

Developing and Writing Introductions

Each section of an article, a report, thesis, or dissertation serves a specific purpose. Understanding the purpose of each will help you design those segments to communicate your research to your readers. This section focuses on the introduction to articles for publication, but the principles can be easily transferred to other document types.

In addition to the Abstract, the introduction to a thesis or a technical article is critically important.

- (1) Studies to determine how readers access reports show that the abstract, the introduction, and the conclusion are the most commonly read parts.
- (2) Based on the abstract, readers will decide whether they wish to read your report or dissertation.
- (3) Based on their impression of the introduction, readers will read/not read your discussion.

Note: You cannot assume that readers will read all your article. Your abstract and your introduction should provide compelling reasons why your article is worth readers' time.

Structuring the Introduction

The introduction should always include the report subject, purpose, and plan of development. Some reports place the background and the scope in separate sections that follow the introduction, if these two items are extensive. What you include in the introduction depends on readers. If your readers are familiar with your topic, you can write a short introduction. However, if your article will be archived and read later by people who know little about the context, you will need to provide a longer, more informative introduction. For articles, avoid long introductions: focus or state the subject and purpose in terms that explain the relevance of the report to readers. But do anticipate your readers—who will read the article—as you plan the introduction. Without a proper introduction, readers will have difficulty following the main discussion.

If your introduction is long—in a thesis or dissertation—you may want to use headings to separate each component. Also, you may not need all of the items below, and you may arrange them in various ways, as the examples below indicate. If you are writing an introduction to an article, you need to be concise but still include the following items.

- **Subject:** Stating the subject should be direct: This paper will discuss
- **Purpose:** Your statement of purpose tells the reader why you are writing about the subject: the significance of the topic or its relationship to existing research issues.
- **Scope:** Extent of the coverage of the article

- **Background/history of the topic:** Why is the thesis/article written, what is the importance of the subject matter? If this is one of several articles on the same topic, how does this article relate to the others?
- **Plan of development:** what topics will be covered and the order in which they will be presented. The table of contents of the thesis/dissertation should reinforce this arrangement.

Study the following examples of introductions. Note how each prepare readers for the technical discussion that follows:

Example 1

[Report Subject]The Brazos River Authority is participating in a study coordinated by the Texas State Soil and Water Conservation Board (TSSWCB) to assess the feasibility of instituting brush control measures in the Fort Phantom Hill Reservoir watershed. In 1985, the Texas Legislature created the Texas Brush Control Program. The goal of this legislation is to enhance the State's water resources through selective control of brush species.

[Context and Rationale]The TSSWCB was given jurisdiction over the program. Brush control, as defined in the legislation, means the selective control, removal, or reduction of noxious brush such as mesquite, prickly pear, salt cedar, or other deep-rooted plants that consume large amounts of water.

Water will likely be the most limiting natural resource in Texas in the future. The ability to meet future water needs will significantly impact growth and economic well being of this State. The United States Department of Agriculture-Natural Resources Conservation Service (NRCS) estimated that brush in Texas uses over 3.5 trillion gallons of water annually. Control of brush presents a viable option for increasing the availability of water allowing the State to meet its future needs.

[History of the Problem] Since the European settlement of Texas, improper livestock grazing practices, fire suppression and droughts have led to the increase and dominance of noxious brush species over the native grasses and trees. The improper livestock grazing of the watershed's rangeland in the late 19th century and early 20th century reduced the ability of grasses to suppress seedling tree establishment and led to the establishment of invasive woody species, such as juniper and mesquite. This noxious brush utilizes much of the available water resources with little return to the watershed and reduced production capabilities of the region. This project aims to increase stream flow and water availability in the watershed that drains into Fort Phantom Hill

Reservoir. This reservoir and three smaller reservoirs in the watershed, Lake Abilene, Lake Kirby, and Lake Lytle, are used as a water supply for industrial, agricultural, and municipal uses.

[Report Purpose; Plan] This report will assess the feasibility of brush management to meet the project goals by developing a historical profile of the vegetation in the watershed, developing a hydrological profile of the watershed, and evaluating historical climatic data in the watershed.

Example 2

[report subject] Pesticides play an important role in agriculture. They have increased farm production and enabled farmers to manage more acres with less labor. Taking voluntary action to prevent pesticide contamination of ground water will help ensure that pesticides remain available for responsible use.

[rationale] Pesticides work by interfering with the life processes of plants and insects. Some pesticides are also toxic to humans. If a pesticide enters a water supply in large quantities, which could happen with spills or back-siphonage accidents, acute health effects (toxic effects apparent after only a short period of exposure) could occur, depending on the toxicity of the pesticide. Contaminated ground water used for drinking water supplies may cause chronic exposure (prolonged or repeated exposure to low doses of toxic substances). Chronic exposure may be hazardous to humans and livestock.

Normally pesticides are not found in water supplies in high enough concentrations to cause acute health effects, which can include. Instead, pesticides usually occur in trace amounts, and the concern is for the chronic health problems that may result from prolonged exposure.

[report purpose and plan] Proper pesticide management on your property is an important step toward preventing ground water contamination. This guide will provide information about the following areas:

1. Pesticide storage
2. Mixing and loading practices
3. Spill clean up
4. Container disposal
5. Other management practices
6. Evaluation table
7. Pesticide Leachability Chart

Example 3

[report topic] In 1996, Congress directed the Environmental Protection Agency (EPA) to propose a new standard for arsenic in drinking water by January 1, 2000, and to issue a final standard by January 1, 2001. **[report background]** Congress also directed EPA, with the National Academy of Sciences (NAS), to study arsenic's health effects to reduce the uncertainty in assessing health risks associated with exposure to low levels of arsenic.

EPA issued the current standard of 50 parts per billion (ppb) in 1975. In 1999, the NAS concluded that the standard did not achieve EPA's goals for public health protection and recommended that it be tightened as soon as possible. On June 22, 2000, EPA proposed a revised standard of 5 ppb and projected that compliance could be costly for small communities. A question of ongoing scientific debate concerned whether significant adverse health effects occur from ingesting arsenic at very low levels. Because EPA proposed the rule nearly 6 months late, some stakeholders expressed concern that the Agency would not have time to evaluate public comments and complete analyses before issuing a final rule. On January 22, the final rule, which set the standard at 10 ppb, was published in the *Federal Register* with an effective date of March 23, 2001; public water systems were given until 2006 to meet the new standard. On May 22, EPA extended a previous 60-day delay of the rule's effective date to February 22, 2002 in order to review risk, benefit, and cost issues associated with the rule. The 2006 compliance date for water systems remained unchanged. On October 31, EPA announced that the standard would be 10 ppb. On November 8, Congress approved the conference report to EPA's FY2002 appropriations bill (H.R. 2620), which includes language prohibiting EPA from using the funds to delay the January rule. **[report purpose]** This report reviews EPA efforts to develop a new arsenic rule and summarizes key provisions and subsequent events.

Example 4

The last decade has seen many important technologies originally designed for the workplace inexorably pervading life outside of the office. For example, in the 1990s, we saw the PC and the Internet find an important place both in homes and in schools. Likewise, in the last few years (especially in parts of Europe and Asia) the mobile phone has found its way not only into people's briefcases, but also into their cars, handbags and even schoolbags.

The infiltration of office technology into home life combined with the boom in mobile technology raises interesting questions about how people draw on such technologies to manage their own boundaries between work and home. It also raises the possibility that it may no longer make sense to compartmentalize technology as being "for work" or "for home" but rather as fitting in a more integral way into people's whole lifestyles.

With this theme in mind, we decided to explore the everyday lives of people who have demands in both work and home spheres to understand the role of technologies in crossing home-work boundaries. The ultimate goal was to see whether there were interesting opportunities to improve or invent new technological solutions that would support a variety of needs across the different contexts in which people find themselves (e.g., at home, at work, or when mobile).

Why Working Parents?

Working parents are interesting for at least two reasons. First, they represent perhaps the extreme of people who have heavy demands in both the work and home spheres. Research shows [1,4] that such households employ many different strategies for dealing with the interplay of work and home, and for coping with the demands this imposes.

Second, households where both parents work constitute an increasing proportion of the UK and US workforce [6,8]. For example, increasing proportions of mothers now work full time with the rate of employment rising fastest amongst mothers of pre-school children (e.g., [5]).

Previous Research

In the sociological, anthropological, and psychological literature, the topic of working parents has been researched quite widely. Aspects of this research include when and why women work (e.g., [6,8]), the consequences of women's changing roles for men (e.g., [9]), and the division of domestic work by mothers and fathers (e.g. [9]). Such research on the demographic, sociological, and cultural issues of working parents provides important context for understanding this segment of the population. However, it does not generally look at the role of technology within the lives of working parents, or consider ways in which new technologies might be introduced.

For this kind of research, we need to look to Human-Computer Interaction (HCI) and Computer-Supported Cooperative Work (CSCW). However, in both fields, the majority of the literature has confined itself to work activities and office environments, and the implications of these findings for the design of work-related technology. More recently, however, two new trends are changing this. First, there is increasing interest in applying both HCI and CSCW techniques to the home domain, giving us new insights into family life (e.g., [10]). Second, researchers are turning their attention to what people do when mobile (e.g., [2]), giving us a new perspective on the use of mobile technology for personal or social reasons.

Despite this fact, HCI and CSCW research has tended to be situated either within the confines of home, of work, or in mobile situations. With only a few notable exceptions [3,5,7], very little HCI or CSCW research has targeted the lifestyles of particular segments of the population (such as working parents) or looked more generally across home-work boundaries with an eye to the design of technology. Our own program of research has been designed to begin to explore this relatively new area.

Approach

This short paper reports on a follow-up study based on an earlier more in-depth piece of research that was designed to understand in detail the lifestyles of a sample of working parents in the UK [1]. In that original study, we carried out in-depth interviews with 28 of them. This research highlighted many of the concerns and issues that arise in everyday life, and the stresses and strains that such a lifestyle imposes in the home sphere, at work, and while mobile. In addition, many of these had to do with the crossover of home into work, work into home, and the difficulties of coping with both home and work demands while mobile, particularly while in the car.

In analyzing these results, it became clear that, first, there seemed to be a set of problems mentioned frequently in the data, or arising as more general themes. Second, while many of these "everyday problems" were dealt with in sometimes artful ways drawing on different kinds technologies and artifacts to hand to do so, for some of them, there

seemed to be opportunities to develop new technologies that might support the needs of working parents better. In the final analysis we extracted a set of 27 such problems that we felt held such potential.

With regard to these problems, we had three key questions:

- How generalisable were these 27 problems to a larger and more diverse set of working parents? After all, while we had rich data from the first study, the sample was relatively small (64 people).
- Which of these problems were considered by working parents to be the most severe? Knowing this would enable us to target a smaller cluster of problems, and to look more closely their key characteristics with an eye to the design of technological solutions.
- Were such problems related to other important factors such as gender of parent, the age of children in a household, or the country in which working parents live? Knowing this would also help target not only the design of new technological solutions but also their marketing.

With these questions in mind, we designed a Web –based questionnaire in order to validate and expand our understanding from the first phase of research.

Concluding Observations about Introductions

Again, the introduction should situate readers to your thesis or your article. While the thesis introduction will be longer than an article introduction, the approach is the same: be sure that readers know the purpose of the article, what will be covered, at a minimum. Most article introductions include a review of literature that supports the article's purpose. Whatever elements you decide to include, be sure that your readers are prepared for the remainder of your article or your thesis.