

# Evidence-based Advertising

J. Scott Armstrong  
The Wharton School, U. of Pennsylvania, Philadelphia, PA

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## Abstract

Extensive and repeated testing of a wide variety of alternative reasonable hypotheses is necessary in order to increase knowledge about complex phenomena such as advertising. While non-experimental evidence is useful for less complex issues, laboratory and field experiments, as well as quasi-experimental studies, are needed to obtain useful knowledge about complex ones. Fortunately, much useful empirical research has been conducted on how to create an effective advertisement. A literature review, conducted over 16 years, summarized knowledge from 687 sources that included more than 3,000 studies. The review led to 195 condition-action statements (laws or principles) for advertising. Advertisers often fail to follow these principles, perhaps because they have not previously been available in a codified form. (We were unable to find the principles in a convenience sample of nine advertising textbooks; of the more than 6,500 references in these textbooks, only 24 overlapped with the 687 used to develop the principles.) By using these principles, practitioners can substantially increase advertising effectiveness. There are also opportunities for researchers. Relevant evidence-based papers were published at the rate of 20 per year from 2000 through 2009. The rate of knowledge accumulation could be increased via directed research (e.g., invited papers and business-sponsored research), and by publishing evidence-based research findings on the Internet.

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Many experts believe that advertising has not improved in recent decades. In 1991, David Ogilvy said, "Who is approving this junk called advertising? Have the clients gone crazy?" Graham Phillips, former CEO of Ogilvy and Mather said<sup>1</sup>: "Too much of today's advertising is irrelevant and a waste of money." Tellis (2004, p. 29), a marketing professor, concluded, "Much advertising, as preached today, is ineffective." Fox (1997), an advertising historian, states: "Advertising practitioners, in blithe, traditional ignorance of their trade's history, have continued to rediscover and rename old techniques (and imagine they have thereby come up with something unprecedented)." Randall Rothenberg (2006) reports, "Having spent the past seven years in management consulting, I've found myself stunned by the degree to which [advertising] agencies' continual search for 'the new' has them ignore otherwise articulated bodies of knowledge."<sup>2</sup>

If it is true that the development of knowledge in advertising has been slowing, one possible explanation is that the easy work has been accomplished, and what is left is quite difficult. Advertising experts must decide how best to persuade people to take a particular course of action. That is a complex problem because there are many ways to persuade people and their

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<sup>1</sup> *Advertising Age* (May 20, 2002, p. 26)

<sup>2</sup> Personal communication, December 14, 2006. At the time, Rothenberg, a former *New York Times* reporter on advertising, was an advertising expert at Booz Allen Hamilton.

effects will depend on the advertisers' objectives, their choice of persuasion techniques, the target market, the type of product, and other conditions.

Progress in advertising depends increasingly upon evidence-based advertising studies. By "evidence-based advertising," I mean the crafting of ads according to experimentally derived principles. This calls for the testing of alternative reasonable hypotheses (or methods, approaches, or treatments).

The next part of this paper discusses the critical role played by the testing multiple reasonable hypotheses in other fields. This is followed by a discussion of the discovery of advertising principles and how they might be used, followed by four examples of such principles.

The paper then discusses whether or not the principles go beyond common sense and current practice, and the extent to which the principles were already known. It concludes with an examination of the rate of growth in knowledge about advertising principles, and the ways in which knowledge about evidence-based principles might be more rapidly developed and disseminated.

### **Testing of multiple reasonable hypotheses**

What is it that leads some fields to progress? Chamberlin (1890) raised this question, having noticed that some scientific areas made rapid advances, while others did not. The key to progress, he concluded, lay in the testing of alternative reasonable hypotheses.

For example, agriculture progressed very slowly for centuries. Then, in the UK in the early 1700s, a revolution was brought about by wealthy farmers who experimented with alternative ways of growing crops (Kealey 1996, p. 47-59).

Another example is seen in the Industrial Revolution, which began in the late 1700s by individuals who tested alternative approaches. Much of this work came from a relatively small number of researchers from Scotland. Adam Smith asked why Scotland was so important to the industrial revolution while England's large number of academicians produced little. His conclusion was that the academics in England were well supported by the state, so they had little need to do useful research (Kealey 1996, p. 60-89).

Medicine offers yet another example. Advances in the treatment of diseases occurred slowly for centuries. Prior to roughly 1940, doctors could do little to treat patients. Diseases are so complex that doctors cannot learn much from their personal experience about which treatments would be best for a given situation. However, after 1940 experimentation became common in medicine, and doctors began to apply findings that were reported in scientific journals (Gratzer 2006). Today, evidence-based findings in medicine are easily available on the Internet (e.g., Cochrane.org). Doctors who fail to use the findings face possible lawsuits when patients suffer poor outcomes.

The testing of multiple reasonable hypotheses is not popular in the management sciences. Instead, the advocacy approach dominates, whereby researchers posit their favored approaches and try to suppress evidence that favors alternative approaches. A publication audit of over 1,700 empirical papers in six leading marketing journals during 1984-1999, found that 74% used the advocacy approach, 13% used an exploratory approach, while only 13% tested alternative hypotheses. Unfortunately, of those studies testing alternative hypotheses, only 14% also examined the effects of conditions (Armstrong, Brodie and Parsons 2001). Thus, only about two percent of the studies in marketing were well designed to advance knowledge in marketing.

There are two scientific approaches for testing alternative hypotheses: analysis of non-experimental data and experimentation.

Analyses of non-experimental data are useful for simple problems, especially if you have much reliable data. For example, substantial amounts of data are available on professional sports. These have been used successfully over the past few decades by baseball, hockey, football, and basketball teams. In the first part of the National Basketball Association 2009-10 season, the 15

teams with at least one full-time statistician on their staff won 59% of 962 games, while the 15 teams with no statisticians won only 41% of 958 games (David Biderman, *Wall Street Journal*, March 12, 2010).

When problems are complex, the analysis of non-experimental data breaks down, even if there are enormous sample sizes. Such non-experimental analyses are commonly reported in the press with respect to health and economics. They lead to endless speculation, re-analyses, and challenges. They can also be misleading. For example, people who are concerned about their health seek out the latest treatments. As a result, non-experimental data show that those using the latest treatments are healthier than those who are not, even when the treatment has no proven benefits or may even be potentially harmful, as alleged in the case of female hormone therapy (Avorn 2004). Sophisticated statistical methods of analyzing non-experimental data have been of limited value in dealing with such problems. Thus, experimentation that tests reasonable hypotheses provides the primary path to knowledge creation. There are three types of experimentation: laboratory, field, and quasi-experimental.

Laboratory experiments allow for the greatest control of the conditions, but also raise the issue of the extent to which the findings are realistic. Field experiments add realism, but also the danger that there may have been unobserved changes in the application of the treatments or in the conditions. Field experiments can aid in assessing the effects of various treatments.

The validity of field and laboratory experiments was tested by Locke (1986). He asked leading researchers in 11 areas of human and organizational behavior to compare the findings from field experiments with those from laboratory experiments. The findings showed close correspondence across the methods. An analysis of 40 studies on sources of communication found similar effects between field and laboratory studies (Wilson & Sherrell 1993).

Quasi-experimental studies involve the testing of alternative treatments in situations where many but not all key conditions have been controlled. These experiments can be natural or planned. For example, governments sometimes introduce policy changes in some areas while other areas are not affected. This allows for comparisons among the different areas. For a general discussion of quasi-experimental research and a review of prior literature, see Woodside, et al. (1997).

Meta-analyses provide the gold standard for knowledge creation, especially when they focus on experimental evidence. Meta-analyses involve the systematic and objective search for all relevant prior research, followed by use of pre-specified rules for selecting and quantifying the findings. It may be sensible to include analyses of non-experimental data, especially if the data are likely to suffer from different biases.

### **Knowledge base for advertising**

Most persuasion techniques are traceable to practitioners. For example, Hopkins' (1923, p. 233) concluded that long copy is effective: "the more you tell, the more you sell." But this leads to the issues of the conditions under which these techniques work, along with how they could be applied most effectively. Unaided observation was unable to address these issues except in the simplest areas. Also, despite the development of most sophisticated methods of statistical analysis and the development of large data banks, non-experimental studies have encountered difficulties in addressing the effects of conditions. This was shown by some excellent large-scale studies (e.g., Stewart and Furse 1986).

From 1994 through 2009, I searched for evidence on persuasive advertising. In addition to computer searches, I contacted key researchers, posted requests on email lists, and tracked down papers from references in key papers.

To help ensure that my research search was accurate, I read all of the sources that were

cited.<sup>3</sup> In addition, the experts who were cited were asked to check whether my summaries of their findings were correct. The vast majority of those who could be located replied, often with important corrections. In that survey, I also asked whether any relevant research studies had been overlooked with respect to the principles. The respondents supplied many additional studies.

The search was difficult because the relevant papers are spread over such areas as law, mass communications, psychology, and medicine; each field uses different terms. Quite often the titles gave no clues that the papers related to persuasive advertising. Moreover, computer searches typically yield only a small portion of the studies relevant to a particular topic; For example, in research on forecasting, computer searches led to only about 1/6 of the relevant papers that were eventually found (Armstrong and Pagell 2003). Most of the relevant studies were obtained from citations in other papers, and many were found by contacting key researchers. One must recognize, of course that it is difficult to find all relevant citations, so it is hoped that missing studies will be submitted to the adprin.com site.

The search produced 687 relevant books and papers. Many of these were meta-analyses and reviews that relied on earlier empirical research. By counting the number of studies in the meta-analyses and by estimating the number of sources used for traditional reviews, I concluded that knowledge base drew upon more than 3,000 studies (Armstrong 2010, p. 3).

The creation of knowledge has derived almost solely from academic research. As a rough count, 81% of the references in *Persuasive Advertising* (hereafter *PA*) were from academic journals or conferences, 17% from books, and 2% from mass media, practitioner-oriented publications and the Internet. If the analysis is restricted to papers with experimental evidence, virtually all came from academic sources.

There was a lack of evidence for many of the principles. To deal with this, we analyzed quasi-experimental data for the print advertisements from *Which Ad Pulled Best* (hereafter *WAPB*) editions 5 through 9 (Burton and Purvis, 1987-2002). Each edition contains 50 pairs of ads (except for the 9th edition, which has 40 pairs). These advertisements, prepared by leading U.S. advertisers, were tested by Gallup & Robinson. The pairs were similar with respect to product, target market, and media. Of the 240 pairs of advertisements, 123 were paired against the same brand. Some aspects of the advertisements differed, such as illustrations, headlines, colors, and text. In addition, the time periods for the showing of the alternative ads differed. These “*WAPB* analyses” were used for 56 principles.

Another advantage of quasi-experimental data is that they may allow for an assessment of the strength of the effects of various principles. For example, Table 1 presents the ten most important principles for print ads used by major companies (assuming sample sizes of at least 20 pairs of ads). It reports the gain in recall for ads that followed the given principle – based on the average day-after recall for ads that properly applied the principle divided by the average recall for those that did not apply it).

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<sup>3</sup> It is common for scientists to cite studies that they have not read and to cite them incorrectly. See Wright and Armstrong (2010).

**Table 1: Most important principles from the analysis of print ads (from *WAPB*)**

<u>Principle</u>	<u>Recall Gain (pairs)</u>
Communicate a Unique Selling Proposition (not claimed by other brands)	2.04 (45)
Make the first paragraph relevant	1.74 (46)
Include brand and company names (double-branding)	1.71 (21)
Provide news, but only if it is real	1.64 (20)
Use positive arguments	1.60 (24)
Illustrations should support the basic message	1.54 (43)
Use descriptive headlines for high-involvement products	1.52 (24)
Balance the layout	1.50 (36)
Include the brand name in the headline	1.49 (24)
For high-involvement products, the reasons should be strong	1.48 (25)

To assess the validity of quasi-experimental data, their direction of effects was judged against the other types of evidence. The primary concerns were 1) the *WAPB* data used day-after-recall, whereas the other approaches used many different criteria of effectiveness, and 2) the *WAPB* samples were small (an average of 31 pairs with a range from 6 to 118). Despite the problems, the findings from the quasi-experimental analyses were in agreement with respect to all 7 principles for which there were meta-analyses, all 26 principles for which there were lab experiments, and all 7 principles for which there were field experiments. In contrast, the quasi-experimental analyses agreed with the non-experimental analyses for 16 of the 24 pairs of ads that allowed for comparisons (Armstrong and Patnaik 2009). My conclusion is that the non-experimental evidence was sometimes misleading.

Meta-analyses proved to be extremely important for the development of the persuasion principles. The principles drew upon 33 published meta-analyses. Interestingly, Daniel O’Keefe authored 1/3 of these. In addition, I attempted to find and summarize all relevant knowledge on those principles that lacked evidence.

### **Translation of the evidence**

In order for the findings to be useful, they must be translated into specific operational condition/action steps for specified conditions. These are referred to as principles. Here is an example of an action step, drawn from Ogilvy: “Do not put a period at the end of a headline.” (Ogilvy 1985, p. 96).

The books by the great advertisers such as Hopkins (1923) were important in developing the actions for persuasion. The most important of these was Ogilvy (1985). Based his experience and on research, such as by Caples (1932), Ogilvy provided operational suggestions for developing and improving ads. His generalizations have held up well over the years and further research has helped to show the conditions under which they are useful.

To be useful to practitioners, it is necessary to describe the conditions under which the actions work. For example, some of the great advertisers recommended against the use of humor. Some early studies showed that humor harmed persuasion. After many experiments however, it has been shown that humor is persuasive under some conditions, while it harms under other conditions.

### **Application of evidence-based principles**

There are two ways in which the persuasion principles can be used. One is to stimulate creativity and the other is to evaluate and improve ads.

### *Stimulating creativity*

The principles offer a structured checklist for advertisers to use as they create ads or revise ads. This would increase the amount of time spent on creativity, but in most practical situations, this would represent only a small fraction of the advertising costs.

The checklist should be able to enhance the creativity of any user. Given that creativity leads to different solutions, it is advisable to obtain recommendations from a number of individuals who work independently. It is expected that practice should improve one's ability to use the principles for designing ads

### *Evaluation and improvement of advertisements*

The principles are also useful for evaluating and improving advertisements. Evaluators need to understand and evaluate the extent to which an advertisement adheres to the principles.

The AdPrin Audit software, which is available on [adprin.com](http://adprin.com), is essentially a principles-oriented checklist to guide the evaluation process. Checklists have been found to yield enormous improvements in decision-making. In life-threatening situations, like flying an airplane, a pilot who did not use a checklist would be thought to be foolish. An experimental study of 8 hospitals in 8 cities around the world found the use of a 19-item checklist reduced deaths in the month after an operation from 1.5% to 0.8% (Haynes, et al 2009).

The evaluation phase would seem to call for people who are good at logical reasoning, rather than creativity. Training and practice are expected to lead to gains in the ability to judge whether an ad properly applies the principles.

### **Examples of evidence-based principles**

Here are four examples of principles that followed from the above-mentioned procedures. They are important and well supported principles, yet commonly violated by practitioners. Note that the major conditions are stated in the principle, but that other conditions are also involved. The numbers in the parentheses correspond to those in the *PA* book.

#### ***Do not advertise odd prices, or for short, use round prices (1.4.2)***

Round prices (sometimes called even prices) refer primarily to rounding up so as to avoid “just below” prices. The alternative “just below pricing” is also referred to as “odd” or “psychological pricing.” Odd pricing is of particular interest when it reduces the left-most digit (e.g., \$29.99 rather than \$30.00).

Round prices apply when advertisers are interested in building long-term relationships with customers and when they would like to be viewed as providing high-quality products and services. However, achieving long-term profitability might entail short-term losses.

Odd prices are associated with lower quality. Advertising experts figured this out long ago. In the late 1800s, John E. Powers avoided odd pricing for quality products when he advertised expensive men's suits for John Wanamaker's department store.

One argument for odd pricing is that “everyone else is doing it,” as was explained when I asked Bob Ramsey, my favorite gas-station owner, to try round prices.

Odd prices are still widely used. An examination of 1,415 selling prices from U.S. newspaper advertisements found that 31% used odd pricing (Schindler & Kirby 1997). Interestingly, odd pricing varies substantially by country. Prices ending in 9 ranged from 3% to 5% in Japan, India, and Hong Kong, to 35% or more in Australia, Norway, and the United States (Nguyen, Heeler & Taran 2007).

### *Evidence on the effects of round prices*

There is mixed evidence on the short-term effect of odd pricing on sales. Some experiments found that odd pricing increases sales in the short-term. For example, in a field experiment using a catalogue of women's clothing that contained 169 items, odd and round-price versions of the catalogue were sent out, each with 30,000 copies. The catalogues with odd prices produced approximately 8% more sales than those with round prices. The major explanation seemed to be that odd prices communicated "sale!" (Schindler & Kibarian 1996). Three similar field experiments with catalog sales of approximately 200 items of women's clothing found higher sales for odd prices (Anderson & Simester 2003)

In contrast, a field experiment used four matched pairs of German drugstores. They found a 6.8% increase in unit sales and a 4.8% increase in sales volume for detergents and health care products when the stores used even prices for all brands in these product categories over a four-week period (Diller & Brielmaier 1995).

Now consider the effects on quality perceptions. Pricing data from 15 stores revealed that prestigious stores were more likely to use round prices (Stiving 2000). For example, Neiman-Marcus used round prices on 84% of its items while Kmart used them on 1%. Another study showed that round pricing is associated with better quality perceptions for restaurants and other high-end products. Fine-dining establishments are much more likely to use round prices than are fast-food restaurants (Naipaul & Parsa 2001).

Odd prices are also difficult to remember. In a lab experiment using 20 products, 145 subjects were presented with either odd prices (.99 or .98 endings that reduced the left-most digit) or even prices. Two days later, the subjects not only had more difficulty remembering the odd prices, but they often underestimated them (Schindler & Wiman 1989).

In a lab experiment, subjects were given a list of 20 items, 8 of which used either round prices or .99-prices, and asked them "How many [of these] items could you purchase for \$73?" Subjects receiving 00-ending prices thought they could purchase 17.5 of the items, whereas those with 99-ending thought they could purchase 18.3 items—an estimation error of about 5% (Bizer & Schindler 2005). In another experiment, 46 university students were given bundles of either odd prices or even prices to and were asked to quickly add the prices in their heads. On average, the students valued the odd-priced sets at 25% below the even-priced sets (Lambert 1975). Members of the general public are likely to be even more misled than college students.

Additionally, odd prices waste time for customers. Lab experiments found that odd prices take one-third more time to understand (Estelami 2003). Diller and Brielmaier's (1995) field study in Germany found that the purchase decision time for health care products and detergents took 23% longer for odd than for even prices (49.5 versus 40.1 seconds). Given the number of products that customers consider when making purchases, the annual time lost because of odd prices is substantial. I tried several admittedly rough calculations and have concluded that the complete elimination of odd pricing would save a good part of a day per adult shopper per year. Feel free to make your own estimate.

In their study of shoppers at German drug stores, Diller & Brielmaier (1995) found that 66% of their respondents favored round prices, while only 13% preferred odd prices. Moreover, 76% of them thought even prices were more honest.

In summary, odd prices confuse customers and they waste customers' time. Furthermore, they harm the brand's quality image, and might damage long-term relationships with customers.

### ***Do not mix rational and emotional appeals (3.1.1)***

While many advertising experts have suggested that an emotional component would strengthen almost any ad, the evidence suggests the opposite.

Rational and emotional appeals can interfere with each other. If you build a mood, don't spoil it with a rational argument. Imagine that you and your sweetheart are watching a glorious sunset. Now consider how the mood would change if you explained the combination of atmospheric conditions and dust that produced the sunset.

#### *Evidence on the effects of mixing rational and emotional appeals*

In an experiment involving donations to "Save the Children," a narrative description of a victim's plight led to higher donations than when the description also included statistics about how the donations would help. Apparently, the latter information damped the emotional effect and led people to think about how their efforts would help; unfortunately, it also led them to determine that their contributions would be negligible (Small, Loewenstein & Slovic 2006).

I analyzed 50 pairs of print ads in which one ad had either rational or emotional appeal while the other ad used both rational and emotional appeals. Recall for ads that did not mix the appeals was 1.24 times better than the ads that mixed them.

An analysis of 80 automobile ads found that recall for ads using *either* a rational or emotional appeal yielded better recall than did ads that used both types of appeals (Mehta & Purvis 2006).

Eye-tracking studies of 190 subjects as they watched Dutch TV commercials found that people were overwhelmed when both emotion and information were present, and thus they were more likely to fast-forward through such ads (Elders, Wedel & Pieters 2003).

TV commercials containing "a balance of rational and emotional appeals" were lower on comprehension and much below average with respect to persuasion in comparison with the commercials that did not contain such a balance (Stewart & Furse 1986).

### ***If resistance is expected, use indirect conclusions when the arguments are strong and obvious (5.9.2)***

In the U.K., Unilever's detergent, Surf, was a low-priced detergent that provided good cleansing at a low price; nonetheless, its sales were low. In August 1994, a new campaign for Surf featured Pauline and Linda, stars from a popular U.K. television series. In each TV commercial, Pauline would demonstrate that Surf was a smarter choice than Linda's expensive detergent and Linda would raise questions about that. Follow-up analyses showed that the campaign more than doubled sales from August 1994 to November 1997. This ad was an IPA award winner for effective advertising (Broadbent 2000).

The direct approach may cause people to feel a loss of freedom when the customer is not already favorable to the product, especially for high-involvement products. In his advertising textbook, Poffenberger (1925) said: "The suggestion [in an ad] should be indirect. No one wants to feel that he is under the control of another; everybody clings to the notion that he is a free being."

There are a variety of indirect approaches. One is simply to present the arguments and then let the customer decide what to do. For example, an advertisement by Saab presented performance attributes for a Saab and a BMW. It then invited customers to "compare the value you will get," followed by "and then you make the decision."



Another indirect approach is to allow the reader or viewer to observe others arguing each side of an issue. This should reduce reader or viewer's predilection to counter-arguing, because someone else is doing the counter-arguing. Galileo used this approach in his 1632 book, *Dialogue Concerning the Two Chief World Systems*, in which the Copernican position was argued by "Sagredo" while the other side was argued by "Simplicio" (which angered the Inquisition because of its similarity to "simpleton.") This can be done in advertising by showing someone who is being persuaded.

The indirect approach is more suitable when the source is regarded as biased and when the message is directed at an intelligent audience.

*Evidence on effects of indirect conclusions when resistance is expected*

A review of research, including over 40 studies, found that attempts to restrict people's freedom by providing direct conclusions often led them to reassert their beliefs (Clee & Wicklund 1980).

Other research reviews suggest that indirect conclusions are most persuasive when the communicator is perceived as biased, presumably because customers would otherwise be more likely to counter-argue—and, of course, commercial advertisers are viewed as biased. Indirect conclusions are also more appropriate when the members of the target market are intelligent because they would be more likely to understand the conclusions on their own, and self-persuasion is convincing (Chebat et al. 2001). Finally, there is little need for direct conclusions when exposure to the campaign will be frequent because the audience reaction might be "Hey, I heard you already!"

In a lab experiment, booklets were shown to 211 subjects. They contained ads with either an open-ended conclusion (e.g., "Now that you know the difference, decide for yourself which disposable razor you should buy") or a closed-ended conclusion ("Now that you know the difference, shave with Edge, the disposable razor that is best for you.") Purchase intentions were higher for the open-ended ads. Similar results were obtained with an ad for compact disk players (Ahearne et al. 2000).

In a small-scale lab experiment, 24 Japanese subjects saw online ads for 15 products (e.g., movies). Near the end of each ad, the subjects saw one of two scenes: a life-like agent talking to and looking at the viewer or two life-like agents looking at each other and conversing. In each case, the persuader agent used the same words, e.g., "You have to watch this movie; it's very interesting." Purchase intentions for the indirect approach—the overheard conversation—were 31% higher (Suzuki & Yamada 2004).

In another lab experiment, in which 261 students viewed cellular phone ads, indirect conclusions were relatively more effective when there were strong arguments for the brand than when the arguments were weak (Martin, Lang & Wong 2003/4).

Print ads for CD players were shown to 192 subjects. The ads contained either explicit or implicit conclusions. Highly involved subjects were more likely to infer omitted conclusions, and when they did, they reported more favorable brand attitudes (Kardes 1988).

In an experimental study of reactions to 16 advertising slogans, subjects were more likely to question direct claims. As a result, they had less confidence in the direct claims than indirect claims (Harris et al. 1989).

***Do not invite customers to evaluate their satisfaction while using a product. (5.11.3)***

A British Airways advertising campaign invited people to try its business class. Consumers who were not satisfied would receive free coach tickets for another trip. Was that a good idea?

When consumers expect to report about their satisfaction with a product or service, they adopt a critical attitude and search for things that are wrong. This leads them to have a less enjoyable experience. Their complaints may also reduce satisfaction for those providing the services.

Given the evidence to date, the use of pre-announced (or expected) satisfaction surveys is detrimental. In addition to harming the satisfaction of sellers and buyers, they discourage the collection of useful diagnostic information.

So why are they used? The primary reason is social proof. Organizations use them because other organizations use them. Furthermore, experience with the surveys does not enable people to tell whether they are beneficial. Experimental evidence, however, shows that pre-announced or expected satisfaction surveys are harmful.

This principle is widely violated by hotels, automobile dealerships, telephone companies, stock brokers, and other firms that routinely use preannounced satisfaction surveys. Universities have long used them in an attempt to assess student satisfaction; unfortunately, they reduce student and teacher satisfaction, harm learning, and increase administrative costs (Armstrong 2004).

A sensible approach is to ask people to think about positive experiences as they use a product or service, as was done, for example, by the Comfort Suites hotel chain in 2009. In their “be a dazzle detective campaign” they encourage visitors to report on cases of staff members “doing something right.” Imagine how this would affect the behavior of employees.

#### *Evidence on the effects of preannounced satisfaction surveys*

Experiments were conducted with a computer company, an electric utility, a supermarket, a drug store, a magazine, and an electronic equipment company. Some customers, randomly assigned, were told that they would be asked later about their satisfaction with the service, while others were not informed about the satisfaction survey. In a follow-up satisfaction survey, those in the pre-announced-survey group were much less satisfied than those who had not expected to receive a satisfaction survey. People in the pre-announced group were looking for reasons to be dissatisfied – and they found them (Ofir & Simonson 2001).

A role-playing experiment of a banking service was used to evaluate responses to a negative situation (rude behavior by a bank teller). The subjects in a preannounced survey group gave a substantially poorer rating of service quality than did those who were not told there would be a satisfaction survey. They also reported themselves as being more likely to switch banks. In addition, they were less likely to complain because they had already rated their dissatisfaction on the survey – thus, the bank would not have learned *why* they were dissatisfied (Lane & Keaveney 2005).

### **Usefulness of evidence-based principles**

The objective for *PA* and *adprin.com* was to aid advertisers by summarizing all useful knowledge about how to persuade. The value of these evidence-based principles would be related not only to their validity, but also to the extent to which they lead to advertising procedures that differ from those currently used. The validity rests upon the fact that for most principles, the evidence from various sources (different types of experimental and non-experimental evidence) converged. In addition, attempts were made to contact all relevant authors of the original research papers to ensure that the principles were consistent with their findings. These contacts led to a high percentage of replies. We now turn to the issue of whether these principles are already being used.

#### *Principles v. current practices*

Are the advertising principles based simply on common sense? Consider the results from a convenience sample of people who took the “Test your advertising IQ” on adprin.com. (The questions are shown in the Appendix.) Guessing would lead to a score of about 8. The median score for the 110 people who took this test online in late October and early November 2010 was 8 out of 20. Thus, the principles are not just common sense.

To test whether the principles are currently being learned, a 67-item true-false test was administered to 18 Wharton undergraduates on their first session in an upper-level undergraduate advertising class at the Wharton School in January 2011. This was an elective course, so the students had an interest in advertising. As this was a higher-level course, most had taken relevant courses such as consumer behavior or communications. In addition some had read relevant pop-management books, and a few had relevant work experience. The test was one that had been prepared for the final exam in this course, so the goal was to include as many of the principles as possible via true-false questions. The students were correct on 53.6% of the items. The scores for those with a more extensive background— based on prior courses, experience, and reading – scored marginally lower than those with less relevant backgrounds. (A slightly edited version of this test is posted on adprin.com).

Numerous assessments of advertising practices show that they often violate the principles (Armstrong 2010). There were no cases where we had to abandon an analysis due to the fact that nearly all ads properly followed a given principle. In addition, a number of assessments in *PA* showed conflicts between practice and the principles.

Why does behavior conflict with the evidence-based principles? To address this, we examined whether this knowledge has been accessible to people. In some fields such as in engineering and the natural sciences, the basic principles are accessible in textbooks. To see whether some principles have been passed along by advertising textbooks, I, along with two research assistants, examined a convenience sample of nine advertising texts. The number of references was counted and they were then coded as to which ones were research papers (primarily those published in academic journals or presented at academic conferences). In addition, we examined the overlap between the references in the textbooks and the 687 references in *PA*. The findings are provided in Table 2.

**Table 2: Evidence-based references in leading advertising textbooks**

<u>Textbooks</u>	<u>Total</u>	<u>% Research</u>	<u># in PA</u>
Rossiter & Bellman (2005)	658	61.9	13
Shimp (2000; 5 <sup>th</sup> ed.)	1133	19.7	0
Belch & Belch (2009; 8 <sup>th</sup> ed.)	1271	19.0	0
Clow & Baack (2010; 4 <sup>th</sup> ed.)	473	15.4	3
Rossiter & Percy (1997; 2 <sup>nd</sup> ed. )	789	16.4	8
O’Guinn et al. (2003; 3 <sup>rd</sup> ed.)	698	6.2	0
Duncan (2005; 2 <sup>nd</sup> ed.)	516	6.1	0
Wells, Moriarty, Burnett (2006; 7 <sup>th</sup> ed.)	345	4.3	0
Lane, et al (2011; 18 <sup>th</sup> ed.)	<u>681</u>	<u>0.3</u>	<u>0</u>
Totals	6,564		24

As can be noted in the last column, the persuasion principles draw upon a different source of information than does the sample of textbooks. Few of the 687 references in *PA* were cited in the textbooks, most of these being in the books by Rossiter. Including Rossiter’s books, only 24 (0.3%) of the 6,585 references matched those from *PA*. Excluding Rossiter, there were only 3

citations. Research evidence on persuasive advertising received little attention in some of these textbooks.

Note that Rossiter and Bellman (2005) differs substantially from other textbooks in its heavy reliance on the research literature. Also it coded 13 papers that overlapped with *PA*. However, these 13 references were not used to present principles. For example, one reference was summarized as “glasses added to the impressions of intelligence, industriousness and honesty” (p. 412) without any condition/action statement. In summary, there were no evidence-based principles in these textbooks.<sup>4</sup> This is not to say that there are no evidence-based principles in advertising textbooks, only that we have been unable to find any.

An earlier study on evidence-based findings in communication textbooks provided similar results (Allen & Preiss 1998). That study coded 21 textbooks, two of which were by well-known experts on meta-analysis, which I excluded from the following analysis. The objective was to assess whether the findings in the books were consistent with the evidence, as determined from earlier meta-analyses. Eleven widely studied areas were included (e.g., fear appeals, distraction). None of the textbooks disagreed with the notion that evidence is persuasive. But for the remaining 10 areas, there were 13 cases where the textbooks agreed with the evidence, 15 where they conflicted, and 13 where their position was not clear. (It was common that they ignored many of topics.) In short, the textbook writers paid little attention to the prior experimental evidence in presenting generalizations. Here again, there was no use of condition/action principles.

### **Knowledge diffusion**

There are a number of reasons why the scientific evidence on persuasive advertising has been ignored. One explanation is that many advertisers have no interest in scientific findings. They believe that their experience is sufficient. However, in complex areas such as advertising, experience does not enable people to make good judgments about which procedures will be effective. This issue has been widely studied since the 1930's (Armstrong 1985). In the most important of these studies, Tetlock (2005) conducted a 20-year experiment that examined the ability of 284 professional advisors on economics and politics to predict the outcomes of various events in their area of expertise. The experts did no better than people with little expertise – or than simple rules.

Those who are interested in scientific findings have faced difficulties. First, practitioners lack easy access to the journals, although the Internet is changing this. Second, given access, it is difficult to locate relevant papers. For example, in the preparation of the advertising principles, I read about 2,400 papers and books that looked promising in order to find the 687 sources that were used. The useful papers were scattered across 159 journals. Third, many of these papers are written in an obtuse manner. Finally, few papers provided advice or evidence that could be used by practitioners.

To encourage the use of evidence-based principles, it is important to make them *easily available* to advertisers and advertising agencies, when they need it. In medicine for example, sites such as Cochrane.org allow patients as well as doctors – and researchers – to access the latest knowledge on the best ways to treat diseases. In addition, the principles should be *understandable*. Finally, they should be *actionable*. These criteria are critical to the design of adprin.com. Apparently, adprin.com is meeting a need for advertisers, agencies, researchers, and students. At the end of 2010, visits were running at the rate of 25,000 per month, and they were growing rapidly.

Ideally, researchers would post evidence-based findings on the AdPrin site so that others

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<sup>4</sup> In a related study, based on a sample of leading texts on marketing principles, Armstrong and Schultz (1993) could find no evidence-based principles.

could use them. This would also allow them to stake a claim for their discovery prior to journal publication, and to obtain feedback from others. To aid in this, a section called “New contributions to principles” has been added to the site.

As with other advances, many people will cling to their current beliefs. For example, we asked the CEO of a large New York advertising agency if he would be willing to write an endorsement for the *PA* book. After examining the book, he said that he could not endorse it because his clients would tell him that has been doing it all wrong. On the other hand, some advertisers reported that they would add the principles to their approaches.

Some agencies will try the principles in hopes of gaining a competitive advantage. Others might contribute to the development of principles as a way of advancing the field even if they share only a portion of the gains. Furthermore, advertisers might ask their agencies to implement these principles or to explain why they do not do so. After learning about the AdPrin Audit, advertisers will be able to rate the effectiveness of an advertisement in less than an hour per coder by using the freeware. This not only assesses the effectiveness of an ad, it also provides guidance on how to improve the ad.

### **Suggestions for further research**

I examined the rate of progress in developing useful evidence-based findings on persuasive advertising. This was assessed by examining the number of papers that contributed to the development of principles over the past decade. Of the references in *PA* that were published from 2000 through 2009, I identified those that contained evidence related to the principles. This yielded 193 references, or about 1.6 per month. Given that there are thousands of academicians who are publishing in fields related to persuasion, the productivity is low.

To examine whether researchers value evidence-based advertising, I examined the 75 “most-cited advertising works” from 1982 through 1995 from Pasadeos, Phelps and Kim (1998). Only 15% of these sources were used in formulating the 195 advertising principles. I also looked at the authors (or teams) who were most cited for support on the principles (defined as those cited in the development of the principles on pages 26 through 277 of *PA*). For example, the Stewart-Furse-Koslow team stood at the top, as their analyses of non-experimental data contributed to 28 principles. Dave Walker was second; his unpublished analyses of non-experimental data contributed to 22 principles. Third was Daniel O’Keefe, who contributed meta-analyses of experimental data for 11 principles. Table 3 lists those who contributed to at least six principles. Of these, only Stewart et al were listed among the authors of the 75 most-cited advertising papers.

**Table 3: List of leading researchers who contributed to the development of principles**

<u>Authors</u>	<u>Number of principles</u>
Stewart, D. W., D.H. Furse & S. Koslow	28
Walker, D.	22
O’Keefe, D.	11
Stanton, J. L. & J. Burke	10
Cialdini, R.	9
Pieters, R. & M. Wedel	8
Jacoby, J. & W. Hoyer	7
Woodside, A.	6

A number of explanations might explain why so little research has been directed at useful

problems.<sup>5</sup>

My primary explanation, following Adam Smith, revolves around the reward systems for researchers. Most of the research is done by academics who are provided with financial support, but with no need to solve practical problems. The problem has become more serious in recent years given that universities have established systems to ensure that people are rewarded *fairly* for their research efforts. The rewards are based on how many papers a professor publishes, with extra points provided for publishing in the “better” journals. Universities give little credit for useful research, and the same is true for the review system used by journals. Moreover, the bureaucratic rules lead to ways to game the reviewing system, as noted years ago in “The Author’s Formula” (Armstrong 1982). Finally, progress means that new discoveries lead to revision in the way people currently think. My own experience follows that reported by others. Reviewers have almost uniformly rejected my most important evidence-based research. My career has been saved by editors who have ignored the “reject” decisions by reviewers and by editors who have invited me to write papers (Armstrong 1996).

Another explanation is that the use of statistical significance has led researchers to ignore practical significance. Papers with “null results” are unfairly rejected even if important – such as when a well-regarded treatment is shown to be useless (Hubbard and Armstrong 1992), and those with statistical significance (almost any finding with large sample sizes) are favored even if they have no practical significance. Furthermore, researchers often conduct tests against unreasonable alternative (null) hypotheses and most researchers and readers do not understand the tests. They also harm decision-making (Armstrong 2007). These arguments have been raised over the past century as is described by Ziliak and McCloskey (2007).

Perhaps the primary barrier to journal publication of evidence-based advertising is that the findings often conflict with commonly held views. Journals typically reject such papers. This occurs because the peer review system allows reviewers to block or at least delay findings with which they disagree. Much research supports this conclusion. For example, in Mahoney’s (1977) experiment, 75 psychologists thought that they were providing reviews of an actual submission; half of the reviewers received a version of the paper that supported existing beliefs, while the other half received one that refuted these beliefs. The reviewers who received the disconfirming version were much more likely to reject the paper, explaining that the methodology was flawed. As it happened, the methodology was the same for both versions of this fictitious submission. For further evidence, see Armstrong (1996 and 1997) and Benda and Engels (2011).

### *Directed research*

Invited papers provide the easiest and most common way for journal editors to “direct” research on advertising principles. For example, papers could be invited for important principles that lack strong evidence. Or they could be directed at replications of important papers. Researchers could then focus on the topic without fear of being rejected should their findings challenge existing beliefs. Reviewers would be asked how to improve the paper. The cost to the journal is lower because all invited papers are accepted, whereas under the traditional approach, about seven papers are reviewed for every one accepted. For example, the *Journal of Economic Perspectives* invites researchers to publish papers on specified topics and these authors seek their own peer review. This approach has been successful.

Another way to direct research toward principles is for journals to state that they will publish papers on evidence-based advertising and for editors to then decide what to publish from among the submissions. Here also reviewers would be asked to provide suggestions on how to improve papers, rather than to decide what should be published.

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<sup>5</sup> Armstrong and Pagell (2003) estimated that only about 3% of papers published in leading management journals are useful.

Advertisers could help to direct research by doing research on principles and sharing the findings, providing funding for research on principles, or providing data for testing advertising principles. Some early experiments had been conducted by advertisers and advertising agencies, often with the help of academics

Many of the persuasion principles require more evidence. Of the 195 persuasion principles, five rested on common sense and thus required no testing. Based on my codings for each principle, ample experimental evidence was available for only 22% of the principles that required testing. A summary of the amount of evidence for the principles is provided in Table 4. (My codings for the principles are provided in the Research Repository at AdPrin.com.)

**Table 4: Strength of evidence for the principles that require evidence [re-check counts. Small accounting problem here. Rounding?]**

<u>Number (%)</u>	<u>Evidence (Listed by strength of evidence)</u>
42 (22)	Much experimental evidence
33 (17)	Some experimental evidence plus non-experimental evidence
58 (31)	Some experimental evidence
18 (9)	One experiment plus non-experimental evidence
21 (11)	One experiment
8 (4)	Non-experimental evidence
6 (3)	Received wisdom
4 (2)	Speculative
190	

What principles are in need of research? In assessing of the principles, I focused on the 58 principles that were based on, at most, a single experiment; of these, I looked for those that are often violated. (A listing of these areas is [will be] provided on the Research repository on adprin.com.) Some of the more important principles in need of study are listed in Table 5.

**Table 5: Ten Principles in need of experimental research (principle # in PA)**

- Provoke customers only when it attracts attention to a selling point (3.6.1)
- Focus on benefits or features rather than choices (5.2.2)
- When the target market has an opposing viewpoint, consider using a story (5.3.1)
- Include brand and company names (double-branding) (5.5.2)
- Alert the target market early and prominently (8.1.1)
- Keep the headline short for low-involvement goods only (9.1.4)
- Use clear and readable captions for pictures (9.2.3)
- Repeat the main message at the end of the ad (9.3.3)
- Squeeze inter-letter spacing gently (9.4.6)
- Avoid large pictures in informative ads (9.6.2)

In a study involving forecasting principles, Armstrong and Pagell (2003) created a usefulness index based on whether papers had useful findings (as judged by contributions to forecasting principles) and citation rates. On this index, the 53 papers that received special treatment from editors (mostly by invitations and special issues) from the *Journal of Forecasting* and the *International Journal of Forecasting* were 20 times more effective on average than papers published in the traditional manner in those journals.

Journals could offer an alternative channel by publishing papers on the Internet. Given that space is free, there is no limit as to how many papers they could publish. The idea is to

publish all serious attempts that provide full disclosure. This is more in line with some of the hard sciences where a strong majority of submitted papers are published. Each of the reviewers' reports (and their names) would be published along with the papers. Authors could withdraw their papers once they see the reviews. In addition, anyone would be welcome to provide reviews, and if civil, they would be posted on the site along with the paper. Those who value their careers would be less likely to publish a paper (or a review) that would be useless or have errors or to leave it posted once it has been demolished.

This policy of publishing virtually everything would be expected to reduce the number of publications submitted as there would eventually be no value to rewarding academicians for publishing papers. Researchers would be judged on their useful contributions.

### *Alternatives to journal publication*

Academic journals are not well suited to publishing evidence-based research. Consider the problems that we would have had with publishing the findings from our analyses of the *WAPB* ads. Reviewers would be annoyed because quasi-experimental analysis is seldom used in advertising, the data have problems, the criterion is not ideal, the analysis is simple, and the findings conflict with common beliefs. In short, the findings violate the "Author's Formula" (Armstrong 1982). In addition, no tests of statistical significance are reported, as they would have been misleading.<sup>6</sup> This is compounded in that we addressed 56 principles. It would take years to review the papers with the result being that few papers would be published.

In such cases, books can serve a useful function in reporting new findings. However, there are long time lags associated with publishing in books. For example, *PA* required 16 years. The Internet offers a faster alternative. This should be especially appealing to researchers who have important findings and who do not want to be slowed by reviewers and subjected to a number of rounds of often-senseless revisions.

Those who do research relevant to advertising principles can stake their claim and get their papers published on sites such as the AdPrin.com site. They would be wise to get prior peer review as, once published, the papers would be subject to continuous peer review.

Despite the current dysfunctional reward system, technology will eventually lead to more effective diffusion of scientific research. In addition to overcoming the bias against important new findings, The possibility of open peer review will lead people to publish reviews for papers that are worth reading, and the larger number of reviews it will overcome the problem of low reliability among reviewers (e.g., Chicetti 1991) and the inability of reviews to find mistakes in papers (e.g., Schroter, et al 2008 found that reviewers missed about 70% of intentionally introduced errors in experiments on reviewing). When the original paper contains errors or omissions (e.g., Robinson & Goodman, 2011, found that in medical journals, paper typically cite only about ¼ of the relevant paper with experiments), it will be easier to flag them and link to corrections on the electronic version.

### **Conclusions**

[Back to Adam Smith?]

Over the past century, experts and researchers have produced a valuable storehouse of knowledge on how to use advertising to persuade people. Unfortunately, this knowledge has not been accessible to practitioners—nor to students or researchers. This knowledge has now been converted to operational principles that are freely available.

There has been no prior attempt to summarize the knowledge on persuasive advertising as condition/action statements. We were unable to find these principles in existing textbooks. The



evidence-based principles differ markedly from the practitioners' current procedures. The use of these evidence-based procedures would lead to more effective advertising.

Progress on evidence-based advertising has been slow. Directed research could speed advances via invited papers and also by having editors use reviewers to improve the papers, rather than to decide what should be published. The Internet can allow for faster publication, along with continuous open peer review. This can be done via journals or via dedicated sites such as adprin.com.

Evidence-based advertising is in its infancy. Hopefully, other researchers will provide evidence to refine the principles and add new principles.

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### Appendix: Test your Advertising IQ

(The answers are provided at [adprin.com](http://adprin.com))

- 1: If an advertisement states a "Unique Selling Proposition," one can safely assume that no other product can match the claimed benefit.  True  False
- 2: While people like to be presented with *some* choices, they do not like *many* choices.  True  False
- 3: When should you emphasize prices in advertising?  
 When quality is of little importance  When your costs are lower  When you want to get a new product off to a fast start.
- 4: When a product would need to be delivered to a customer, should an ad state:  
 How long it will take for the delivery  The date when the product will arrive
- 5: Consider that a company advertises a product with a bonus, such as frequent flyer miles. Which parties would be better off with an expiration date for using the bonus offer?  
 Buyer  Seller  Both  Neither.
- 6: While there are many ways of rating ad effectiveness, the most important criterion is how much customers like the ad.  True  False
- 7: Do not use rational and emotional appeals in the same ad.  True  False
- 8: You want an ad that deters people from dangerous activities such as excessive eating, so you decide to create fear. What appeal would be most effective?  Mild fear  Strong fear  Very strong fear.
- 9: The most effective way to make people feel guilty is to tell them about the suffering of (please choose your answer(s) from this list):  
 A large number of victims  A small number of victims  People similar to the target market
- 10: Mystery ads (those that avoid stating who is advertising) are effective for large companies because they do not alert people to the fact that they are watching an ad, and thus are less likely to lead to counter-arguments.  
 True  False
- 11: Advertisers for low-involvement products should consider inserting irrelevant material to distract customers when the product lacks advantages or disadvantages.  True  False
- 12: Few products have a Unique Selling Proposition that is truly different from competing products.  
 True  False
- 13: When the target market is resistant to change, ads should be explicit about conclusions.  True  False
- 14: The text in magazine ads should be brief.  True  False
- 15: Avoid the passive voice.  True  False
- 16: What attracts the most attention (per square inch) in a print ad?  
 Illustration  Text  Headline  Logo.
- 17: Use rapid speech for simple messages about low-involvement products.  True  False
- 18: Music enhances the effectiveness of ads, especially when there are strong arguments.  True  False
- 19: The most important objective of advertising is to increase awareness.  True  False
- 20: "If you have nothing to say, have a celebrity say it." Is that reasonable advice?  Yes  No

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