative sanction.

On examining said sanctioning system and its possible application to academic plagiarism we should differentiate, for reasons that will be explained later, two different periods: before and after the Organic Law 6/2001, of December 21, for Universities (hereafter, the LOU).

#### B. Before the LOU

Prior to the LOU, the university student offences and sanctions system was governed by a decree of September 8 1954, the Regulation for Academic Discipline in Official Centres of Higher Education and Technical Education that are the Responsibility of the Spanish Ministry of Education (hereafter, the Regulation for Academic Discipline, 1954).

It is important to stress that the Organic Law 11/1983, of August 25, for University Reform (hereafter, LRU) had "frozen" *de facto* any possibility of substituting the Regulation for Academic Discipline, 1954, either by the universities or by the Autonomous Communities. Article 27.3 of the LRU stated that "the universities, at the request of the University Council, will establish rules that regulate the responsibilities of students with regard to compliance of their academic obligations". Given that said proposal by the University Council never took place in the eighteen years that the LRU was in force, the universities – and probably the Autonomous Communities – lacked the legal support to regulate their academic disciplinary system. This is why the regulation drawn up by Franco's government has been applied until current times.

Case-law<sup>3</sup> has had the opportunity to pronounce on the validity of this regulation, in terms which can be summarized as follows:

- In spite of the fact that a fair part of its precepts should be understood as subsequently revoked by the Spanish Constitution,<sup>4</sup> those that cannot be considered unconstitutional remain in force. In particular, courts have considered the serious offence called "lack of integrity" to be valid and have applied it in cases of fraud in assessments.
- Although the sanctions are constitutionally subject to the need for an Act of parliament and the Regulation for Academic Discipline, 1954, is merely approved by decree, said constitutional requirement is not applied retroactively. Therefore, the regulation is not affected by said need for an Act.
- Although the Regulation for Academic Discipline, 1954, has an obvious lack of specification – see, for example, the aforementioned "lack of integrity" –, the courts have considered it sufficient.

The majority of sentences analyse sanctions lodged for fraud in examinations, either for impersonation, for substituting the exam for one done previously, for conveying answers from outside or, lastly, for entering offices to obtain the text of the exams or to modify the results. The sanctions applied vary between the disqualification from studying at university for life and the temporary suspension for studying at a specific university or in a specific centre for a certain number of years.

It is worth observing that, given that the Regulation for Academic Discipline, 1954, does not establish special periods of limitations, those in article 132 of Act 30/1992, regarding

3. Only the most recent cases are mentioned: STS Galicia, March 31 2004 (JUR 2004\260143); STS, March 7 2002 (RJ 2002\5077); STS, December 15 2000 (RJ 2000\9853); STS, June 7 1999 (RJ 1999\5018); STS Navarre, December 21 1996 (RJCA 1996\2596).

4. This occurs, with complete certainty, with the serious offences consisting of "demonstrations against the Catholic religion and morals or against the principles or institutions of the State..." (article 5.a. 1.), or the less serious such as "indecorous words or events or any act that notably disturbs the order that should exist in educational establishments, inside or outside the classrooms" (article 5.b. 1.).



the legal system for Public Administrations and of the common administrative procedure are applied. A serious offence such as the "lack of integrity", applied to fraud in examinations, expires after a period of two years.

In the application of the sanction, the constitutional presumption of innocence until proven guilty is applied in a watered-down version, typical of administrative sanctions.

With regard to the sanctioning procedure, all the constitutional guarantees should be fulfilled, which is achieved by combining the procedural rules of the Regulation for Academic Discipline, 1954, and the aforementioned Act 30/1992.

#### CC. After the LOU

The LOU has done away with any express allusion to the disciplinary system for university students. Thus, the path is clear for the Regulation for Academic Discipline, 1954, to be substituted for another which is more appropriate to our times.

However, difficulties still exist. The main one consists in the need for an Act of parliament to establish a law setting the main lines of any sanctioning system, although the actual law could delegate to the Administration, so that it regulate the detail afterwards.

As if things were not sufficiently complicated, a progressively more diverse line of case-law with little doctrinal support has made the administrative relationships of special subjection exempt from the principle of legality – the very relationship that exists between students and universities.

An impeccable application of the principle of legality would, in my opinion, prevent universities from being able to regulate, even in their statutes, offences committed by students and their corresponding sanctions.

Responsibility would probably therefore reside in the parliaments of the Autonomous Communities, which I understand would be responsible for establishing this sanctioning system for students, without prejudice to their being able to refer the regulation of the disciplinary system to the universities themselves.

However, only the regulatory law of the Basque Country's university system makes a mention of the student disciplinary system: "The disciplinary regulations that the universities draw up and approve will sufficiently guarantee the specification of offences and sanctions, the proportionality between them and the right to a hearing of any expelled student so that declarations may be formulated and proof put forward, prior to the resolution applicable, with regard to the conduct with which they are charged" (article 42.2 of Act 3/2004, of February 25, for the Basque University System). It is unlikely that such an imprecise delegation would satisfy the aforementioned need for an Act of parliament.

Despite the complete absence of an authorizing law that covers the aforementioned need for an Act of parliament and with the possible case-law protection of the relationships of special subjection, some university statutes have regulated the student disciplinary system or, rather, have in turn delegated the university government bodies to regulate it. This is the case, for example, of the university statutes of Málaga (article 183 d.), Alcalá (article 146.3) or the Complutense (article 152). I am not aware, however, that these universities have used this self-attributable regulatory faculty.

In some academic regulations (for example, University of the Balearic Islands, Jaume I University) a rule is included according to which "regardless of the disciplinary procedure against the offending student which could follow, the demonstrably fraudulent realization of any of the exercises required in the assessment of any subject will be given the grade of 0 in the corresponding exam".<sup>5</sup> The regulations of the assessment system of the University of Cantabria is still more precise, by alluding almost explicitly to plagiarism: "Any student who has or uses illicit means during an exam, or who illegally attributes to himself or herself the authorship of academic works required for the assessment, will be given a qualification of 'failed' or '0', according to whether they be literal or numerical qualifications, respectively".<sup>6</sup>

## 2.3. Disciplinary handling of plagiarism

### A. Application of the Regulation for Academic Discipline, 1954

Even today, cases of academic plagiarism have to be examined under the light of that included in the Regulation from 1954.

The "lack of integrity" categorization is sufficiently lax to include cases of cyberplagiarism.

Naturally, a distinction must be made between cases in which the student negligently omits citing the source of some of the information included in their works and others in which the omission is fraudulent and consciously intends to attribute the works as their own. The fraudulent character of the plagiarism will be more obvious if the teacher (or centre) has sufficiently informed the student about the handling of external sources.

Both "slavish" and "partial" or functional plagiarism (see the categories in 1. 2.) could be considered, according to the circumstances, as "lack of integrity".

### B. Application of academic regulations with rules regarding fraud in assessments

Although academic regulations do not include specific rules regarding plagiarism or cyberplagiarism, the application to the

5. Art. 40 UIB Academic Regulations.

6. Art. 10.



latter of rules for fraud in assessment covered by some academic regulations<sup>7</sup> seems easy and does not require the text of the same to be forced. However, the nature of these rules lies somewhere between "policing" and, strictly speaking, sanctioning. If the latter is considered, its application would require the start of a penalization process. The rule's sanctioning powers would be more obvious if applied to partial plagiarism in a test in which the rest of the student's work is correct and has been carried out personally, or if the plagiarism occurs in only one of the tests subject to assessment.

### C. Evaluation and "undercover" sanctions

Lastly, one might consider the introduction, in subject programmes, of evaluation criteria that deduct some or all marks for plagiarism.

References to the negative character of plagiarism will always be instructive and prevent students from using a supposed ignorance to protect themselves.

A different matter is the possibility that behind these evaluation criteria there is an authentic sanction which the professor has no authority to impose, as the corresponding disciplinary process must be followed. In my opinion, it would be an assessment and not a sanction in the following two cases:

- If the deducting of marks for a subject or work is proportional to the part of the work or works affected by the plagiarism.

- If the deduction is not proportional, but the recognition of the authorship and the authenticity in the work constitute express objectives of the subject. This would, in my opinion, justify a deduction of marks proportionally higher than the "extent" plagiarized, as the plagiarism would directly affect one of the course's objectives.

### D. Conclusions

Now that the difficulty existing in the disciplinary regulation of student offences has been overcome, the moment seems to have arrived to tackle the regulation of the student disciplinary system, either by the universities or the Autonomous Communities.

It would be reasonable to include fraud in exams and in other assessment elements in the offences specified, and to consider plagiarism and cyberplagiarism as forms of fraud. This way the lecturing staff and the academic authorities can deal with cyberplagiarism with more legal security and the students would have maximum guarantees.

The disciplinary handling of cyberplagiarism does not, obviously, exhaust all the university policy destined to reduce cyberplagiarism. The success of university regulations on cyberplagiarism require at least two complementary policies: student education, which should include a definition that is sufficiently clear of what cyberplagiarism is and is not; and faculty training, so that they define cyberplagiarism in a uniform way and suitably evaluate the cyberplagiarized tests or exercises.

7. For example, article 40 of the academic regulations of the University of the Balearic Islands: "Regardless of the disciplinary procedure that could follow against the offending student, the demonstrably fraudulent realization of any of the exercises required in the assessment of any subject will be given a grade of 0 in the corresponding exam".



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## Dossier “Academic Cyberpliarism”

# On academic plagiarism in Europe. An analytical approach based on four studies\*

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## Abstract

With the development of information and communication technology (ICT), plagiarism becomes an ever more serious problem in the academic community. According to the studies on academic plagiarism conducted at universities in four different European countries, plagiarism rates among students are quite high and students mostly ignore or allow plagiarism because of a lack of knowledge, lack of consequences, or simply because ICT makes plagiarism easy to commit. The findings of the studies presented in this paper indicate that strict policies against plagiarism need to be introduced at universities. We believe that the problem of plagiarism should be brought to public attention and discussed at a higher level and that effective measures against plagiarism should be implemented. Prevalence of plagiarism among students and their attitudes towards plagiarism are influenced by cultural environment as well as the academic setting. In multicultural communities, such as the European community, it is necessary to investigate and compare academic behaviour in different countries in order to establish equivalent standards in education across Europe.

## Keywords

academic misconduct, Europe, intellectual property, plagiarism, students

## Resum

Amb el desenvolupament de les tecnologies de la informació i la comunicació (TIC), el plagi esdevé un problema cada cop més greu en la comunitat acadèmica. Segons els estudis sobre el plagi acadèmic elaborats en universitats de quatre països europeus diferents, l'índex de plagi entre els estudiants és considerablement alt i els estudiants majoritàriament passen per alt o permeten el plagi per la manca de coneixement, la manca de conseqüències o simplement perquè les TIC fan que el plagi sigui fàcil de cometre. Les conclusions dels estudis que es presenten en aquest article indiquen que cal introduir polítiques estrictes contra el plagi a les universitats. Pensem que s'hauria de captar l'atenció del públic sobre el problema del plagi, que s'hauria de debatre en altes esferes i que s'haurien d'aplicar mesures efectives contra el plagi. L'abast del plagi entre estudiants i les seves actituds envers el plagi reben influències de l'entorn cultural i també de l'escenari acadèmic. En comunitats multiculturals, com ara la comunitat europea, és necessari investigar i comparar el comportament acadèmic a diferents països per a establir estàndards equivalents en l'ensenyament arreu d'Europa.

## Paraules clau

males conductes acadèmiques, Europa, propietat intel·lectual, plagi, estudiants

## Introduction

Plagiarism is widely present in the academic and scientific community despite the fact that it is contradictory to the basic academic and scientific principles. Although there are different general definitions of academic misconduct, which includes plagiarism, many universities still do not have explicit rules on academic and scientific dishonesty. As a result, those involved in academic misconduct almost never suffer any consequences (Bilić-Zulle, 2005; Elzubeir, 2003).

Prevalence of plagiarism largely depends on the cultural characteristics of the academic setting and the degree to which plagiarism is implicitly allowed or explicitly accepted in the academic community and wider society. Different societies have different attitudes toward plagiarism. Plagiarism among students is generally considered a less serious form of misconduct than cheating on exams (Baruchson-Arbib, 2004; Elzubeir, 2003; Martin, 1994). Strict rules should exist not only to deter and prevent students and all members of the academic and scientific community from dishonest behaviour, but also to educate them

and help them avoid it. Many cases of plagiarism are committed due to the lack of knowledge or lack of consequences for such behaviour. Therefore, the best approach to prevent plagiarism is to educate students and point out the importance of honesty in science and professional work (Petrovečki, 2001). Students should be acquainted with different forms of breach of scientific and academic integrity, including plagiarism, through examples from the history of science and their awareness should be raised regarding the unacceptability of such behaviour.

In order to clearly formulate the rules against plagiarism and develop a system of education based on academic integrity, the prevalence of plagiarism among students and student attitudes toward breaches of academic and scientific integrity should be investigated. Studies on prevalence, causes and attitudes toward plagiarism have been conducted at several European universities and their results are of critical importance for improving education on academic honesty and establishing the proper academic environment. Comparison of the results of these studies performed in different societies may provide a deeper insight into the level of academic integrity in the emerging multicultural European community, which needs to harmonize its standards of education.



In this paper we present and discuss the results of the studies on prevalence, causes and attitudes towards plagiarism in the academic and scientific community in four European countries.

## Prevalence and attitudes toward plagiarism in four European countries

The studies were performed at different universities in four European countries, namely, Spain, the United Kingdom, Bulgaria and Croatia. The studies were conducted independently except those in the UK and Bulgaria, which used the same research tool. The results from Spain, the UK and Bulgaria are preliminary, whereas the results from the Croatian study have been published previously (Bilić-Zulle, 2005, 2008).

The study conducted at Spanish universities used a self-reported questionnaire to determine the prevalence of plagiarism. The questionnaire was administered to 727 undergraduate students at the Balearic Islands University (UIB) and 560 undergraduate students at other Spanish universities. A high percentage of plagiarism prevalence was detected. At UIB, 77% of students admitted committing cyberplagiarism at least once during their university studies and 66% admitted plagiarizing non-digital sources (books, magazines, journals, etc). Students from other Spanish universities reported committing cyberplagiarism at least once during their university studies in 59% of the cases and plagiarizing non-digital resources in 47% of the cases. Over 70% of students reported that they used the internet as the main source of plagiarism and that the main reasons for committing plagiarism were easy and anonymous access to the internet, severe time constraints, procrastination, ineffective work management and work overload (many essays to deliver in a short period of time).

Questionnaire studies conducted in the UK and Bulgaria measured students' attitudes toward plagiarism, determined academic practice in higher education institutions and identified the causes and prevalence of plagiarism. The participation was entirely voluntary and anonymous. The studies included 92 students from the UK and 94 students from Bulgaria. The most common form of plagiarism at UK universities was self-plagiarism (35% of students committed self-plagiarism at least once), whereas copying from another student during a test was the rarest form of academic misconduct and considered highly unacceptable. In students' opinion, there was nothing wrong with self-plagiarism (49%) or plagiarizing from informal sources, such as internet forums and discussion groups (38%). Also, students who committed plagiarism were rarely reported (68% never reported other students who committed plagiarism).

In Bulgaria, self-plagiarism and plagiarizing from the internet (research resources in the public domain) were found acceptable

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by 40% of students. The plagiarism rate was higher than in the UK. Almost half of Bulgarian students (47%) committed self-plagiarism at least once during their university studies and three-quarters of them (75% vs. 68% in the UK) were aware of another student committing plagiarism, but did not report it. The majority of Bulgarian students believed that plagiarism was largely undetected by tutors (85% Bulgarian students vs. 47% UK students agreed with the statement).

The Croatian study included 295 students. The aim was to determine the prevalence of plagiarism and to measure student attitudes toward plagiarism. The prevalence of plagiarism was measured using plagiarism detection software, which compared student essays with the source articles and calculated the percentage of plagiarized text. Student attitudes toward plagiarism were investigated using fictitious scenarios describing cases of self-plagiarism, cheating on exams, different sorts of plagiarism and data falsification. The objective software-based method of measuring the prevalence of plagiarism revealed that 82% of students plagiarized to some degree, whereas 52% of them copied at least 10% of the source text. Warning against plagiarism was not enough to discourage students from plagiarizing. The plagiarism rate was lower only among students who were told that the essays would be analyzed with plagiarism detection software and that those found to have plagiarized would suffer consequences. Results on attitudes toward plagiarism were consistent with those obtained in other countries. Self-plagiarism was considered justified and acceptable by 65% of Croatian students and reporting other students who committed plagiarism was considered unacceptable by 76% of Croatian students. As opposed to only 7% of UK students, 20% of Croatian and 18% Bulgarian students found cheating on exams acceptable.

## Discussion and conclusions

The studies revealed that plagiarism is deeply rooted in the academic environment of some European universities. Students are generally aware that plagiarism is a form of dishonest behaviour, but they still commit it, especially if they have a tight deadline or too much work to do and not enough time. In such circumstances, most students exploit the benefits of information and communication technology (ICT) and commit cyberplagiarism. Easily accessible information on the internet, the development of IT and the simple *copy/paste* command facilitate plagiarism. Websites that sell student essays, master's theses and doctoral dissertations as ready-made commodities are a new and increasingly worrying problem (Burnard, 2002; Chase, 2004).

Most students believe that plagiarism will not be detected by their tutors, so they resort to it despite warnings and rules against it. According to the results of the Croatian study, only an objective plagiarism detection method and penalty for perpetrators will deter



students from plagiarizing. This finding is consistent with the results of another study conducted among students in the USA (Bilić-Zulle, 2008; Braumoeller, 2001). Although it is easier to plagiarize in the age of ICT, it is also easier to detect and measure plagiarism (Lyon, 2006). Plagiarism detection software (eg, WCopyfind) and internet-based search engines (eg, iTechnicate or EVE) can be used effectively in anti-plagiarism strategies in the academic environment. Faced with the obvious limitations of internet-based search engines in non-English contexts, there are tools that can reveal blatant plagiarism by comparing two or more texts, such as WCopyfind (Grover, 2003). Translated plagiarism is also a growing problem. There are no computer tools that can detect plagiarism between different languages (Sowden, 2005); however, collaboration of faculty from different universities in Europe, in addition to research on academic behaviour and promotion of the highest standards of academic honesty, can significantly contribute to the reduction of academic misconduct.

One of the important findings of the presented was that more than three quarters of students would not report plagiarism to their tutors, even if they witnessed it. Some of the students probably feel that plagiarism is not "a big deal" and others do not want to be whistleblowers. In an academic and scientific context, the question of reporting unethical and immoral behaviour to tutors is especially sensitive. Whistleblowers are often scorned by other students (Elzubeir, 2003; Rennie, 2002). Tutors and teachers should find methods to deter students from plagiarizing. Allowing or ignoring plagiarism among students does not contribute to better knowledge or education; on the contrary, it allows students to find the "easy way out". Once this kind of behaviour is encouraged, it cannot be expected that those who plagiarized become honourable members of scientific and academic society (Harding, 2004; Kenny, 2007; Hrabak, 2004; Rozance, 1991; Glick, 2001). Plagiarized data are misleading and allow the perpetrator to gain undeserved benefit. This type of behaviour should be recognized and strongly discouraged (Parrish, 2000; Das, 2003).

According to the study on academic misconduct in Croatia, significant predictors of misconduct include attitude toward cheating, behaviour of the group that the student belongs to and the year of studies. Senior students tend to cheat more often than junior students (Hrabak, 2004). Cultural environment and attitudes within wider society have a great influence on the prevalence and attitudes toward plagiarism. The results of the studies presented, revealing that almost 20% of students in Bulgaria and Croatia vs. 7% in the UK find cheating on exams acceptable behaviour, are consistent with findings of a study on attitudes toward plagiarism and reporting plagiarism in Russia, the USA, the Netherlands and Israel, which indicated that the tolerance toward academic misconduct was more pronounced in post-communist countries (Magnus, 2002). The cultural environment of post-communist countries, with a high rate of corruption, is characterized by a high level of tolerance toward cheating, which in turn creates

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inappropriate attitudes toward academic and scientific integrity (Hrabak, 2004). One of the characteristics of an authoritarian regime is the lack of individual responsibility – one is allowed to do anything that society or leaders tolerate; maturity, independence and responsibility are not encouraged; and individuals do not do wrong not because of their inner beliefs, but because of fear of punishment or authority.

Considering that Europe as a multilingual and multicultural community strives to create the best possible education and scientific practice in all European countries, it is important to ensure a solid basis for such a development. Attempts at eradicating academic misconduct and rewarding creativity and real acquisition of knowledge in universities and schools will undoubtedly contribute to achieving this goal. Due to the vast cultural diversity in Europe, it will not be easy to harmonize academic standards and attitudes among different countries. However, the results of research such as that presented in this paper may provide a valuable contribution in the development of proper education policies.

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## Dossier “Academic Cyberplagiarism”

# Cyber Cheating in an Information Technology Age

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### Abstract

Developments in technology have provided new means for students to engage in practices not considered appropriate at university, hence academics need to be more active in the prevention and detection of instances of academic impropriety. As academics we should be aware that scholarship is built on other people's works and ideas. Thus the challenge we have is to help students distinguish between scholarship and cheating. One thing is clear, however, in relation to both coursework and examination. The process of deterring cheating will always be far more effective than the act of detecting the cheating. Additionally the staff time and effort expended in informing students of correct academic practice is significantly lower than that needed to identify and pursue cheating students.

### Keywords

academic integrity , academic plagiarism, plagiarism detection services



## Resum

Els desenvolupaments en tecnologia han proporcionat nous mitjans als estudiants per a dur a terme pràctiques que a la universitat no es consideren apropiades, de manera que el professorat ha de ser més actiu en la prevenció i detecció de casos d'improperiat acadèmica. Com a professors, hem de ser conscients que el coneixement es construeix a partir de treballs i idees d'altra gent. Així, el repte que tenim és ajudar els estudiants a distingir entre el coneixement i l'engany. Tanmateix, una cosa és clara amb relació tant als treballs de curs com als exàmens. El procés dissuasiu de fer trampes sempre serà molt més efectiu que l'acte de detecció de les trampes. A més, el temps i els esforços del professorat invertits a informar els estudiants sobre les pràctiques acadèmiques correctes és significativament més baix que el que cal per a identificar i perseguir els estudiants que fan trampes.

## Paraules clau

integritat acadèmica, plagi acadèmic, serveis de detecció de plagi

## Introduction

All forms of academic impropriety (or cheating) are of growing importance to universities across the world, prompted by mounting evidence that university students engage in academic practices considered unacceptable under university regulations (Jones *et al.*, 2005a). There is considerable belief (Ashworth *et al.*, 1997), and some empirical evidence (McCabe, 2001; Diekhoff *et al.*, 1996), that such cheating is increasing. Self-reported rates of academic impropriety vary somewhat in published studies, however typical estimates are higher than many academics might expect from personal experience. Park (2003) reports data from 6,000 US students, indicating between 63% and 87% (depending on academic discipline) admitted cheating during their college career. In the UK, Franklyn-Stokes *et al.* (1995) reported rates of academic impropriety varied from 54% of students admitting having made up references to 72% admitting to having copied coursework, all much higher than estimated detection rates of 1.3% (Björklund *et al.*, 1999) and approximately 2% from data from the academic faculty of one of the authors.

Universities should be committed to helping their students acquire the skills necessary to support their progression and to achieve their academic potential. Students enter university with a range of academic experiences and thus may not be familiar with the formal protocols of academic writing and referencing. Student's failure to follow these protocols may be considered as plagiarism. Most departments offer advice and information on appropriate referencing and recommend that if students are in doubt about what constitutes plagiarism, cheating or collusion, that they should discuss it with their tutors. Universities also employ a range of methods, including detection services such as Turnitin, to support good academic writing, as well as to identify and discourage plagiarism.

The paper details some of the prevalent practices in academic impropriety in general, before detailing some issues around cheating within an electronic context. A range of methods of identifying instances of academic impropriety are presented along with approaches for discouraging cheating, looking at one online detection service in particular. The paper ends with a discussion

on the general issues of academic impropriety, followed by some concluding comments.

## 1. Levels of academic impropriety

As with many institutions across the world, universities in the United Kingdom publish regulations on assessment, stating practices that are deemed unacceptable. While each university has its own unique criteria, analysis of the regulations shows certain common themes. The most usual unacceptable academic practices are listed in Table 1. Of all the practices of academic impropriety, the one that causes most puzzlement amongst students is plagiarism, with confusion as to what does and does

**Table 1.** Practices deemed to constitute cheating, taken from Wood (2004)

**Plagiarism:** A student incorporates another person's or body's work by unacknowledged quotation, paraphrase, imitation or other device in any work submitted for assessment in a way that suggests that it is the student's original work

**Collusion:** The collaboration without official approval between two or more students (or between student(s) and another person(s)) in the presentation of work which is submitted as the work of a single student; or where a student(s) allows or permits their work to be incorporated in, or represented as, the work of another student.

**Falsification:** Where the content of any assessed work has been invented or falsely presented by the student as their own work.

**Replication:** Where a student submits the same or similar piece of work on more than one occasion for assessment to gain academic credit.

Taking **unauthorized notes or devices** into an examination.

Obtaining an **unauthorized copy of an examination paper**.

**Communicating**, or trying to communicate, with another student **during an examination**.

Being a party to **impersonation** in relation to an examination.



not constitute plagiarism. Thus, a clear definition of plagiarism is extremely important to have, such as that from the Oxford English Dictionary which states: "To take and use as one's own the thoughts, writings or inventions of another". Some key features of the definition are: (a) it is not just "borrowing" someone else's work, but also "passing it off" as one's own; and (b) it is not limited to textual material, but any "works" including music, art, diagrams, design, software code, and so on. The definition also covers close paraphrasing as well as verbatim copying.

In practice, plagiarism is far easier with the internet as a medium, rather than through printed material, after all operations such as *copy and paste* are far easier from an electronic source than from a book. McCabe (2001) noted "there is evidence that cheating has increased in the last few decades, and the Internet is likely to intensify the problem".

Numerous authors have addressed the concern that the internet presents students with increased opportunities for cheating (eg, Baty, 2000), possibly combined with perceived decreased risk of detection. The seemingly limitless volumes of material available render the source material more difficult to identify, particularly in the absence of good IT skills. In discussing student plagiarism of internet sources, however, Wood (2004) proposes an alternate view – that student experiences with electronic media in particular may lead them to develop attitudes towards the ownership of academic work that are different from established wisdom and at variance with the conventions of academic writing. From this perspective, therefore, copying, or plagiarism, from the internet may not be "cheating" in the eyes of students – the material is seen as being in the public domain and without ownership. Many authors have addressed the varying definitions of plagiarism by different stakeholders in the academic community.

The authors' personal experience of hearing cases of alleged plagiarism and the academic literature suggest that to some extent academic staff and students do not share the same conceptualisations of cheating. The more obvious and extreme forms of academic impropriety will be conceptualised as cheating by staff and students alike. Other unacceptable practices, however, may be regarded by students as not cheating and not particularly serious. Park (2003), for example, reported that students consider cheating on exams to be "blatant" cheating, whereas other forms of academic cheating are viewed as less serious, or "not really" cheating.

## 2. Methods of undertaking e-cheating

Of concern is the indication (McCabe, 2001) that the ways that students engage in academic impropriety are getting more varied.

Through the web, there exists a wealth of information on a wide range of topics that offers assistance, and at the same time, temptation. Connors (1996) astutely observes that "academics who once praised the internet for giving students more access to information are now worried it is providing students with easy access to pre-written essays". St Omer (2001) reported that 42% of a class had used a website as an information source for an assignment, and that "the majority of students, having accessed information and music regularly, failed to understand that they had appropriated the work of another individual". St Omer also points out that often internet material can be a source of misinformation – something that students rarely take time to reflect on. Certainly, the authors are aware of very few courses which explain to students the difference in provenance between material found in textbooks, journals and the like, compared to web pages, often created by individuals rather than organisations.

The most obvious form of e-cheating is straightforward copying *cut and paste* from the internet or electronic media (such as data CDs or software). Word processing facilitates plagiarism through its *cut and paste* facility, further the electronic storage of work offers the opportunity for various forms of academic impropriety including collusion, replication and falsification. Students can use the internet to purchase or download work from web sites such as [www.schoolsucks.com](http://www.schoolsucks.com) or [www.cheathouse.com](http://www.cheathouse.com), which claim to have thousands of essays and reports for \$30, while [www.123helpme.com](http://www.123helpme.com) offers free essays, but charges for ones it claims are of higher quality.

It is also easier to cheat in examinations today, thanks to technology such as the internet, wireless computers and messaging devices (for example, mobile phones). In addition to telephones with astounding features, technological advances have given us Instant Messaging (IM) in mobile phones, as well as IM-enabled calculators. This presents lecturers with even more reason to be vigilant. The capability of IM allows students to send messages to other students across significant distances. This coupled with the availability of mobile phones equipped with quite sophisticated cameras means that students are provided with the opportunity to easily communicate examination questions and answers, including diagrams.

Portable electronic devices such as mobile phones and personal digital assistants (PDAs) have made unauthorised collaboration simple and hard to detect (Straw, 2000). Instances of malpractice detected in High School examinations in England rose by some 25% between 2004 and 2005, with over 60% of these cases involving mobile phones.<sup>1</sup> The classic ways of cheating such as crib notes and copying from books are still used, however technology is providing more sophisticated ways of cheating. A recent article suggested seven hi-tech gadgets for

1. Visit: <[news.bbc.co.uk/1/hi/education/4848224.stm](http://news.bbc.co.uk/1/hi/education/4848224.stm)> [Accessed: November 7 2008].



cheating (Table 2). The cheating problem becomes even more complex when assessment is performed online, where there is the potential and temptation for students to collaborate and to surf for answers.

**Table 2.** Seven Hi-Tech Gadgets That Can Help You Cheat at Exams<sup>2</sup>

- **Text Messages** - contact people outside the exam room and receive answers very easily.
- **Mobile phones with built-in digital cameras** - photograph test questions, send them to friends outside via MMS and get back the answers in text or image format.
- **MP3 players** - Record notes to yourself, transfer the audio files to the MP3 player and have them play quietly during the exam. In particular, iPods are used to hide lists disguised as song titles and can also display images and videos.
- **SoundBug** - turns any surface into a speaker ([www.soundbug.biz](http://www.soundbug.biz)).
- **Programmable Calculators** - can hold text, formulas, even pictures.
- **Wireless Earphones and Microphones** - tiny earphones that students stick almost invisibly in their ears and for full communication students also have a tiny microphone.
- **PDAs** - allow information to be beamed across a distance via infrared, Bluetooth or wireless communication, furthermore these devices also have internet access capabilities.
- **Invisible Ink Pens - UV** Ink is invisible to the naked eye, but magically illuminated when exposed to a blacklight which is conveniently located on the opposite end of the pen.

### 3. Approaches to detection and prevention

While technological developments have provided novel ways for students to cheat, they have also presented academics with ways of catching cheats, from the complicated to the simple (for a list of selected examples of both forms see Table 3). Selingo (2004) reported how 50 engineering students were caught cheating after their submitted spreadsheet files had the properties checked revealing that the same computer created them all. Reisman (2005) suggests that for online examination universities should "lock down the desktops to prevent the installation of IM clients" and block e-mail services. This action has a number of drawbacks. In relation to distance learners, one cannot travel to every student's computer to ensure compliance, while for campus-based examinations it has

no effect on IM devices, such as mobile phones. Furthermore, it does not address wireless computer networks. Currently the only effective solutions would appear either to ban the use of all electronic equipment or to employ jamming techniques. The latter may seem extreme however simply switching off a campus wireless network does not prevent resourceful students from creating their own wireless computer network. Furthermore, one should also consider infra-red communication between devices. Privacy filters used by laptop users to block prying eyes on aircraft are being used to stop cheating in examinations.<sup>3</sup> A number of authors have provided admirable overviews of computer-based

**Table 3.** Some approaches to detection

- Generally available search engines or metasearch engines (eg, [www.google.com](http://www.google.com) or [www.metacrawler.com](http://www.metacrawler.com)). Although considered by many as the only tools required, they do have significant drawbacks: they are not foolproof, since students may pick-and-mix their sources; they are time consuming and may take multiple searches; and they are not necessarily accurate. Finally, search engines can only explore a small proportion of the whole web: the content of password protected and database sites remain concealed.
- Collusion detection ([www.copycatchgold.com](http://www.copycatchgold.com)) looks for copying across a cohort.
- Analysis of structure and content of document by comparing with a central database ([www.turnitin.com](http://www.turnitin.com)).
- Writing Style Analysis ([www.plagiarism.com](http://www.plagiarism.com)) is based on individuals having their own writing style.
- Computer program detection ([www.cs.berkeley.edu](http://www.cs.berkeley.edu)) which compares programs within a cohort.
- JPlag is a system that finds similarities among multiple sets of source code files ([www.jplag.de](http://www.jplag.de)).
- Moss (Measure Of Software Similarity) is an automatic system for determining the similarity of C, C++, Java, Pascal, Ada, ML, Lisp, or Scheme programs (<http://theory.stanford.edu/~aiken/moss/>).
- The plagiarism finding tool searches for text fragments also available in other documents ([www.docoloc.com](http://www.docoloc.com)).
- Shared Information Distance or Software Integrity Detection detects similarity between programs by computing the shared information between them (<http://genome.math.uwaterloo.ca/SID/>).
- Services that allow students to contact individuals willing to create custom personalized assignments for a fee include:
  - Rent a coder – for computer programs ([www.rentacoder.com](http://www.rentacoder.com)).
  - Student of fortune – for any domain ([www.studentoffortune.com](http://www.studentoffortune.com)).

2. Taken from "Seven Hi-Tech Gadgets That Can Help You Cheat at Exams." (2007). <[www.online2college.com/online-college/cheat-with-hi-tech-gadgets.html](http://www.online2college.com/online-college/cheat-with-hi-tech-gadgets.html)> [Accessed: November 7 2008]

3. Visit: <[www.3m.co.uk](http://www.3m.co.uk)>.

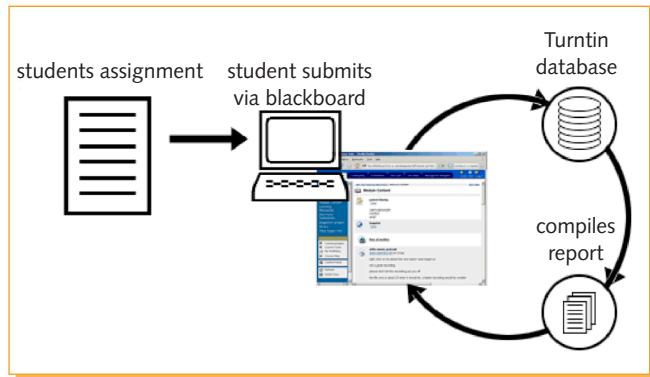


Figure 1 How the Turnitin system works (taken from [www.ljmu.ac.uk](http://www.ljmu.ac.uk))

plagiarism detection systems, including Clough, (2000), Culwin *et al.* (2000), and Lukashenko *et al.* (2007).

The internet is not only a resource for cheating students: academics can exploit its potential for detection. Powerful search tools and specialised detection services that allow keyword or phrase searching across millions of documents enable academics to target suspect assignments. Furthermore, the proliferation of identical material on the web provides a greater opportunity to locate copied material: one does not necessarily have to identify the source the student used, evidence that it is not original work is sufficient proof.

An important point is the need for emphasis on prevention rather than detection. The amount of time academics spend producing learning materials needs to be replicated in developing an assessment strategy that minimises the opportunity for cheating. When creating assignments, academics need to be fully aware of electronic resources available to students and structure the assignment to allow students the opportunity to locate, retrieve and interpret information rather than requiring regurgitating the

material. Assignments that require higher order thinking skills are less likely to encourage cheating.

### 3.1. The Turnitin service

The Turnitin system<sup>4</sup> is probably the global leader in electronic plagiarism detection. Developed by iParadigms LLC,<sup>5</sup> Turnitin offers one approach to the growing problem of *cut and paste* plagiarism.

Student assignments submitted to Turnitin are compared against billions of internet documents, an archived copy of the internet, a local database of submitted student work and a database of some periodicals, journals, and online publications, such as Emerald Publishing (Figure 1).

For each document submitted to Turnitin, an originality report is generated to estimate the percentage of matches between that document and the previous list of sources (Figure 2), where the software looks for matches of strings of eight to ten words (Suri, 2007). While this source list seems exhaustive, work by Kaner *et al.* (2008) suggests that there are some major omissions such as the IEEExplore<sup>6</sup> and ACM<sup>7</sup> databases of conference and journal papers, which is of particular concern for engineering and computing academics.

#### 3.1.1. Practical issues in using Turnitin

Although widely used, Turnitin does have some issues in its application. Within Turnitin a filtering system can exclude low percentage reports allowing the academic to concentrate on checking documents with a higher similarity score. The percentage reported cannot be used as a measure of plagiarism, since Turnitin only indicates the level of matched text. Two obvious issues with this purely matching ability are reference lists used in the work and correctly quoted material, although the software does provide

Inbox for: Assign. #1: Essays on AI					
		show:	new	show:	
		report	gm	file	paper ID
<input type="checkbox"/>	author	title			date
<input type="checkbox"/>	Anonymous	<a href="#">341721.doc</a>	100%	.doc	1061546 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">341740.doc</a>	100%	.doc	1061554 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">341720.doc</a>	100%	.doc	1061630 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">346450.doc</a>	99%	.doc	1061600 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">343041.doc</a>	97%	.doc	1061568 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">346590.doc</a>	96%	.doc	1061587 03-07-07
<input type="checkbox"/>	Anonymous	<a href="#">346594.doc</a>	96%	.doc	1061605 03-07-07

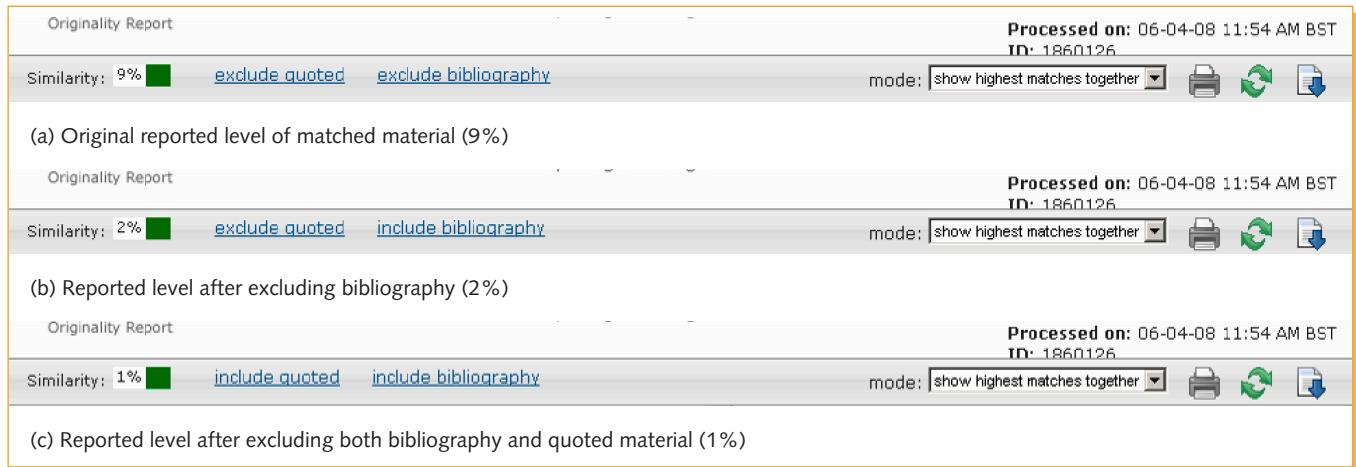
Figure 2. Turnitin originality report (listing student name and % matched text)

4. Visit: <[www.turnitin.com](http://www.turnitin.com)>.

5. Visit: <[www.iparadigms.com](http://www.iparadigms.com)>.

6. Visit: <[www.ieeexplore.ieee.org](http://ieeexplore.ieee.org)>.

7. Visit: <[www.acm.org](http://www.acm.org)>



**Figure 3.** Using the “exclude” facility

links to exclude these items. Figure 3 illustrates an example of a document that had a reported level of matched text of 9%, which after selecting the “exclude bibliography” reduces to 2% and eventually becomes a level of 1% when quoted material is excluded. A significant drawback for efficient use is that these actions have to be performed by the user and currently cannot be automated.

It would appear that there are some problems with the text matching algorithm. One of the authors’ use of Turnitin (Jones, 2008) has revealed occasions where text highlighted can be considered as innocent. The first instance relates to a number of students within a class including the question within their answer. This is clearly not plagiarism and is also not something that the software can identify at the moment – the ability to include the question as part of the comparison documents but for exclusion purposes would alleviate this problem. The next problem is the identification of phrases that might be called *common language* with respect to the topic of the assignment, such as those shown in Table 4 that have come from recent student work that Turnitin has processed. For example, an essay on Evolutionary Computation is highly likely to have statement 1, although most academics would not expect such a phrase to be referenced.

**Table 4.** Illustrations of “common language matching”

- 1) “based on Darwin’s Theory of Evolution”
- 2) “European Union Common Agricultural Policy”
- 3) “Technology has the potential to cause harm in the wrong hands”

Another area of concern is the matching of parts of phrases. Table 5 provides a selection of such phrases found in student assignments. The matched text increases the percentage level reported, however the relationship between the amount of bold

**Table 5.** Illustrations of “noise matching”

- 1) “**The potential benefits from AI technology to society are** unlimited as **the utilization of**”
- 2) “**find the shortest path between their nest and a food source**”
- 3) “**accuracy of the model parameters, the algorithm determines**”

*Matched text is highlighted in bold, while words within the phrase that are not an identical match are left as normal font.*

text versus the non-bold text is cause for concern since the small groups of words highlighted can hardly be considered plagiarism. It is suggested that this is more a case of “noise” interfering with the matching process.

Overall Turnitin is a very valuable tool in the fight against academic impropriety; however it is not quite the automatic tool it first seems. To correctly identify instances of plagiarism, academics must spend a little time to ascertain whether matched text falls into any of the categories mentioned above. Only after this manual intervention can the true level of plagiarism be determined. In the early stages of use, it is recommended that academics concentrate their time and efforts on the extremely high levels of matched material. By doing this, one can be certain of identifying the major instances of similar text. It is important to remember that just because Turnitin identifies student work as having a certain percentage of matching text, it is not by itself evidence of plagiarism. It is up to the academic to carefully examine the material and view sources of matched text and make a judgment on the applicability of the reported matching. Academics must also be aware that if students submit both paper and electronic copies of their work, then a sample of the electronic submissions



should be compared against the paper versions to ensure that students are not attempting to present innocuous documents for use by Turnitin.

## 4. Discussion

If a university determines that significant proportions of students are engaged in inappropriate academic practices, there will clearly be an onus for the university to do something to address that. Hence, the university might strengthen efforts to detect such practices and/or increase the penalties levied on those who are detected. In relation to the latter, it is not an unreasonable proposition that students who engage in deception in academic work might also do so in other arenas. Certainly students themselves believe that those who cheat in academia are more likely to cheat in other contexts. Morgan *et al.* (1992), in a survey of 149 undergraduates in the US, for example, found that 87% of students thought that those who "routinely" cheat in education will repeat such behaviour in the workplace. The most common reason cited for this was simply habit. Were such beliefs to be substantiated, the implications for courses such as Computing, Engineering and Psychology would be great because the first degree opens up pathways for subsequent professional qualification.

It is often suggested that one way to address the rising incidence of academic impropriety amongst students is to undertake assessment by examination only. The results presented by Jones *et al.* (2005) suggest that this may not be the answer to the problem. Whilst self-reported rates of academic impropriety in this context are low in the UK data, the figures are much higher for the Bulgaria data, where assessment is more heavily dependent on examination. It may simply be that where marks go, student attention follows. This notwithstanding, the Bulgaria data indicate that students may benefit from tuition regarding acceptable practices in examined work. "Cheating" is unacceptable irrespective of an individual student's opinion regarding specific activities but increased awareness and a shared understanding of what is thought appropriate are desirable.

In relation to Turnitin, Sunderland-Smith *et al.* (2005) found that academics expected that "the software would highlight passages of text and identify those passages as plagiarised". It must be made clear that Turnitin should not really be considered a plagiarism detection system, it is merely a text matching system. Furthermore, Sunderland-Smith *et al.* state that academics "expected they would need very little input in identification of plagiarism". It is still the role of the academic to review the reports to determine if plagiarism has actually occurred, because Turnitin does not differentiate between correctly cited references and unacknowledged copying. Also one must be aware that there is a difference between incorrect referencing (for example through student inexperience) and intentional plagiarism, this judgement

can only really be made by a human and not by software. Across universities, academics have reported broad support for the use of Turnitin although they have expressed reservations about its capacity and its complexity of use.

## 5. Closing comments

Plagiarism is alive and well on campuses and in cyberspace. Nevertheless, academics should take some solace in the fact that while the internet is a useful resource for plagiarists, it is also an excellent tool to use against them. The range of academic impropriety is limited only by students' imagination and their ability to utilise technological advances. Fundamentally, universities need to create a climate that discourages academic impropriety, while students need to take responsibility for honest behaviour. For anyone who is not concerned about instances of academic impropriety, Ryan provides an interesting statement:

Often lost in the discussion of plagiarism is the interest of the students who don't cheat. They do legitimate research and write their own papers. They work harder (and learn more) than the plagiarists, yet their grades may suffer when their papers are judged and graded against papers that are superior but stolen material. Students have a right to expect fairness in the classroom. When teachers turn a blind eye to plagiarism, it undermines that right and denigrates grades, degrees and even institutions. (Ryan, 1998)

The problem of students cheating during their degree is not going to go away. It is obvious that it will continue to increase. Of more concern to universities is the growing interest of sources outside education; for example commerce and industry are becoming aware of the significant levels of cheating and thus the possibility that graduates they employ have a degree that might be of less value than in previous years (Gulli *et al.* 2007).

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Cyber Cheating in an Information Technology Age



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## Dossier “Academic Cyberplagiarism”

# Cyberplagiarism webliography References to academic cyberplagiarism on the internet\*

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### Abstract

This article provides references to the documentation sources available on the internet, which may give interested readers a deeper insight into aspects of the multi-faceted issue of academic plagiarism in the student community.<sup>1</sup>

With that aim in mind, this paper is divided into six sections. The first provides information on research groups and centres working on the issue of plagiarism. The second gives references to academic journals focusing directly on the issue of academic plagiarism, and some others which publish articles on that subject regularly. The third refers to conferences and events aimed at analysing this phenomenon. The next two sections provide bibliographies and studies on plagiarism among students. The last section refers to documentary sources on various strategies for countering plagiarism.

### Keywords

academic plagiarism, documentary sources, academic dishonesty, cyberplagiarism

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1. It must be stressed that this paper is not intended to give an overview of the issue of plagiarism as it stands today. Readers seeking a review of that kind can turn to Comas and Sureda (2007), “Ciber-Plagio Académico. Una aproximación al estado de los conocimientos” (“Academic Cyberplagiarism. The State of the Question”), In: *Textos de la Cibersociedad*, no. 10 (Accessed: July 16 2008; <<http://www.cibersociedad.net/textos/articulo.php?art=121>>). See also C. Park (2003), “In Other (People’s) Words: Plagiarism by University Students. Literature and Lessons”, *Assessment & Evaluation in Higher Education*, vol. 28, no. 5 (Accessed: July 16 2008; <[http://www.lancs.ac.uk/staff/gyaccp/caeh\\_28\\_5\\_02lores.pdf](http://www.lancs.ac.uk/staff/gyaccp/caeh_28_5_02lores.pdf)>).



## Resum

En aquest article es proporcionen les fonts de documentació que hi ha a internet i que poden aportar al lector que hi estigui interessat un coneixement més profund de qualsevol de les cares, les arestes i els vèrtexs del polièdric fenomen del plagi acadèmic entre l'alumnat.<sup>1</sup>

D'acord amb aquest objectiu, s'ha estructurat el treball en sis apartats. En el primer apartat s'aporta informació sobre grups de recerca i centres que treballen en el tema del plagi. En el segon apartat es donen les referències de les revistes acadèmiques directament centrades en la qüestió del plagi acadèmic i d'algunes altres en què, de manera regular, es publiquen articles sobre aquesta temàtica. En el tercer apartat es fa referència a congressos i esdeveniments que tenen com a objectiu analitzar aquest fenomen. A continuació, en els dos apartats següents es proporcionen bibliografies i estudis referents al plagi entre l'alumnat. En el darrer apartat s'aporten fonts documentals sobre diverses estratègies de lluita contra el plagi.

## Paraules clau

plagi acadèmic, fonts documentals, deshonestetat acadèmica, ciberplagi

## Introduction

An understanding of the phenomenon of plagiarism among students cannot be gained from the restricted viewpoint of a single discipline. It is clearly a many-sided issue featuring multiple interrelations that make it very difficult to explain its causes and thus to determine what measures are suitable for countering it. On the one hand, there is the more philosophical and ethical view of the subject, asking among other things what exactly we mean by originality, creation, intellectual property rights etc., and their changing nature in different societies and cultures. Then there is the legal or regulatory perspective, focusing on providing standards on rights and duties. In turn, the sociological and psychological approach attempts to identify the characteristics and causes of young peoples' behaviour with respect to a technological environment that is new to everyone. Those working in education studies go for educational projects to resolve the situation through knowledge and awareness. Instruments and resources are developed through technology-based approaches to detect instances of plagiarism. Taking all this together, the result is a body of documentation that is becoming abundant as well as heterogeneous. Consulting the ISI Web of Knowledge suffices to show this: it features 450 documents with the word plagiarism in their titles, all being papers published over the last eight years. On the same criteria, the ERIC (*Education Resources Information Center*) has a bank of 89, Education Abstracts 158, and British Education Index 23. Furthermore, sixteen theses can be traced in Dissertation Abstracts Online, likewise with the word plagiarism in their titles. That is why we are presenting here a compendium of websites that tackle the phenomenon of academic plagiarism from one standpoint or another; those websites are classified in the light

of the approach they take to this issue, to make the compendium a useful resource for all wishing to investigate further.

## Research groups; projects, centres, services

—*El ciberplagio entre los estudiantes universitarios (Cyberplagiarism among University Students)* project, Educació i Ciutadania research group, University of the Balearic Islands.

<<http://ciberplagio.es>>

Research financed by Spain's Ministry of Science and Innovation. This is the first thoroughgoing approach to academic plagiarism in this part of the world. Working on it is a multidisciplinary team from the University of the Balearic Islands, directed by the authors of this article. The main spheres of analysis in this project are the prevalence of academic plagiarism among university students, the causes behind acts of academic plagiarism, classifying the students engaging in academic plagiarism into categories and analysing solutions and strategies aimed at tackling it.

The group has produced a website containing a large corpus of resources, including reports on the research work done, references to which will be given in the sections following herein.

—Student Diversity and Academic Writing Project, Lancaster University. <<http://www.lums.lancs.ac.uk/departments/owt/Research/sdaw/>>

A research project launched in 2005 and scheduled for completion in 2008. It is being implemented by a team from the Lancaster University Management School and the London School of Economics. It focuses on plagiarism among foreign students studying in the United Kingdom. Among the project's results that can be

1. Cal remarcar que la finalitat d'aquest treball no és fer un estat de la qüestió del tema del plagi. El lector que vulgui un treball d'aquestes característiques pot consultar R. Comas i J. Sureda (2007), «Ciber-Plagio Académico. Una aproximación al estado de los conocimientos», *Textos de la Cibersociedad*, núm. 10 (data de consulta: 16 de juliol de 2008; <<http://www.cibersociedad.net/textos/articulo.php?art=121>>). També pot consultar C. Park (2003), «In Other (People's) Words: plagiarism by university students. Literature and lessons», *Assessment & Evaluation in Higher Education*, vol. 28, núm. 5 (data de consulta 16 de juliol de 2008; <[http://www.lancs.ac.uk/staff/gyaccp/caeh\\_28\\_5\\_02lores.pdf](http://www.lancs.ac.uk/staff/gyaccp/caeh_28_5_02lores.pdf)>).



consulted on the website are articles and presentations made at conferences. The following may be highlighted:

- HAYES, J. N.; INTRONA, L. (2005). "Cultural Values, Plagiarism, and Fairness: When Plagiarism Gets in the Way of Learning". *Ethics & Behavior*. Vol. 15, no. 3, pp. 213-231.

- HAYES, J. N.; INTRONA, L. (2005). "Systems for the Production of Plagiarists? The Implications Arising from the Use of Plagiarism Detection Systems in UK Universities for Asian Learners". *Journal of Academic Ethics*. Vol. 3, no. 1, pp. 55-73.

- INTRONA, L. D.; HAYES, N; BLAIR, L. [et al.] (2003). *Cultural Attitudes towards Plagiarism: Developing a better understanding of the needs of students from diverse cultural backgrounds relating to issues of plagiarism*. [Accessed: July 16 2008].

<<http://www.jiscpas.ac.uk/apppage.cgi?USERPAGE=7508>>

- WHITLEY, E.; TIMM, A. (2005). "Exploring the Relationship between plagiarism, cultural values and expectations". PowerPoint presentation presented at the University of Central Lancashire (UCLAN), on June 30, on the occasion of the symposium International Students and Plagiarism.

Also organized in the framework of that project was the International Students, Academic Writing and Plagiarism Conference, to which reference is made subsequently herein (see the section "Conference Proceedings").

Likewise to be noted are other projects completed by universities in English-speaking countries centring on analysing the influence of cultural factors in efforts to understand plagiarism. That is the case of the Plagiarism Project run in 2006 at Robert Gordon University, Aberdeen. An excellent summary of the results can be found at:

- JUWAH, C.; LAL, D.; BELOUCIF, A. (2006). *Overcoming the cultural issues associated with plagiarism for International students*. [Accessed: July 16 2008].

<<http://www.rgu.ac.uk/celt/learning/page.cfm?pge=31100>>

– Responsable, éthique-plagia project, University of Geneva.

<<http://responsable.unige.ch/index.php>>

A project directed by lecturer Michelle Bergadaà. It resulted in a website (*Internet: Fraude et déontologie selon les acteurs universitaires*) with a large stock of training and information resources on the subject. Noteworthy in particular is the model for producing anti-plagiarism plans in universities.

– The Plagiarism programme.

<<http://www.jisc.ac.uk/whatwedo/programmes/plagiarism.aspx>>

A programme launched by the Joint Information Systems Committee (JISC) and implemented in 2000. Its outcome took the form of five reports, which are still relevant:

2. Visit: <<http://www.jisc.ac.uk/whatwedo/services/pas.aspx>>

Cyberplagiarism webliography. References to academic...

- BULL, J.; COLLINS, C.; SHARP, D. [et al.] (2001). *Technical Review of Plagiarism Detection Software Report*. [Accessed: July 16 2008].

<<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/luton.pdf>>

- CARROLL, J.; APPLETON, J. (2001). *Plagiarism. A Good Practice Guide*. [Accessed: July 16 2008].

<<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/brookes.pdf>>

- CHESTER, G. (2001). *Plagiarism Detection and Prevention. Final report*. [Accessed: July 16 2008].

<<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/plagiarism.pdf>>

- CHESTER, G. (2001). *Pilot of Free-Text Detection Software*. [Accessed: July 16 2008].

<<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/pilot.pdf>>

- CULWIN, F.; MACLEOD, A.; LANCASTER, T. (2001). *Technical Review of Source Code Plagiarism Detection Software*. [Accessed: July 16 2008]. <<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/southbank.pdf>>

– Internet Plagiarism Advisory Service JISCPAS.

The JISC has been running this service since 2001<sup>2</sup> with the aim of encouraging good practices in using the internet to avoid plagiarism. Access is provided to the TurnitinUK program, and according to the service itself it is used by 90% of universities in the United Kingdom. In the framework of the Internet Plagiarism Advisory Service, a biennial conference was organized (see the "Conference Proceedings" section).

– Academic Misconduct Benchmarking Research project (AMBER).

<<http://www.jiscpas.ac.uk/amber/index.php>>

A project run in the framework of the JISCPAS and arranged in two phases. The first phase examines how higher education institutions in the UK regulate and set penalties for plagiarism. The results of that analysis can be found in the following document:

- TENNANT, P.; ROWELL, G.; DUGGAN, F. (2007). *The Range and Spread of Penalties Available for Student Plagiarism among UK Higher Education Institutions*. [Accessed: July 16 2008].

<<http://www.jiscpas.ac.uk/documents/amber/FinalReport.pdf>>

The second phase of that project was completed in May 2008 and turned to analysing penalties for plagiarism in one hundred university institutions in the UK. The document reference is:



- TENNANT, P.; DUGGAN, F. (2008). *The Recorded Incidence of Student Plagiarism and the Penalties Applied*. [Accessed: July 16 2008].

<[http://www.heacademy.ac.uk/assets/York/documents/AMBeR\\_PartII\\_Full\\_Report.pdf](http://www.heacademy.ac.uk/assets/York/documents/AMBeR_PartII_Full_Report.pdf)>

- Audit of Academic Integrity and Plagiarism Issues in Australia and New Zealand.

<<http://www.tlc.murdoch.edu.au/project/acode/>>

A project run in 2005 at the Teaching and Learning Centre of Murdoch University and financed by the ACODE (Australasian Council on Open, Distance and E-Learning). The aim of the project was to analyse initiatives undertaken in forty-two of the fifty-one higher education institutions that are members of the ACODE in connection with three basic aspects: policies on academic integrity, whether plagiarism detection software is used, and, lastly, educational resources aimed at both teaching staff and students and intended to spread integrity.

- Center for Intellectual Property.

<<http://www.umuc.edu/distance/odell/cip/cip.shtml>>

*Exploring Copyright, Promoting Integrity, Imagining Digital Futures... in Education.*

A centre at the University of Maryland University College working on research tasks, training and information on copyright and academic integrity in the digital environment.

- Center for Academic Integrity.

<<http://www.academicintegrity.org/index.php>>

This centre was set up in 1992 and in July 2007 it became affiliated to the Robert J. Rutland Institute for Ethics of Clemson University, bringing together 360 institutions concerned with academic integrity. Noteworthy in its website is the documentary database with over 700 references, and the section devoted to providing resources for promoting academic integrity, featuring articles, links to university websites devoted to integrity, and so on. Also to be noted is the 2008 Annual International Conference. Exploring the Present and Future of Academic Integrity, organized in October 2008 (see the "Conference Proceedings" section).

- Asian Pacific Forum on Educational Integrity.

<<http://www.unisa.edu.au/EducationalIntegrity/index.htm>>

Set up in 2003. Since then it has been organizing the Asia Pacific Educational Integrity Conference every two years (see the "Conference Proceedings" section) and publishing the *International Journal for Educational Integrity* (see the "Journals" section).

- Ethics and corruption in education.

<<http://www.unesco.org/iiep/eng/focus/etico/etico2.html>>

This is a research programme run by the UNESCO's International Institute for Educational Planning (IIEP). It was launched in 2001 with the aim of circulating information on ethics in the field of education. Various papers on the subject have been published in the framework of the programme and it maintains the ETICO bibliographic database, which contains over 300 references.

The following papers published and dealing with academic plagiarism stand out:

- ECKSTEIN, M. A. (2003). *Combating academic fraud: towards a culture of integrity*. Paris: International Institute for Educational Planning. 101 pages.

- HALLAK, J.; POISSON, M. (2007). *Corrupt schools, corrupt universities: What can be done?* Paris: International Institute for Educational Planning. 319 pages.

- Portal Plagiarims.

<<http://plagiat.fhtw-berlin.de/start-en/>>

A portal produced by the German professor Dr Debora Weber-Wulff, of Berlin's Fachhochschule für Technik und Wirtschaft. She also runs the blog *Copy, Shake, and Paste. A blog about plagiarism from a German professor, written in English*.<sup>3</sup>

<<http://copy-shake-paste.blogspot.com/2008/06/third-international-conference-on.html>>

## Journals

- *International Journal for Educational Integrity*.

<<http://www.ojs.unisa.edu.au/index.php/IJED/issue/archive>>

A journal acting as a platform for educators involved in researching the multidisciplinary field of academic integrity.

- *Plagiary. Cross-Disciplinary Studies in Plagiarism, Fabrication, and Falsification*.

<<http://www.plagiary.org/>>

An e-journal featuring research papers and reports intended for the general public, dealing with specific plagiarism-related issues.

- *The Journal of Ethics. An International Philosophical Review*.

<<http://www.springer.com/philosophy/ethics/journal/10892>>

Articles are published in this journal on a wide range of issues relating to the spheres of ethics theory, morality, and social, political and legal philosophy. Even though it is a channel for philosophy research, it is essentially based on papers of academic and professional interest.

3. Another weblog worth consulting is Sheila Webber's *Information Literacy Weblog* (<<http://information-literacy.blogspot.com/>>).

– *Assessment and Evaluation in Higher Education.*[<http://www.tandf.co.uk/journals/titles/02602938.asp>](http://www.tandf.co.uk/journals/titles/02602938.asp)

An electronic publication devoted to all aspects of assessment, and assessment in higher education in particular.

– *Studies in Higher Education.*[<http://www.tandf.co.uk/journals/titles/03075079.asp>](http://www.tandf.co.uk/journals/titles/03075079.asp)

An international journal including articles relating to higher education, as approached from any standpoint or discipline.

– *Journal of Further and Higher Education.*[<http://www.tandf.co.uk/journals/carfax/0309877X.html>](http://www.tandf.co.uk/journals/carfax/0309877X.html)

A publication on higher education that takes in such diverse topics as teacher training, the administration and management of education centres, syllabuses, teaching-and-learning strategies, etc.

– *Active Learning in Higher Education.*<http://alh.sagepub.com/>

An international journal aimed at teachers pursuing the goal of improving higher education through presenting research papers and educational innovation.

– *Quality in Higher Education.*[<http://www.tandf.co.uk/journals/carfax/13538322.html>](http://www.tandf.co.uk/journals/carfax/13538322.html)

An international publication on higher education that takes in research results, analyses of education quality systems, teaching procedures and methods, the assessment of educational practice etc.

## Conference Proceedings

## – The International Plagiarism Conference.

As mentioned above, a biennial conference has been staged since 2004 as part of the Internet Plagiarism Advisory Service. The twenty-three talks and papers presented in the first conference, and eight from 2006, can be found here:

- Plagiarism: Prevention, Practice and Policies Conference 2004.

[<http://www.jiscpas.ac.uk/conference2006/2004proceedings.html>](http://www.jiscpas.ac.uk/conference2006/2004proceedings.html)

- Plagiarism: Prevention, Practice and Policies Conference 2006.

[<http://www.jiscpas.ac.uk/conference2006/proceedings.html>](http://www.jiscpas.ac.uk/conference2006/proceedings.html)

- The 2008 conference was held in June, and at the time of writing the proceedings were not yet available on the net.

## – Asia-Pacific Educational Integrity Conference.

The Asia Pacific Forum on Educational Integrity has organized three conferences on this issue: in 2003, 2005 and 2007. The

Cyberplagiarism webliography. References to academic...

conference materials from the last two have been published and are available at:

- BRETAG, T. (coord.) (2007). *Creating a Culture of Integrity. University of South Australia*. Adelaide: University of South Australia. [Accessed: July 16 2008].

[<http://www.unisa.edu.au/educationalintegrity/conference/docs/APCEI%20Conference.pdf>](http://www.unisa.edu.au/educationalintegrity/conference/docs/APCEI%20Conference.pdf)

- ECKERSLEY, Ch.; BOOTH, D.; CLUFF, H. [et al.] (coord.) (2006). *Conference Proceedings. Educational Integrity: Values in Teaching, Learning & Research. 2005*. University of Newcastle. [Accessed: July 16 2008].

[<http://www.newcastle.edu.au/conference/apeic/booklet/APEIC05proceeding.pdf>](http://www.newcastle.edu.au/conference/apeic/booklet/APEIC05proceeding.pdf)

## – International Students, Academic Writing and Plagiarism Conference.

<http://www.lums.lancs.ac.uk/departments/owt/Research/sdaw/sdaw-conference/programme/>

A conference organized as part of the Student Diversity and Academic Writing Project, to which reference was made above. It was held in September 2007.

## – The International Conference of the Center for Academic Integrity.

[<http://www.academicintegrity.org/conferences/2008\\_Conference/index.php>](http://www.academicintegrity.org/conferences/2008_Conference/index.php)

This centre, one of the most important of those working on ethics in the academic world, staged a conference in 2008 under the title Exploring the Present and Future of Academic Integrity.

## Bibliographies/Webliographies

– MOORE HOWARD, R. *Bibliographies for Composition and Rhetoric*.

[<http://wrt-howard.syr.edu/bibs.html>](http://wrt-howard.syr.edu/bibs.html)

Associate professor R. Moore of Syracuse University's Writing Program has drawn up this very thorough bibliography organized under a number of headings, fifteen of which are directly related to plagiarism.

## – Plagiarism in Citeulike.

[<http://www.citeulike.org/search/all?q=plagiarism>](http://www.citeulike.org/search/all?q=plagiarism)

Citeulike is a program for administering bibliography documents while also making the references available to everyone. Once registered, its users can insert and edit references to be classified in subject areas and assign a tag or indexing term to them. Groups sharing documents on the subjects of interest can also be formed. By consulting Citeulike, excellent bibliographies on almost any subject can be obtained. It has 237 documents classified under



the tag plagiarism, and there are eleven groups interested in the topic.<sup>4</sup>

– STOERGER, Sh. (2002, 2006). *Plagiarism*. University of Illinois at Urbana-Champaign.

<<http://www.web-miner.com/plagiarism#copyright>>

Webliography produced in 2002 and updated in 2006.

– ROBERTS, T. (2005). *Assessment in Higher Education. Plagiarism*. Central Queensland University.

<<http://ahe.cqu.edu.au/plagiarism.htm#b2>>

A website with links and resources for spotting and countering academic plagiarism.

– *Representations of plagiarism in popular culture: Some sources*.

<<http://wrt-howard.syr.edu/Bibs/PlagImages.htm>>

A site posted by Rebecca Moore Howard of Syracuse University, updated on October 13 2006, compiling references on plagiarism.

– PEARSON, G. (2004). "Plagiarism. Home Page". *Electronic Plagiarism Seminar*. Syracuse (New York): Noreen Reale Falcone Library, Le Moyne College..

<<http://web.lemoyne.edu/~pearson/plagiarism/>>

Gretchen Pearson's website on academic plagiarism, offering a variety of information on this phenomenon, including guides for educators and students, bibliography, definitions etc., as well as systems for detection and prevention.

– CARROLL, J. (2007). *Desterring Plagiarism in Higher Education*.

<[http://www.brookes.ac.uk/services/ocsd/4\\_resource/plagiarism.html](http://www.brookes.ac.uk/services/ocsd/4_resource/plagiarism.html)>

This is a website intended to act as a follow-up or complement to the book *A Handbook for Deterring Plagiarism in Higher Education*.

– SIMMONDS, P. (2003). "Plagiarism and cyber-plagiarism: A guide to selected resources on the Web". *C&RL News*. Vol. 64, no. 6. [Accessed: July 16 2008].

<<http://www.ala.org/ala/mgrps/divs/acrl/publications/crlnews/2003/jun/plagiarismciberplagiarism.cfm>>

A guide to internet resources on academic plagiarism and cyberplagiarism published by the American Library Association's Association of College and Research Libraries.

– Pennsylvania State University. *Teaching and Learning with Technology: Cyberplagiarism. Detection and Prevention. Links*. <<http://ltl.psu.edu/suggestions/cyberplag/links.html>>

4. Data as of July 16 2008.

A website featuring internet resources on plagiarism, from Pennsylvania State University. Updated in June 2008.

– Clemson University.

<[http://www.academicintegrity.org/educational\\_resources/index.php](http://www.academicintegrity.org/educational_resources/index.php)>

A collection of educational resources on the website of Clemson University's Center for Academic Integrity.

– JOHNSON, J. L. *Plagiarism Resources*.

<<http://www.library.okstate.edu/access/ils/plagiarism.htm#B>>

Oklahoma State University library's list of links. Last updated in 2007.

## Studies on the phenomenon of academic plagiarism among university students

– In the context of its business strategy, the French company Six Degrés, which markets the Compilatio and Pompotron plagiarism detection programs, has analysed plagiarism in various universities. The most recent analyses are those involving students and teachers at the University of Lyon and, based on the same questionnaire, the universities of Zaragoza and Barcelona. The references are:

- SIX DEGRÉS & SPHINX DEVELOPPEMENT (2007). *Les usages d'Internet à l'Université de Lyon: De la documentation... au plagiat*.

<[http://www.compilatio.net/files/sixdegres-univ-lyon\\_enquete-plagiat\\_sept07.pdf](http://www.compilatio.net/files/sixdegres-univ-lyon_enquete-plagiat_sept07.pdf)>

- SIX DEGRÉS & SPHINX DEVELOPPEMENT (2008). *Los usos de Internet en la educación superior: De la documentación al plagio*.

<[http://www.compilatio.net/files/080521\\_sixdegres-univ-barcelona\\_univ-zaragoza\\_encuesta-plagio.pdf](http://www.compilatio.net/files/080521_sixdegres-univ-barcelona_univ-zaragoza_encuesta-plagio.pdf)>

A survey produced by Six Degrés, the company behind the Compilatio software. 299 students and 53 faculty members from the universities of Barcelona and Zaragoza were surveyed.

– An analysis of plagiarism and other forms of academic dishonesty among Spanish university students.

Two surveys were carried out as part of the *El ciberplagio entre los estudiantes universitarios (Cyberplagiarism among university students)* project and the results amounted to the clearest overview of the phenomenon available to date in Spain. Here are the references to the documents:



• SUREDA, J.; COMAS, R.; CASERO, A. [et al.] (2008). *El plagio y otras formas de deshonestidad académica entre el alumnado de la Universitat de les Illes Balears. Resultados generales, por género y por ramas de estudio. Informe de Investigación.* [Plagiarism and other forms of academic dishonesty among students at the University of the Balearic Islands. General results, broken down by gender and area of study. – Accessed: July 16 2008].

<<http://www.ciberplagio.es/index.php?key=61>>

• SUREDA, J.; COMAS, R.; CASERO, A. [et al.] (2008). *El plagio y otras formas de deshonestidad académica entre el alumnado de la Universitat de les Illes Balears. Resultados generales.* [Plagiarism and other forms of academic dishonesty among students at the University of the Balearic Islands. General results – Accessed: July 16 2008].

<<http://www.ciberplagio.es/index.php?key=61>>

• SUREDA, J.; COMAS, R.; CASERO, A. [et al.] (2008). *El plagio y otras formas de deshonestidad académica entre el alumnado de la Universitat de les Illes Balears. Resultados generales de los datos de una encuesta realizada a los usuarios del portal Universia.* [Plagiarism and other forms of academic dishonesty among students at the University of the Balearic Islands. General results of the data from a survey carried out on users of the Universia portal. – Accessed: July 16 2008]

<<http://www.ciberplagio.es/index.php?key=61>>

As part of the same project, the phenomenon of the so-called "essay factories", has also been examined. Here is the reference to the document:

• SUREDA, J.; COMAS, R.; MUT, B. (2007). *Las fábricas de trabajos académicos; una incitación al fraude en las aulas. Informe de Investigación.* [Academic essay factories; an incitement to fraud in the classroom. Research report – Accessed: July 16 2008].

<<http://www.ciberplagio.es/index.php?key=61>>

– BILIĆ-ZULLE, L.; FRKOVIC, V.; TURK, T. [et al.] (2005). "Prevalence of Plagiarism among Medical Students". *Croatian Medical Journal*. Vol. 1, no. 46, pp. 126-131. [Accessed: July 16 2008].

<<http://www.cmj.hr/2005/46/1/15726686.pdf>>

– BRIMBLE, M.; STEVENSON-CLARKE, P. (2005). "Perceptions of the Prevalence and Seriousness of Academic Dishonesty in Australian Universities". *Australian Educational Researcher*. Vol. 32, no. 3, pp. 19-44. This document can be obtained from the ERIC.

– HASEN, M.; HUPPERT, M. Y. (2005). *The Trial of Damocles: an investigation into the incidence of plagiarism at an Australian university.* [Accessed: July 16 2008].

<<http://www.aare.edu.au/05pap/has05273.pdf>>

– UNIVERSITY OF ADELAIDE (2004). *Student Survey*. [Accessed: July 16 2008].

<[http://www.adelaide.edu.au/clpd/plagiarism/students/downloads/plagiarism\\_survey\\_2004.pdf](http://www.adelaide.edu.au/clpd/plagiarism/students/downloads/plagiarism_survey_2004.pdf)>

– URKUND (2006). *Lés étudiants et l'intégrité à l'université. Enquête sur l'attitude des étudiants à l'égard des questions d'intégrité à l'université, en Belgique, en France et aux Pays-Bas.* [Accessed: July 16 2008].

<<http://www.urbund.com/fr/News/Enqu%EAte%20sur%20%92attitude%20des%20%92tudiants%20NL%20BE%20FR%20Printemps%202006.pdf>>

## Strategies for countering plagiarism by students

The problem of plagiarism cannot be solved with simple, one-track measures. To deal with it, strategies are needed that facilitate its detection and the establishment of academic or disciplinary rules for centres. Also necessary are strategies to educate students and faculty members. Rules, control and training are thus the commonest approaches to tackling the problem. This section provides references to some of the most interesting websites produced by various universities to raise awareness in issue and educate students and faculty.

## Websites for faculty and students

Universities, particularly in English-speaking countries, have set aside areas on their websites for raising awareness in the university community regarding the problem of plagiarism. All those sites are very similar in structure: the most comprehensive ones feature two broad sections, one for faculty and the other for students. Students are offered information on the consequences of plagiarism, what the university regulations have to say about it, and in particular educational materials for training the students to write properly and honestly. The section devoted to faculty includes articles and reports on the subject and, in some cases, access to computer programs that help to detect plagiarism.

– *Intégrité*. Université de Montréal.

<<http://www.integrite.umontreal.ca/>>

This university set up its Commission on Integrity, Plagiarism and Fraud in 2006. One of the things the Commission did was to launch this website, which is organized into five general sections. The first of them (*Definitions et enjeux*) provides articles on the subject, as well as a brief description of the problem. The second is devoted to showing the regulations in place on the issue. The third, called *Bonnes pratiques*, gives guidance on how to cite and



paraphrase. The fourth offers computer resources on academic integrity. The fifth is a questionnaire to be used by students in self-assessing their knowledge about integrity, fraud and plagiarism. The last section provides information on courses and other resources that the University makes available to all interested.

– *Sobre Ciberplagio*, Universia.

<<http://universitarios.universia.es/seccionEspecial.jsp?idEspecial=118&idSeccion=5763&title=SOBRE-CIBERPLAGIO>>

A resource hosted by the Universia portal in which information on the nature of cyberplagiarism and how to avoid it can be consulted.

– Library Service, University of Seville.

<[http://librisql.us.es/ximdex/guias/plagio/La%20Biblioteca%20de%20la%20Universidad%20de%20Sevilla\\_03.htm](http://librisql.us.es/ximdex/guias/plagio/La%20Biblioteca%20de%20la%20Universidad%20de%20Sevilla_03.htm)>

A section in Seville University's Library Service website providing conceptual information on academic plagiarism and its main features.

– *Electronic Plagiarism Seminar*.

<[http://www.lemoyne.edu/library/plagiarism/about\\_gep.htm](http://www.lemoyne.edu/library/plagiarism/about_gep.htm)>

The librarian Gretchen Pearson produced this website as a supporting resource for a seminar on plagiarism staged in 1999 at Le Moyne College in Syracuse, New York. It has a lot of information: there is a bibliography, guides for students and faculty, etc. It was last updated in 2005.

– *Plagiarism Resource Center*. Website of the William M. Brish Library of Hagerstown Community College.

<[http://www.hcc.cc.md.us/library/SERVICES\\_plagiarism.html](http://www.hcc.cc.md.us/library/SERVICES_plagiarism.html)>

A large number of resources, organized in four categories: materials for students, resources for faculty, resources to help in citing properly, and lastly links to websites with plagiarism detection programs.

– *Academic Integrity in the Classroom. A Selected List of Resources for the University of Michigan*.

<<http://www.lib.umich.edu/acadintegrity/>>

This website, updated in 2006, has resources for faculty and students.

– *Cyberplagiarism: Detection and Prevention*.

<<http://ltl.its.psu.edu/suggestions/cyberplag/>>

Pennsylvania State University runs this website containing links to many resources on plagiarism. It amounts to an excellent introduction to the subject.

– *Plagiarism Website*.

<<http://www.adelaide.edu.au/clpd/plagiarism/>>

A University of Adelaide website. It provides information for students and faculty, aimed at countering plagiarism.

Cyberplagiarism webliography. References to academic...

– *Academic Honesty and Plagiarism*. Australia.

<<http://academichonesty.unimelb.edu.au/>>

A University of Melbourne website with resources for avoiding plagiarism among university students.

– *Plagiarism Awareness*. University of East Anglia.

<[http://www1.uea.ac.uk/cm/home/services/students/let\\_service/let\\_plagiarism\\_aware](http://www1.uea.ac.uk/cm/home/services/students/let_service/let_plagiarism_aware)>

A good example of a university website. Resources for faculty and students.

– Indiana University Bloomington.

<<http://www.indiana.edu/~wts/pamphlets.shtml>>

Through its Writing Tutorial Services, this university presents resources for fighting plagiarism and avoiding academic dishonesty.

– *Plagiarism.org*.

<<http://www.plagiarism.org/index.html>>

This website was created in 1996 and offers resources for understanding plagiarism. One of its sections – the Learning Centre – offers a brief, concise account of the phenomenon.

– *Academic Integrity*. University of Princeton.

<<http://www.princeton.edu/pr/pub/integrity/index.html>>

A Princeton University website aimed at students and designed to provide information intended to avoid academic plagiarism.

– *Writing Center*.

<<http://www.hamilton.edu/writing/index.html>>

A Hamilton College website offering useful resources and links for the proper production of academic work.

– *The Writing Center*. University of North Carolina.

<<http://www.unc.edu/depts/wcweb/>>

A page from the Writing Center of the University of North Carolina that provides, in addition to various resources to help students to do their academic assignments properly, online tutorials through which students can set out their queries and questions.

– *The Bedford/St. Martin's Workshop on Plagiarism*.

<<http://bcs.bedfordstmartins.com/plagiarism/>>

Online materials for preventing and fighting against academic plagiarism. It includes resources, detection services, search tools, bibliography etc.

## Tutorials for students

– *Le plagiat*.

<<http://www.bibliotheques.uqam.ca/recherche/plagiat/index.html>>



This tutorial, produced by the libraries services of Quebec University in Montreal (UQAM), is an excellent example of a good learning resource for students. It is arranged in four general sections: "What plagiarism is", "Citing properly", "Advice", and "Self-assessment test".

– *Avoiding Plagiarism.*

<<http://owl.english.purdue.edu/owl/resource/589/01/>>

Purdue University's *The Writing Lab* has this very simple but very useful tutorial.

– *Understanding plagiarism.*

<<http://education.indiana.edu/~frick/plagiarism/>>

The School of Education, Indiana University Bloomington.

– *How to Avoid Plagiarism.*

<<http://www.umuc.edu/ewc/tutorial/start.shtml>>

A tutorial for students from the Effective Writing Center (EWC) of the University of Maryland University College.

– *Plagiarism Resource Centre: For Students.* University of British Columbia.

<<http://www.library.ubc.ca/home/plagiarism/>>

A website that includes information on the phenomenon of academic plagiarism, detection strategies, resources for avoiding it, etc.

– *Avoiding plagiarism. A Guide for Students.* University of Oregon.

<<http://libweb.uoregon.edu/guides/plagiarism/students/>>

The University of Oregon's guide for students, describing the phenomenon of plagiarism and providing alternative documentation tools when doing academic assignments, in order to counter academic dishonesty.

## Plagiarism detection programs

Google is perhaps the most widely used system among faculty, particularly in Spain, where specific plagiarism detection programs are very rarely used in comparison with other countries.<sup>5</sup> Detection programs have been widely adopted in the English-speaking world for years now. Those programs compare the papers subjected to analysis with documents on the internet or with other papers by students that they keep filed away on certain servers – the servers of the companies that publish the programs or the university's own

servers. Some also compare them with the contents of journals and other publications, the content of which is for paid-up subscribers only and not indexed by Google. Though of great help, these programs have obvious shortcomings: they cannot detect texts that are paraphrased but not cited, texts translated from other languages, or texts from printed sources.<sup>6</sup>

There is a study on plagiarism detection programs, produced in 2000 on commission from the JISC (Joint Information Systems Committee), analysing five programs: CopyCatch.com3, Eve4, Findsome.com 5, Turnitin.com6 and Wordcheck. This study was produced as part of the *Plagiarism Programme. Technical review of free-text plagiarism detection software*. The reference is:

- BULL, J.; COLLINS, C. (2001). *Technical Review of Plagiarism. Detection Software Report*. Luton: University of Luton. [Accessed: July 16 2008].

<<http://www.jisc.ac.uk/media/documents/programmes/plagiarism/luton.pdf>>

In addition, the software section of *Portal Plagiarism*<sup>7</sup> offers results from an evaluation of various programs. According to this analysis, none of the programs analysed emerges as excellent, and just one (Ephorus) earns a "good" rating, while six are deemed acceptable.

Here are the references for some of the best known programs:

## Programs for use by institutions:

– Turnitin.

<<http://www.turnitin.com>>

This is the most popular program in English-speaking countries. In the United Kingdom, for example, it is in use in 90% of universities. After registering as a user, the student assignment to be checked is sent in; the work is then compared with the content available on the internet, with work by other students stored by Turnitin on their databases, and with commercial databases of articles, and then it is sent back with a report on any "similarities" found.

– Urkund.

<<http://www.urnkund.com>>

This company was set up in 2000 by a group of lecturers who were concerned about academic plagiarism. The system is used in European university centres.

5. There are some Spanish university departments that have developed systems for detecting plagiarism by their students. Such is the case of Computational Architecture at Madrid's Polytechnic University, which has developed and applied the program pk2. See F. Rosales, A. García, S Rodríguez, et al. (2008): "Detection of Plagiarism in Programming Assignments", *IEEE Transactions on Education*, vol. 51, no. 2, pp. 174-183 (Accessed: July 16 2008; <<http://ieeexplore.ieee.org/xpl/tocresult.jsp?isYear=2008&isnumber=4512114&Submit32=Go+To+Issue>>).
6. Visit: <<http://www.integrite.umontreal.ca/prevention.html>>.
7. Visit: <<http://plagiat.fhtw-berlin.de/software-en/>>.



– Compilatio.

<<http://www.compilatio.net/fr/>>

An online detection program, available by subscription, and created in 2005 by Six Degrés. It is the most popular program in the French-speaking world. This company also markets Pompotron (<http://www.pompotron.com>), geared towards non-institutional users. , geared towards non-institutional users.

– Ephorus.

<<http://www.ephorus.de/start>>

A program from the Netherlands, and the one that achieved the best rating in an evaluation by Portal Plagiarism.

– Docoloc.

<<http://www.docoloc.de/>>

A German program.

– SafeAssign.

<<http://safeassign.com/>>

A plagiarism detection and prevention program aimed at faculty and students.

– iTenticate.

<<http://www.ithenticate.com/index.html>>

An application designed to check the originality of documents, and intended for publishers, corporations and firms of lawyers among others. It comes from the same company as Turnitin.

## Programs for use by individuals

– Eve2.

<<http://www.canexus.com/eve/>>

A plagiarism detection program that can check whether a document was copied from the internet.

– Pompotron.

<<http://www.pompotron.com>>

A text-analysis tool that compares documents with items available on the internet and ascertains whether they contain fragments or even references copied from that source.

– Wcopyfind.

<<http://plagiarism.phys.virginia.edu>>

A document-review program that detects similar fragments by means of comparisons and produces reports containing any coinciding sentences it has spotted.



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