

# Text-Based Plagiarism in Scientific Writing: What Chinese Supervisors Think About Copying and How to Reduce it in Students' Writing

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**Abstract** Text-based plagiarism, or textual copying, typically in the form of replicating or patchwriting sentences in a row from sources, seems to be an issue of growing concern among scientific journal editors. Editors have emphasized that senior authors (typically supervisors of science students) should take the responsibility for educating novices against text-based plagiarism. To address a research gap in the literature as to how scientist supervisors perceive the issue of textual copying and what they do in educating their students, this paper reports an interview study with 14 supervisors at a research-oriented Chinese university. The study throws light on the potentiality of senior authors mentoring novices in English as an Additional Language (EAL) contexts and has implications for the efforts that can be made in the wider scientific community to support scientists in writing against text-based plagiarism.

**Keywords** Text-based plagiarism · Textual borrowing · Supervisors · Writing for publication · Chinese scientists

## Introduction

A short correspondence published in a September 2010 issue of *Nature*, with its eye-catching title, “Chinese journal finds 31% of submissions plagiarized”, had a sensational effect. The correspondence was authored by Yuehong Zhang (2010a), Journal Director of the *Journal of Zhejiang University-Science (JZUS)*, an English-medium SCI (Science Citation Index) journal which is based at a prestigious university in China and which receives most of its submissions from mainland China (Zhang 2010b). By saying “we have detected unoriginal material in a staggering 31% of papers” (Zhang 2010a, p. 153), the *Nature* report does not indicate the extent of

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such “unoriginal material.” Elsewhere in a paper dated a little earlier, Zhang (2010c) gave an indication of the nature of the plagiarism they found in their journal: “contain unreasonable copying or self-plagiarism, and about a quarter of these give rise to serious suspicions of plagiarism and copyright infringement; in some cases, the similarity with the plagiarized original was as high as 83%” (p. 9).

What might the author of an accused paper in *JZUS* be arguing? With reference to several publicized cases of plagiarism involving Chinese authors (see Li and Xiong 1996 and Rodiek 2007) and other English as an Additional Language (EAL) authors (see Brumfiel 2007), it seems the accused author may typically argue: “We did not copy the research (we have original data); we only reused some language.”

Apparently, while it may be viable to suggest a distinction in scientific writing between the borrowing of science/ideas and of language/text (e.g. Flowerdew and Li 2007; Bouville 2008), such a distinction is only relative: clearly the greater the extent of the copying of text (by paragraphs rather than just lifting a couple of sentences, for instance), the more extensive the copying of ideas is involved. But the crux of the issue here is: in scientific writing, is language copying also plagiarism? To journal editors (e.g. Mosher n.d., cited in Perry 2010; Williams 2007; Zhang 2010c), obviously it is. David Williams, Editor-in-Chief of *Biomaterials*, recently raised concerns over “plagiarism with respect to the language of manuscripts” and pointed out that although stealing of science and data has been rare, “the misappropriation of language from other authors” is a “quite significant trend” (Williams 2007, p. 2535).

What David Williams calls “linguistic plagiarism” is an issue especially pertinent to EAL authors, as evidenced by some recent reports and correspondence pieces carried in *Nature* (e.g. Brumfiel 2007; Butler 2008; Yilmaz 2007). In the meantime, noticeably, journal editors have suggested “senior authors” (Williams, *ibid.*) or “mentors of young researchers” (“Plagiarism pinioned” 2010, p. 160), should take responsibility in disseminating the ethics of research and publication, including in the prevention of “linguistic plagiarism.”

With China’s continuous rise in the international publication arena in the past decade (Mu 2010), as well as recent interrogations over Chinese scientists’ ethical conduct (Qiu 2010), a study conducted in a Chinese context would seem particularly worthwhile. The present paper aims to illuminate a small sample of Chinese supervisors’ views and their teaching practices concerning text-based plagiarism, by drawing upon some interview data collected in a larger project that investigates Chinese scientists writing for international publication. It is hoped that this exploratory study conducted at a major university in China, despite its limitations, would help to throw some light on the potentiality of senior authors mentoring novices in EAL contexts and the efforts that can be made in the wider scientific community to support scientists in writing against text-based plagiarism.

### Text-Based Plagiarism in Scientific Writing as an Issue of Growing Concern

In the influential pamphlet *On being a scientist: Responsible conduct in research* (1995) issued by the US National Academy of Sciences in coalition with other scientific research organizations of the country, plagiarism is defined as “using the

ideas or words of another person without giving appropriate credit” (p. 148). This definition clearly is in strict alignment with that ordained in English-dominant universities and meant to have cross-disciplinary application (see e.g. Pecorari 2001). For example, in *Harvard guide to using sources: What constitutes plagiarism?* (n.d.), it is stated: “In academic writing, it is considered plagiarism to draw any idea or any language from someone else without adequately crediting that source in your paper.” In other words, in the orthodox definition, in scientific writing, as in writing in any other disciplines, using ideas or language from sources without proper acknowledgement constitutes plagiarism.

However, while in universities students may be caught for *plagiarizing* a whole paper or a group of sentences, reports of plagiarism in scientific publication have centered around the stealing of data (duplication of the research itself), but rarely, if ever, concerns the copying of a few sentences (duplication of segments of text). Yet significantly, there seems to be sign that this may be changing, with the copying of language becoming an issue more prominent than ever before in scientific publication, probably to a large extent thanks to the introduction of automated anti-plagiarism screening, a recently developed and widely acclaimed tool being CrossCheck.<sup>1</sup> CrossCheck would catch “very blatant unethical cases of plagiarism” (Butler 2010, p. 167), which presumably involve extensive duplication of text and data. The text-matching tool would also throw up text matches that are of “mitigating circumstances,” “such as a scientist with a poor command of English paraphrasing some sentences of the introduction from similar work,” as a recent editorial in *Nature* put it (“Plagiarism pinioned” 2010, p. 160). The same editorial suggested that a response to plagiarism of different “degrees of severity” should be “proportionate” (ibid.), implying that the “mitigating circumstances” named above should not be treated the same as the stealing of data; however, nowhere does the editorial say that the “mitigating circumstances” are acceptable in submissions or publications.

### Experienced Versus Inexperienced Authors

In a pioneering originality-verifying screening of arXiv, a preprint database of mostly physics papers, Sorokina et al. (2006) reported that “while prominent (highly cited) authors are frequently victimized, they do not appear to reuse text from others” (p. 1075); on the other hand, their survey also pointed to “some careless reuse by non-native English writers who fear garbling content by modifying it” (ibid.).

In a series of studies focused on Chinese novice scientists (doctoral students) writing for publication in English, the present author found language reuse to be a commonly used composing strategy among the novices when they attempted to

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<sup>1</sup> CrossCheck is an originality-verifying program developed by iParadigm (the California-based software company which also produced Turnitin now widely used in universities) in collaboration with CrossRef (a non-profit membership association of publishers). Major publishers, such as Springer, Elsevier, Taylor & Francis, Wiley-Blackwell, and the Nature Publishing Group have been piloting CrossCheck and are expecting to use it extensively for screening submissions (Butler 2010; Colón 2008).

write their first paper; and they are able to justify such a strategy in every section of an IMRD (Introduction–Methods–Results–Discussion) paper (Li 2007a, b; Flowerdew and Li 2007). For instance, using sentences from sources with relatively minor adjustment in writing the introduction of a paper is considered acceptable by some novices, as it concerns the presentation of shared knowledge or background information; and reproducing experimental descriptions in the methods section from a previous paper in one's home research group is fine because of some shared experimental procedure. However, the textual copying in the novices' initial drafts can be effectively reduced in the subsequent revision, where the supervisor usually plays a key role, with the novices participating to various extents (e.g. Li 2011).

If senior authors, or more experienced authors, are expected to mentor or educate novices against textual plagiarism ("Plagiarism pinioned" 2010; Williams 2007), there has been little research on how the former reckons the issue of textual copying or how they may work against it in their local context. Sporadic evidence found in the literature reveals scientist advisers expressing disapproval of their advisees' textual borrowing in writing degree dissertations (Dong 1996, which reports supervisors working with a few Chinese doctoral science students at an American university). Further research is needed to explore senior authors' perspectives upon and approaches to textual copying among novices. Such research, when conducted in an EAL context, will go some way toward illuminating the issue in the larger scientific community, and facilitate looking for measures that can be taken to support EAL authors in their effort to get published internationally. The present study thus aims to take a preliminary step toward filling such a gap in the literature, by interviewing a group of Chinese supervisors in a range of science disciplines, and addressing the following two research questions:

1. What attitudes do these Chinese supervisors have toward textual copying in writing for publication?
2. What perspectives do they take upon students' textual copying and what do they do if they educate their students against textual copying?

## Methods

The primary database of this study consists of interviews with 14 Chinese professors conducted in a larger project investigating Chinese scientists' experience of writing for international publication. All participants in the study work in a major research-oriented university in East China, where as at other major universities in China, English publication has been a graduation requirement for doctoral science students (see Cargill et al. 2012). The final product of an English paper that counts towards a student's fulfillment of the graduation requirement can usually be so characterized: the student has done the research reported in the paper under the guidance of the supervisor, the student has then produced an early draft, and the supervisor has played a major role in its revision until the paper, with the student as the first-author and the supervisor as the corresponding author apart from a number of co-authors

who have typically helped with the various stages of the research, is accepted for publication.<sup>2</sup>

The participants of the study, representing a range of academic disciplines: physics (coded as P1–P4), material science (P5), chemistry (P6–P9), biochemistry (P10), biology (P11), medicine (P12 and P13), and pharmacy (P14), were sampled on various accounts while taking into consideration the diversity of disciplines: being the supervisor of the student participants in the larger project (P2, P3, P8), personal acquaintance (P5), well-known at the Chinese university where the larger project was based for leading productive research groups (P7, P10, P11), recommendation from personal contacts (P6, P9, P12, P13, P14), and finally, the researcher taking the advantage of meeting academics at an international conference of physics held at the university (P1, P4). At the time of the study, except P5 and P8, the participants were either professors or associate professors supervising doctoral students; while P5 and P8 were post-doctoral fellows, with their main job being revising the papers of the doctoral students in their research group. Thus all the participants will be referred to as supervisors in the present paper. P5 and P14 are female and the rest are male. Semi-structured interviews with the participants, taken place in their offices or laboratories, café, or conference site, and lasting about 20–40 min each, were conducted in Mandarin Chinese, the shared mother tongue between the participants and the researcher (myself), and audio-recorded. During the interviews the researcher used the term *wen ben chao xi* (Chinese *pinyin* and literal translation of *textual copying*), which is relatively neutral in connotation, to describe the phenomenon that is the topic of research interest in the present study. To facilitate discussion during the interviews, where appropriate, references were made to publicized cases of plagiarism involving Chinese scientists (see Li and Xiong 1996; Rodiek 2007), and the COPE (Committee on Publication Ethics) flowcharts on *What to do if you suspect plagiarism* (COPE 2008).

Most participants were interviewed just once; P3 and P10, as long-term participants in the larger project, were approached multiple times, with the issue of textual copying brought up on various occasions with them over time. Where necessary, clarifications were sought with the participants via follow-up emails. The interview data collected for the study were transcribed, translated into English, and analyzed in NVivo8.0 to arrive at the codes which will serve as the headings in the Findings section below.

<sup>2</sup> It is generally understood that in science and engineering, as in any other disciplines, the assignment of the first authorship in publication should be based on the amount of contribution (Weller 2001). In light of this principle, in the scenario described here, a student being listed as the first author can be controversial and ethically questionable. However, such practice of the student who has done the benchwork and written an early draft being listed as the first author and the supervisor who has played the dominant role in writing and revising the paper as the corresponding author seems common in China. Based on the present researcher's communication with the students and supervisors in her research in the past years, she would suggest that this is more of an established convention than an issue to do with ethics.

## Findings

To address the two research questions, the findings concerning the research participants are presented here under three main headings: attitudes toward textual copying in writing for publication, perspectives on students' textual copying, and educating students against textual copying. Under each, three sub-sections cluster to elaborate and illustrate the dimensions of the themes conveyed through these three main headings.

### Attitudes Toward Textual Copying in Writing for Publication

The participants pointed out that although textual copying may escape the notice of reviewers or of readers after publication, it is unethical and should be avoided. The participants believed a qualified scientist should not copy others' text, they saw gaps between Chinese and Western academia in terms of source-acknowledging practices, and they also suggested mitigating circumstances of language reuse.

### *Avoiding Textual Copying Being a Scientist's Basic Qualification*

The academics generally agreed that avoiding textual copying is an unwritten rule that all scientists should observe. P6, a professor of chemistry, noted that he had discussed with colleagues at a conference the criteria over textual borrowing and they agreed, firstly, "you should deeply understand the source text, and express in your own words" as "there are always multiple ways for expressing the same meaning"; and secondly, "you can't copy two sentences in a row—one sentence is already questionable, but copying two sentences in a row must be plagiarism."

For P11 basically "there is no reason to copy; copying does not produce a good paper—copying creates a mere assorted dish" and ignorance of this would indicate major gaps in one's "basic qualification as a scientist." P10 emphasized that even though one may get away with copying to a larger or lesser degree, one should "exercise self-discipline." Similarly, P13 considered holding to ethical conduct in research writing a matter of "having self-respect."

### *Source-Acknowledging Practices Inadequate in China*

It is perhaps not surprising that the participants tended to discuss textual copying by reference to the academic corruption in China, an issue widely discussed in Chinese academia in recent years (Qiu 2010). To P6, corruptions of all kinds (plagiarism, faking data, multiple submissions etc.) in Chinese scientific academia have resulted in "foreign journals' and editors' strong reaction against us." Talking specifically about acknowledging sources, P3 (physics) noted there is a gap between Chinese academics and their Western counterparts:

I have attended some talks by Western physicists; if they review others' work, say, in a 30-minute talk, they need to comb the major progress in the field, cite many research results of others', and they put [on a slide] "courtesy of..."

– they may have indeed written to the publisher, asking for permission to use a certain figure in a certain journal. In China there is no standard practice like this yet. (P3)

To the participants in general, textual copying indicates sloppiness in performing academic research and inadequacy in one's basic qualification of being a scientist. They believed there is an "unwritten convention" in the scientific community regarding proper citation of sources and the avoidance of textual copying for all scientists to observe. Thus to P13, the argument made by some Chinese authors that "what's wrong with copying a few passages" (Zeng 2010) was simply "nonsense."

### *Mitigating Circumstances*

Several participants pointed out the reuse of the following statements of widely-accepted facts should not be regarded as being transgressive:

The inheritance matter of human beings is DNA. (P8)

Research on the high-temperature super-conductor has inspired wide interest. (P4)

Microglia is an immunal cell in the brain. (P14)

As P8 put it, "when it's something everyone can say, I think it cannot be called plagiarism" and "there is no need to add references to such a sentence, even if it's more or less copied from somewhere."

P14 (pharmacy) noted it should be fine for the relevant method description in a paper to be transferred from a previous paper in one's home research group, if the previous author is a co-author in the later paper:

A student may be carrying on my previous work, some of his text in the methods section is copied from my previous paper, I think this doesn't matter too much, because within one group, something they do is the same, and the corresponding part of the writing should be the same. (P14)

The scenario described by P14 here seems potentially controversial, depending on the degree of text reproduction from a co-author's (in this case the supervisor's) previous paper. In contrast, while P5 had a mitigating attitude toward reusing experimental descriptions from one's previous paper, she pointed out that she tried to avoid exact reproduction and "make some changes in every paper even when describing the same experimental steps."

P5's view of not replicating experimental descriptions from one's (or one's home group's) previous paper seems more in line with other participants' stance. For P10 in particular, a certain experimental step having reported in a previous study should not be replicated in a later paper, because such replication may feel odd in the current text which has its own logic of writing; in fact, normally one can just cite the previous paper, especially when the experimental procedure involved may have become common knowledge years after it was described in the previous paper. What P5 and P10 said about not repeating verbatim words found in a previous paper

in composing the methods section is in line with the practices of some established scientists', as reported in the literature (Dubois 1988; St. John 1987).

### Perspectives on Students' Textual Copying

From their experience of reading and revising student texts, the supervisors have formulated their perspectives on novices' textual borrowing: that borrowings tend to fit poorly into the research context of one's paper, certain features of a novice text would signal copying, and students' language reuse oversteps the boundary of learning through imitation.

#### *Students' Textual Reproduction poorly Fitting the Context of a Paper*

P5 talked of a manuscript written by a doctoral student in her group, where the Introduction "has been very obviously copied from other papers," characterizing the student's copying in terms of failing to synthesizing from different sources and contrasting it with what she might do instead:

If I were to write it, I would merge together the meanings of A, B, C, D, E and have my own sentences, and none of the five people would say "this sentence is mine;" but what that student did was, copying one sentence from A, copying another from B, and yet another from C, so everyone will recognize this sentence as mine. (P5)

Similarly, to P10,

The problem is the students do not know a directly taken sentence serves the purpose of others' research in their text; so a sentence moved to your paper will be awkward; or sometimes even reusing a small word can be awkward. (P10)

#### *Student Texts Showing Signals of Copying*

The participants indicated they were mindful of textual copying when going through a novice text. For them if a student's initial draft is smooth and well-written, it sends a signal of copying:

I would rather see a badly written piece by a student, than a smoothly written one – the latter is highly suspicious of copying. (P7)

Though I don't start with presumption of guilt, I grow suspicious when I see that a sentence is well-written. If it's bumpy and rough, it's OK. (P9)

In contrast to P9, P10 did hold a "presumption of guilt" of his students' initial drafts (a case study of P10's perception of his students' textual copying and his approaches in revising two novice texts was reported by Li [2011]). A professor with much experience of revising student papers, P10 suggested two types of signals of copying in student texts. The first is the words like *indicate*, *suggest*, or *reveal* that are often found in the Results and Discussion section of a paper: "what follows these words



tend to be have been copied from somewhere,” because, he noted, these words are “followed by interpretation and discussion of results; often the students do not have the ability to give a proper interpretation and discussion of results and they will pull such stuff over from sources.” The second kind of signal for copying is the occurrence of what he called “star words,” which are usually nouns, verbs or adjectives. Two examples he took from student texts are *hallmark* and *one-shot*. A chunk containing such words may have been copied, P10 said, because these figurative words are either quite individualistic to an author or the students are simply not likely to know how to use them (Li 2011).

### *Textual Copying Overstepping Learning Through Imitation*

Despite his “presumption of guilt” toward students’ initial drafts in terms of textual copying from sources, P10 believed the copying was not “ill-intentioned” but it was above all, due to the students’ “lack of scientific perspicacity” (from their novice status in conducting scientific research) and their “difficulty in English.” The inadequacy on these two accounts of scientific expertise and English proficiency (Gosden 1995, p. 39) means it is necessary for the novices to “imitate” the writing of the published articles, as a number of supervisors explicitly pointed out (P1, P4, P9, P11, P12). For example, P12 taught his students a googling strategy: when not knowing how to write something containing certain key words (specialist medical terms), google these words in various combinations and see how these words may have been used by others in sentence structures, and then identify relevant ways of expression and imitate them.

P1 suggested there is a “dialectic” relationship between imitation and copying: “imitation is important, but you can’t imitate in order to copy, or copy in order to imitate.” A detailed account of such dialectics was given by P4:

I think imitation is necessary, especially when one is learning to write a paper. [...] When you write a paper, you have to give the background, so you must read many articles. You synthesize them and find your clue. At this time maybe you have something in Chinese, the meaning is also here, you want to turn the Chinese into idiomatic English – at this time I think it’s necessary to imitate. But still you use your own language, to introduce the background of your study, so this is not copying. (P4)

P4’s comment here can be roughly interpreted as this: for a novice paper writer, imitating the rhetorical “moves” and “steps” (Swales 1990) and the turn of phrases, in the Introduction section of a paper for example, is necessary for learning; but such imitation notwithstanding, how one selects the relevant literature and organizes it to lay the ground for one’s study should be from one’s original thinking (Dubois 1988; Eckel 2010; Krishnan and Kathpalia 2002).

### *Educating Students Against Textual Copying*

The supervisors generally took up the responsibility to educate students against textual copying, and do so as an integrated part of their effort to cultivate a healthy

research environment in their laboratory. In addition, note-taking is suggested by a few as a valuable reading-for-writing strategy. In handling students' copying, P10 noticeably had a different approach from other supervisors.

### *Building a Healthy Research Environment*

P6, P7, P9, P13 and P14 endeavored to promote a healthy research environment in the research group they led. P13 put up on the wall in his laboratory a page (yellowish from time) from a back issue of university newspaper which spelt out an ethical code of research conduct for university academics. He said the students may not scrutinize the page at all (neither had he), but "it's up there and it sends a message—that this is what I expect in my lab."

P9, a relatively young academic, said he tended to "nag against" plagiarism "every now and then." He usually does so at group meetings: "when there's someone doing a presentation, I also do a presentation, talking about writing, reference searching and academic ethics." He noted that in looking for teaching materials for research ethics, he had even searched for cases of plagiarism using the word "retracted" (see Williams and Wager 2011). He wanted to make sure his students develop an awareness against plagiarism starting from when they join the group, with the junior students receiving good influences from the senior ones. Similarly, to P8 it is important that students "know what the correct way is from the beginning." P13 also made this clear: "In my lab, I said at the beginning, you can borrow, but it's borrowing with a moral principle; that is first you must cite, second you must modify language."

P14's students were expected to mark out the sentences they had copied from sources (if there were such sentences) when they turned in their draft to her for revision. "If they do not do that, I can't start to revise," she said. Supervisors, being the corresponding author of a paper, have the responsibility to be vigilant against plagiarism, as P14 and several others pointed out.

### *Teaching Note-Taking Strategies*

P8 and P9 described how they expected their students to take notes while reading and both pointed out that the note-taking strategy they tried to promote among their students should also help to avoid plagiarism. P9 gave each student a big file folder for holding journal articles and a big hardcover notebook when they joined his research group, advising them to take notes both of content ("the why, how, and what questions that one can raise about a study") and of language while reading ("if you think this sentence pattern is very useful or beautifully expressed, you note it down; when you write, you try to use the pattern"). Noticeably, P9 pointed out taking notes by hand rather than on computer, apart from facilitating learning ("hand-writing carries memory"), would potentially help to reduce plagiarism:

When you try to use something by reference to your hand-written notes, you will think how NOT to repeat the same stuff. But if you have written notes

electronically, it can be troublesome – you may just press Ctrl-C + Ctrl-V and OK. (P9)

In contrast to P9's preaching of writing notes by hand, P8 (as a post-doctoral fellow) taught the students in his laboratory how to take notes on computer, following several steps: (1) while reading articles, cut and paste from them into a Word file relevant passages under various headings indicating themes (which are developed in the process of reading); (2) after reading all the important papers on a topic and taking notes this way with each, study the notes, and "draw out" issues and aspects of issues from the multiple cut-and-pastes from different sources under a heading; (3) for an issue or aspects of an issue, there may be "three or four pieces of notes," so "you merge them and write your own sentence." As a result, P8 noted, "very little of your sentence overlaps with another sentence; you have both referred to others' sentences and avoided plagiarism."

### *Handling Copying in Novice Texts*

The supervisors generally felt that with their mindful precautions, textual copying had not been a prominent issue in their research groups. Where they did identify copying while revising students' papers, they would either educate the students in time (individually and in group meetings), or edit them out, sometimes in discussion with the student concerned (e.g. with the student sitting next to them at the computer, as with P6, P9, P12, P13, and P14). In general, these supervisors felt confident that after numerous rounds of thorough revision in their hands, the papers initially drafted by their students should be generally devoid of textual copying when submitted for publication.

P10 contrasted with what other supervisors usually did. As noted earlier, P10 held a "presumption of guilt" toward his students' initial drafts and could easily see various "signals" of copying in the texts. When it came to revising the novice texts, to him a student's initial draft only provided a "data bank" from which he would develop his own version of a paper through repeated reformulation and rewriting. Although his paper construction process was accompanied by his email-based and face-to-face communications with the student concerned to clarify experimental details or discuss the visuals, he was the one who composes the text of a paper that will eventually go into publication. However, P10 chose not to confront his students on their copying, apparently due to his belief that the average student can hardly be expected to write up a publishable paper in English on their own when they first try to write a paper, and textual borrowing was thus a necessary strategy for them to use and put together an initial draft. In addition, he felt it would "hurt" a student if he confronted the latter with an accusation of copying (see also Hyland 2001).

In short, in contrast to what other participants in the study would do generally, P10 educated his students against textual copying only implicitly, when he sent from time to time the text under his revision to the student concerned, inviting additions and checking of experimental details ("diligent students will study my revision," he said). It was mostly up to the students to figure out how not to copy,

and how copying may be eliminated during the rhetorical (re)construction of a paper.

### Study Limitations

Some limitations of the present study should be noted. Above all, given the research topic's potentially sensitive nature, *social desirability*, “the tendency on behalf of the subjects to deny socially undesirable traits and to claim socially desirable ones, and the tendency to say things which place the speaker in a favourable light” (Nederhof 1985, p. 264), cannot be completely ruled out as a validity-threatening factor. This is so despite the fact that the interviewees were mature reliable intellectuals, and that other sources of data collected in the larger project of which the present study was a part have served to triangulate the interview data reported in this paper.

Given that the university where the study was conducted is a relatively elite research-oriented university located in an economically developed region in China, it is not possible to generalize the views and actions of this group of academics to the science academics at large in a different context within or outside the country. Furthermore, to test what the academics preach and what they report they do against what they actually do when revising novice texts, investigating such revision process in action would be necessary. (Li [2011] is an attempt in this direction.)

These limitations notwithstanding, this study addresses a gap in the literature as to EAL scientists' perspectives upon the issue of text-based plagiarism, and makes a valuable addition to its discussion in the broader arena of scientific publication. The final section of this paper will thus highlight a few findings from this study and discuss their implications.

### Discussion and Concluding Remarks

For the sample of Chinese scientists in this study, text-based plagiarism, which typically involves the replication or patchwriting of sentences from a source or sources, should be discussed in a framework of ethical research conduct. The subscription to such a framework and the overall high standard held regarding proper source use among this group of scientists pose a contrast to recent reports of research misconduct among Chinese scientists (Qiu 2010; Rodiek 2007; Zhang 2010a). The contrast serves as a reminder advocating a distinction between a negative trend and even individually corrupt cases on the one hand, and what a group of academics may hold to in an elite research-oriented university (in China or elsewhere) on the other.

The findings of the study also indicate the limited use of the notion of “culture” in this context, which is often cited in explaining plagiarism among EAL authors. Yuehong Zhang, the Chinese editor referred to at the beginning of this paper, for example, on reporting a “staggering 31%” of the submissions to the *JZUS* containing plagiarism, proposed:

We are therefore campaigning for authors, researchers and editors to be on the alert for plagiarism and to work against cultural misunderstandings. In ancient China, for example, students were typically encouraged to copy the words of their masters. (Zhang 2010a, p. 153)

It is perhaps more appropriate to say that where EAL (and indeed English-L1) authors (including novices) do commit text-based plagiarism, a combination of reasons may be adduced: insufficient understanding of the academic writing conventions (including those of source use) in the international scholarly community, English difficulty, shortage in the intellectual and cognitive depth needed for handling a subject matter, and lack of training in the ethical conduct of academic research (see also e.g. Brumfiel 2007; Butler 2008; Dubois 1988; Errami and Garner 2008). What the participants in this study saw as a gap between China and the West in source-acknowledging practices would bear upon all these factors.

Even with its small number, the pool of supervisors in this study did not make a homogeneous group. P10 differed from the others by allowing his students to put together an initial draft of a paper with reliance on textual copying, pointing out that the initial text only provides a “data bank” for him to build up his version of a paper, that the students need to use copying as a scaffold to produce their draft, and that it would be insensitive of him to the students’ feeling if he should warn them against textual copying. He seemed to expect his students to figure out the secret of writing against textual borrowing (or rather, the secret of writing science) on their own by studying his revisions. Would novices benefit more from explicit teaching, such as from using the note-taking strategies that P8 and P9 taught? And how do novices figure out the borderline between imitation and copying? For the novices such as Chinese doctoral science students, learning to write free from text-based plagiarism is in essence learning to write science, which does take time, with the support of personal mentors (especially supervisors, who help to make the implicit explicit) as well as of textual mentors (especially disciplinary research articles, which provide modeling and scaffolding).

The scientists in this study also had their criteria over the level of acceptability in terms of textual borrowing. For mitigating circumstances, they noted the acceptability of reusing widely-accepted factual statements such as “The hereditary matter of human beings is DNA.” This, together with the acceptability of reusing non-content formulaic chunks and syntactic structures as well as specialist terms (Barks and Watts 2001; Barton 2005; Cargill and O’Connor 2006), is probably easy for a novice scientist to understand. However, uncertainties still remain. For instance, to what extent is it acceptable to reproduce experimental descriptions from a previous paper in one’s own research group? In this study P14 expressed a more tolerant view than other participants; yet such practice is apparently not approved by a journal such as *Nature* (see “Plagiarism pinioned” 2010). Beyond this, the variety of scenarios of text-based plagiarism and how to avoid them may be much less clear to a novice or even hard for a senior author to articulate.

A COPE-supported project aims to clarify just this picture. This project is headed by Yuehong Zhang, Journal Director of *JZUS* referred to at the beginning of this paper, and entitled *CrossCheck guidance: An analysis of typical cases of plagiarism*

in different disciplines (“COPE granted awarded” 2011). A major outcome of their project is expected to be a handbook which lists “typical cases” of text-based plagiarism in different disciplines and they expect the handbook to help authors to “learn more about plagiarism and CrossCheck, and how to avoid being accused of plagiarism” (ibid., p. 3). Such a handbook will seem to be a necessary addition to the COPE webpage as well as a convenient reference that journals can point authors and supervisors to, apart from the already available resources such as the COPE flowcharts on *What to do if you suspect plagiarism*.

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## References

- Barks, D., & Watts, P. (2001). Textual borrowing strategies for graduate-level ESL writers. In D. Belcher & A. Hirvela (Eds.), *Linking literacies: Perspectives on L2 reading-writing connections* (pp. 246–267). Ann Arbor: University of Michigan Press.
- Barton, B. E. (2005). Six-word rule could turn description into plagiarism. *Nature*, 436, 24.
- Bouville, M. (2008). Plagiarism: Words and ideas. *Science and Engineering Ethics*, 14, 311–322.
- Brumfiel, G. (2007). Turkish physicists face accusations of plagiarism. *Nature*, 449, 8.
- Butler, D. (2008). Entire-paper plagiarism caught by software. *Nature*, 455, 715.
- Butler, D. (2010). Journals step up plagiarism policing. *Nature*, 466, 167.
- Cargill, M., & O'Connor, P. (2006). Developing Chinese scientists' skills for publishing in English: Evaluating collaborating-colleague workshops based on genre analysis. *Journal of English for Academic Purposes*, 5, 207–221.
- Cargill, M., O'Connor, P., & Li, Y. (2012). Educating Chinese scientists to write for international journals: Addressing the divide between science and technology education and English language teaching. *English for Specific Purposes*, 31, 60–69.
- Colón, R. (2008). New editorial enhancements for Springer journals: COPE and CrossCheck. Retrieved from <http://www.springer.com/authors/author+zone?SGWID=0-168002-12-563000-0>. Accessed 13 July 2011.
- Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (1995). *On being a scientist: Responsible conduct in research* (2nd ed.). Retrieved from [http://www.reflexives-lpr.org/webadmin/documents/On\\_being\\_a\\_scientist.pdf](http://www.reflexives-lpr.org/webadmin/documents/On_being_a_scientist.pdf). Accessed 10 June 2011.
- COPE (Committee on Publication Ethics). (2008). *What to do if you suspect plagiarism*. Retrieved from <http://www.publicationethics.org>. Accessed 5 May 2010.
- COPE grant awarded for first time to recipients from China. (2011). *Ethical editing*. Spring, 3.
- Dong, Y. R. (1996). Learning how to use citations for knowledge transformation: Non-native doctoral students' dissertation writing in science. *Research in the Teaching of English*, 30, 428–457.
- Dubois, B. L. (1988). Citation in biomedical journal articles. *English for Specific Purposes*, 7, 181–193.
- Eckel, E. J. (2010). Textual appropriation in engineering Master's theses: A preliminary study. *Science and Engineering Ethics*. doi:10.1007/s11948-010-9214-6.
- Errami, M., & Garner, H. (2008). A tale of two citations. *Nature*, 451, 397–399.
- Flowerdew, J., & Li, Y. (2007). Language re-use among Chinese apprentice scientists writing for publication. *Applied Linguistics*, 28, 440–465.
- Gosden, H. (1995). Success in research article writing and revision: A social constructionist perspective. *English for Specific Purpose*, 14, 35–57.
- Harvard guide to using sources: *What constitutes plagiarism?* (n. d.) Harvard College Writing Program. Retrieved from <http://sites.harvard.edu/icb/icb.do?keyword=k70847&pageid=icb.page342054>. Accessed 10 July 2011.
- Hyland, F. (2001). Dealing with plagiarism when giving feedback. *ELT Journal*, 55(4), 375–381.

- Krishnan, L. A., & Kathpalia, S. S. (2002). Literature reviews in student project reports. *IEEE Transactions of Professional Communication*, 45(3), 187–197.
- Li, Y. (2007a). Apprentice scholarly writing in a community of practice: An “intraview” of an NNEST graduate student writing a research article. *TESOL Quarterly*, 41, 55–79.
- Li, Y. (2007b). Composing citations through language reuse: A doctoral student of biomedicine writing a research paper. *Asian Journal of English Language Teaching*, 17, 1–27.
- Li, Y. (2011). “Presumption of guilt”: Textual borrowing in novice texts in a biochemistry laboratory at a Chinese university. Roundtable on Academic Writing, School of Humanities & Social Sciences, Nanyang Technological University, Singapore.
- Li, X., & Xiong, L. (1996). Chinese researchers debate rash of plagiarism cases. *Science*, 274, 337–338.
- Mu, R. (2010). China. In UNESCO (Ed.), *UNESCO science reports 2010* (pp. 379–399). Paris: United Nations United Nations Educational, Scientific and Cultural Organization.
- Nederhof, A. J. (1985). Methods of coping with social desirability bias: A review. *European Journal of Social Psychology*, 15(3), 263–280.
- Pecorari, D. (2001). Plagiarism and international students: How the English-speaking University responds. In D. Belcher & A. Hirvela (Eds.), *Linking literacies: Perspectives on L2 reading-writing connections* (pp. 229–245). Ann Arbor: University of Michigan Press.
- Perry, J. (2010). Plagiarism in China [Web log comment]. Retrieved from <http://www.ithenticate.com/blog/bid/52953/Plagiarism-in-China>. Accessed 10 June 2011.
- Plagiarism pinioned (2010). [Editorial]. *Nature* 466, 159–160.
- Qiu, J. (2010). Publish or perish in China. *Nature*, 463, 142–143.
- Rodiek, J. (2007). Retraction notice to “A GIS-based gradient analysis of urban landscape pattern of Shanghai metropolitan area, China” [Landscape Urban Plan. 69(2004) 1–16]. *Landscape and Urban Planning*, 79, 401.
- Sorokina, D., Gehrke, J., Warner, S., & Ginsparg, P. (2006). Plagiarism detection in arXiv. In *Proceedings of the Sixth International Conference on Data Mining* (pp. 1070–1075).
- St. John, M. J. (1987). Writing processes of Spanish scientists publishing in English. *English for Specific Purposes*, 6, 113–120.
- Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.
- Weller, A. C. (2001). *Editorial peer review: Its strengths and weaknesses*. Medford, NJ: Information Today.
- Williams, D. (2007). Plagiarism and redundancy (Editorial). *Biomaterials*, 28, 2535.
- Williams, P., & Wager, E. (2011). Exploring why and how journal editors retract articles: Findings from a qualitative study. *Science and Engineering Ethics*. doi:10.1007/s11948-011-9292-0.
- Yilmaz, I. (2007). Plagiarism? No, we’re just borrowing better English. *Nature*, 449, 658.
- Zeng, Q. (2010). Chaoxi jiduanhua fan shenme zui le! [What’s wrong with copying several passages!] [Web log]. Retrieved from <http://blog.sciencenet.cn/home.php?mod=space&uid=281238&do=blog&id=363183>. Accessed 10 June 2011.
- Zhang, Y. (2010a). Chinese journal finds 31% of submissions plagiarized. *Nature*, 467, 271.
- Zhang, Y. (2010b). International, not ‘campus’, please. *Nature*, 467, 789.
- Zhang, Y. (2010c). CrossCheck: An effective tool for detecting plagiarism. *Learned Publishing*, 23(1), 9–14.