

Scholarship and Intellectual Property

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Overview: Scholarly work demands clear indications of the sources of ideas. This tutorial provides guidelines on when to use citations and how to write them. It also compares intellectual property practices in school with those in industry.

TABLE OF CONTENTS:

Overview
1 Introduction
2 Why Do We Cite Sources?
3 Intellectual Property – School vs. Work

1. Introduction

In any scholarly writing, it should be clear to whom each idea belongs. We often say jokingly, "It cannot be plagiarism if you credit your sources." Your employer will expect you to construct answers as rapidly and carefully as possible, and finding the answer somewhere is often the best way. However, when you do so, it is important that your reader be able to tell which ideas are yours, which belong to someone else, and to whom the other ideas belong. It is wrong to give the impression, even implicitly, that someone else's work is really your own.

When I say a paragraph like that of vague generalities at home, my kids turn to my wife and say, "Could you translate that into English for us?"

Translation. In any work that you do, it should be clear to your reader which ideas are yours, and which came from someone else. If the idea came from someone else, it should be clear to your reader where to go to read the original. The two most common methods of doing that in the mathematical sciences literature are

- List of references at the end with pointers in the text to the references
- Bibliographic information in parentheses

Bibliographic information, whether in the reference list or in parenthetical remarks, should be complete enough to allow the reader to find the cited work. The exact form depends on the nature of the work cited. See MAA, AMS, ACM, SIAM publications for models. Include author(s), title, publisher, year, pages, URL. For example,

Jennifer Niederst with Edie Freedman,
Designing for the Web: Getting Started in a New Medium,
1st Edition April 1996, O'Reilly.

2. Why Do We Cite Sources?

Different cultures have different traditions about intellectual property. Our tradition holds strongly to a tradition of personal ownership. If you create something, what you create belongs to you. You have the right to control how it is used. You can sell it, give it away, or allow restricted use as you wish. You do not want to let others use your work without your permission. It follows that you cannot use their work without their permission.

Citing the source of your ideas adds, not subtracts, from your credibility. You have told your reader that you have done your homework by being familiar with relevant literature, so you should know what you are talking about. You also let your reader know that the cited information comes from someone who may be more expert than you, and that it has been validated by a peer review process.

Citing your sources is also a matter of justice for the original authors. The writer of a song or a movie receives a royalty each time the work is performed as payment for the creative effort. Scientists are not paid that way (fortunately, or we would be hungry). One small payment we receive is when someone acknowledges finding something useful in what we have written. Your citation pays me, while costing you nothing. Good deal, no?

Citing your sources also reflects your own self-interest. During your career, you will be a net creator of intellectual property. You trust that you will be paid, rewarded, cited, etc., by people using YOUR work. You should treat the work of others as you expect others to treat your work.

3. Intellectual Property – School vs. Work

Sometimes questions are raised about students not appropriately giving credit to their sources, or worse.

You are split between the world of school and the (current or future) world of work. You are entirely justified to ask **whether the rules of school have any applicability to work**. I believe the training we attempt in giving credit where credit is due is **more** important than the training we offer in technologies. You can learn technologies on your own, but you won't learn to credit your sources anywhere else, except possibly in a courtroom some day.

Attribution of sources is not just a professor's fetish. On the job, few bosses care explicitly about where you get help to get your work done. If you can find a program somewhere that does what you were assigned to do, that is called productivity, and you are rewarded. Usually, your rewards are no less if you say explicitly in the code and whatever other reporting there is, "I got that from _____. Their code is _____, and I made these modifications, extensions, simplifications." That is called good documentation and makes maintenance easier.

In school, crediting sources is one of the rules of the game set by professors. **At work, crediting sources has more concrete benefits:**

1. If you and co-workers know where you found something useful, you or they may **find more useful stuff there** some other time.
2. Material you get from sources more expert than yourself may be **better quality**, more robust, more reusable, better documented, etc., than what you might do under pressure. It may also be **more authoritative**.
3. Your company is interested in **protecting YOUR intellectual property (IP)**. Over your career, you will create much IP value. It is critical to the company that your IP be protected by patent, copyright, trade secret, or other mechanisms. Hence, it is important to your employer that mechanisms for protecting IP work. Hence, they had better respect the IP rights of others.
4. **Law suits are expensive**. If you happen to really steal someone else's IP and get caught, it may cost your employer (you, too, but they may not care about that) a LOT. Your boss's boss SHOULD want to be careful that you use other people's IP only in appropriate ways to help avoid unpleasant conversations with lawyers.

We do not hear much about Intellectual Property suits. A few make the news, but most are quiet. I am currently an expert witness in a case, and I have testified in several others. They are not pretty.

Since most suits have two sides, in some sense, you are as likely to be the plaintiff as the defendant. If someone uses YOUR work, you expect them to give you appropriate credit and/or payment. Do unto others...

It is true that your professors nag more about crediting your sources than your boss will, but the consequences of not crediting your sources is **far** more severe on the job, and the benefits (you are the owner of much IP, too) are far greater.

Moral: Get in the habit of being overly generous in giving credit to anyone who has influenced your work. That includes sharing any recognition generously with teammates, too.