Have Introductory Psychology Textbooks Gotten Better at Representing Psychological Science?

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Abstract

Background: Recent scholarship has identified that factual errors have been common in introductory psychology textbooks. These errors tend to be in the direction of making psychological research appear more consistent than it is, as well as promoting viewpoints consistent with politically progressive ideologies. Some famous experiments in psychology have also seen serious questions raised about their validity.

Objective: Given that these conversations have gone on for about a decade, it is worth considering whether identification of these issues resulted in improved coverage in introductory textbooks.

Method: Textbooks were sampled at two time points…16 textbooks were sampled in 2018, and 18 in 2023.

Results: Results indicated that errors in textbooks have remained common even after this issue had been clearly identified in the published literature.

Conclusions: Misreporting of basic scientific information remains common in introductory textbooks, despite improvements in some areas.

Teaching Implications: Textbook authors should be alert to potential misinformation, particularly related to controversial topics. Introductory psychology teachers may need to be aware than not all information presented in textbooks is true.

Key words: Introductory Psychology; Textbooks; Teaching of Psychology

By the beginning of the 2010s, it had become apparent that the teaching of psychology had real flaws. Mainly these came in the form of repeating urban legends and myths about psychology, such as the notion that a woman had been murdered while 38 witnesses watched and did nothing (Manning et al., 2007) or exaggerating the consistency of research fields such as suggesting that media violence exposure was consistently linked to aggressive behavior when that wasn't remotely the case (Savage & Yancey, 2008). Much of the early scholarship on this issue focused on widespread misrepresentation of specific issues in introductory textbooks. This included questions about the validity of the Stanford Prison Experiment (Griggs, 2014), whether Milgram had failed to report the suspicions of his participants (Perry et al., 2020), whether the changes in Phineas Gage's post-accident behaviors had been exaggerated (Griggs, 2015), etc.

However, by the latter part of that decade, research began to emerge that suggested errors such as these were not limited to only a few issues but were widespread across coverage in introductory psychology textbooks. Ferguson et al. (2018) examined 24 leading introductory psychology textbooks and found errors were rampant among them. These errors tended to be of two major kinds: the repeating of psychological urban legends and myths (such as the Kitty Genovese parable), or exaggerations of the evidence for certain research fields (such as for media violence).

Subsequent studies have supported this widespread misrepresentation issue in introductory texts. For example, Warne et al., (2018) found misrepresentations of intelligence research to be common in undergraduate textbooks. Bartels and Shoenrade (2022) demonstrated that introductory textbooks often failed to represent the controversies over the Implicit Association Task, often used to measure "implicit racism" despite its questionable validity.

Bartels (2019) also demonstrated that the efficacy of antidepressants were often exaggerated in introductory textbooks.

The issue of whether bias in psychology textbooks reflects the underlying overrepresentation of liberals/progressives within the field (Redding, 2001) is an old one (Brown & Brown, 1982). However, recent analysis of introductory textbooks has suggested that political bias continues apace (Bartels, in press).

Taken together, this evidence suggests that issues related to errors and even biasesremain common in introductory psychology textbooks. However, has there been any improvement over time? Direct comparisons between studies can be difficult given different issues examined and different methods. However, the current paper sought to examine this by examining textbooks in two studies several years apart. Below, we discuss a pilot study to identify core issues for potential misrepresentation, then two studies to examine how common misrepresentations were in introductory psychology textbooks.

Pilot Study

The purpose of the pilot study was to identify areas of concern among psychology professors teaching introductory psychology. Namely, topics which the professors felt were covered in biased ways in textbooks. This pilot testing was undertaken such that the topics considered did not merely reflect the observation of this study's authors.

Methods

Participants

Participants in the pilot study were psychology professors teaching introduction to psychology at 4-year colleges and universities in the United States. Participants were randomly selected using the following method. 8 professors were solicited from each of the 50 states. For

each state, 8 universities were randomly selected and, from each university, a professor was randomly selected from among those who were ostensibly on the schedule to teach introductory psychology. A total of 393 solicitations were ultimately sent (several professors initially identified ultimately informed us they did not teach introductory psychology). No incentive was offered. Ultimately, we received 34 responses. This recruitment took place in Spring, 2018.

Materials

Participants were sent a questionnaire asking them to identify up to ten areas that they felt were poorly covered in introductory textbooks and, as such, may be misinforming students. The purpose of the study was explained to all participants. Responses were open ended.

Results

From the responses, 11 areas were identified as having high frequency in the responses. These were: 1.) The Stanford Prison Experiment, 2.) The Tongue Map, 3.) Little Albert, 4.) Evolutionary Psychology, 5.) Repressed/Recovered Memories, 6.) Stereotype Threat, 7.) Brain Plasticity, 8.) Corporal Punishment, 9.) Video Game/Media Violence, 10.) Kitty Genovese and 11.) Phineas Gage. These became the topics for consideration in the two main studies. A full detailing of the controversies in each of these areas is presented in Appendix A.

These topics fall into two broad categories. The first are scientific debates such as those for video game violence or stereotype threat, where scholars and empirical evidence disagree. The second are scientific urban legends, such as Kitty Genovese or Phineas Gage, often presented as an illustration of a scientific concept, even though the actual truth of the underlying story may be more nuanced or complex (e.g., the murder of Kitty Genovese was not, in fact, witnessed by dozens of unhelpful witnesses; Manning et al., 2007).

2018 Study

Methods

Most recent editions (as of 2018) of 16 textbooks were obtained. An appendix of included textbooks is provided as Appendix B. Two authors rated each of the textbooks for their inclusion of the 11 topics noted above. Topics were rated on a 4-point scale: 1 = highly biased, 2 = partially biased, 3 = not biased, 4 = not included,. Bias ratings were assessed in the following manner. For controversial topics (video game violence, evolutionary psychology, etc.) the following metric was used:

1) The textbook included only one-sided coverage of a controversial issue. No coverage of the debate was included, and one side was presented as fact.

2) The textbook noted the debate in the area, but only peripherally, focusing mainly on one side of the debate. Both sides were acknowledged but the advantage was clearly given to one side of the debate.

3) The textbook provided fair, comprehensive and accurate coverage of both sides of the debate.

For scientific urban legends (Kitty Genovese, Phineas Gage) the following metric was used:

1) The scientific urban legend was presented as fact.

2) The textbook raised some doubts about the authenticity of the story but leant toward presenting it as fact.

3) The urban legend was acknowledged as false.

The scientific urban legends differ from controversial topics in that a definitive answer about the truthfulness of the story is known. These metrics are similar to those used by Ferguson et al. (2018).

Results

Interrater reliability for coded responses was .756. Discrepancies were resolved by discussion. Most discrepancies occurred when one rater had difficulty finding discussion of a topic (this was most prevalent for the Kitty Genovese and Phineas Gage urban legends as well as stereotype threat and evolutionary psychology topics which weren't always in the same chapter or clearly delineated in the index of some books).

Table 1 presents the descriptive data on the quality of coverage in introductory textbooks. As can be seen, results vary by topic, but overall suggest a fairly high degree of bias in introductory psychology textbooks on some topics. Textbooks tended to be best performing on straightforward biological issues such as the Tongue Map, Phineas Gage (albeit often by simply ignoring these topics), evolutionary psychology and repressed memories. By contrast, textbooks were often poorer in relaying "classic" experiments such as Little Albert as well as hot-button social psychology phenomenon such as stereotype threat and video game violence. Several topics (video game violence, stereotype threat, corporal punishment, evolutionary psychology and Kitty Genovese) carried over from the earlier Ferguson, Brown and Torres (2018) study using textbooks from 2012. And examination of outcomes suggests modest improvements in these areas over six years, though still considerable bias.

[Insert Table 1 about here]

2023 Study

Methods

The methods of study 1 were repeated with 18 textbooks available in the Spring of 2023. Methods were otherwise identical allowing for a comparison across this 5-year period from 2018 to 2023.

Results

Interrater reliability for the second study was .836. As with the first, most discrepancies were related to locating material.

Frequencies for all topics from the 2023 study are presented as Table 2. As with the 2018 study, results varied by topic. With the exception of video game violence and Kitty Genovese, there was a general movement toward covering topics less. This may reflect both a tendency for introductory textbooks to become sleeker to adjust to market trends, as well as recognition that some topics (e.g., Stanford Prison Experiment and Phineas Gage) are no longer the clear illustration of the topics it was hoped they'd illustrate. As for bias in coverage, some topics saw marked improvement (e.g., video game violence, stereotype threat, Kitty Genovese), whereas some topics actually got *worse* in terms of bias (e.g., corporal punishment, brain plasticity). Overall results indicated that bias in introductory textbooks remains very common, however.

[Insert Table 2 about here]

Discussion

Following our 2018 article detailing misrepresentation of various topics and myths in Introduction to Psychology textbooks, we set out to see if these misrepresentations and myths persist in textbooks from 2023. Moreover, we set out to examine how these same textbooks cover controversial topics such as the effects of media violence. To improve upon our 2018

study, we surveyed a broad swath of Introduction to Psychology educators to solicit their feedback on misrepresentations, biases, and myths in Introduction to Psychology textbooks. Our results indicate a modest improvement since 2018, however it is worth noting that in many instances authors simply avoided the topics. On a positive note, we did find a handful of instances where authors actually discussed the myths and misrepresentations.

The highest misrepresentations tends to be for items which tend to be canonical to the history of psychology (Little Albert) or biases which touch upon sensitive topics for which there may be cultural or political divides (e.g., spanking). Although not the focus of our analyses, given the largely monolithic nature of progressive politics in psychology, there is a risk textbook biases may also reflect political biases (Bartels, in press).

In many cases, textbook authors simply avoided potential myths (e.g., the tongue map). We would encourage textbook authors to not ignore these myths and misrepresentations, rather we encourage them to see these as teaching opportunities, wherein they can discuss the myths and controversial topics within the context of how science evolves over time.

In conclusion, potential biases remain a problem for the teaching of psychology. These biases may come from several sources: a desire to make psychology seem exciting and important, political, and social advocacy biases, or failure to consider both sides of controversial research areas such as video game violence. However, our students deserve the full truth, even if it is muddy, politically inconvenient, or uncertain. Psychology should consider more deeply how to represent the often difficult and unclear nature of human behavior to students in an honest manner.

Compliance with Ethical Standards

Conflict of Interest: The authors have no conflicts of interest to declare.

Informed Consent: All research described within passed local IRB and was designed to comport with federal standards for human participants research included proper informed consent.

Data Availability Statement: Data for this project does contain identifying information. All data are available from the authors by request.

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Table 1

Percentages of Introductory Textbooks with Biased, Partially Biased or Unbiased Reporting on Controversial Issues and Scientific Urban Legends

Issue	Not Covered	Biased	Partially Biased	Unbiased
Stanford Prison Exp.	18.8%	18.8%	18.6%	43.8%
Tongue Map	93.8%	0%	0%	6.3%
Little Albert	0%	68.8%	25%	6.3%
Evolutionary Psychology	0%	0%	18.8%	81.3%
Repressed Memories	6.3%	0%	0%	93.8%
Stereotype Threat	18.8%	25%	50%	6.3%
Brain Plasticity	12.5%	0%	0%	87.5%
Corporal Punishment	12.5%	18.8%	37.5%	31.3%
Video Game Violence	12.5%	12.5%	50%	25%
Kitty Genovese	43.8%	25%	6.3%	25%
Phineas Gage	43.8%	0%	0%	56.3%

Note: Due to rounding, percentages may not add up to exactly 100%.

Table 2

Percentages of Introductory Textbooks with Biased, Partially Biased or Unbiased Reporting on Controversial Issues and Scientific Urban Legends

Issue	Not Covered	Biased	Partially Biased	Unbiased
Stanford Prison Exp.	44.4%	5.6%	0%	50%
Tongue Map	88.9%	0%	5.6%	5.6%
Little Albert	22.2%	72.2%	5.6%	0%
Evolutionary Psychology	27.8%	0%	5.56%	66.7%
Repressed Memories	9%	0%	22.2%	77.8%
Stereotype Threat	22.2%	27.8%	22.2%	27.8%
Brain Plasticity	16.7%	5.6%	22.2%	55.6%
Corporal Punishment	16.7%	38.9%	27.8%	16.7%
Video Game Violence	0%	16.7%	38.9%	44.4%
Kitty Genovese	27.8%	11.1%	16.7%	44.4%
Phineas Gage	61.1%	0%	16.7%	22.2%

Note: Due to rounding, percentages may not add up to exactly 100%.

Appendix A

Stanford Prison Experiment

Philip Zimbardo's influential Stanford Prison study, took normal college aged males, and randomly assigned them to be "prisoners" or "guards" in his fictitious prison. As reported, within days the prisoners were very submissive, and the guards were very sadistic. However, recent evidence shows that Zimbardo coached the "guards" to exert psychological control over the "prisoners." (Le Texier, T., 2019). Moreover, some of the participants reported that they changed their behavior to "help" the study. Griggs (2014), also detail other instances where the facts do not fit the myth.

Tongue Map

The misconception about there being a map of the tongue, with different parts of the tongue tasting different tastes, originated from an article in 1901 by Harvard professor Dirk Hanig. Although for many years this was taught in various disciplines, it has repeatedly been proven false. (O'Connor, A., 2008).

John Watson and Little Albert

The Little Albert study is a famous study wherein John Watson and Gloria Raynor use classical conditioning to teach Albert (an orphan) to fear small white objects. This story has been used repeatedly as an example of classical conditioning in a naturalistic setting. Many years later, Ben Harris attempted to track down Albert to see if he still feared white objects. As part of this process, Harris decided to read the original article by Watson and Raynor, and much to his disappointment, he discovered that Watson and Raynor were actually unsuccessful at training Albert to fear objects. (Harris, B., 2011).

Evolution and Mate Choice

While most would agree that evolution played a role is shaping human behavior and thoughts, this area of Psychology is not free from controversy (Geher, 2022). In 2014, Winegard, Winegard and Deaner found eight different evolution-based errors in textbooks related to sex and gender. Given the controversy, some authors may shy away from the topic and rather focus on a more standard explanations of mate choice.

Repressed/Recovered Memories

One of the oldest concepts in Psychology is Freud's concept of repressed memories. According to his theory, repeated exposure to trauma (e.g., childhood abuse) can lead to those memories being repressed into the unconscious mind, and thus cause no anxiety. There is a belief in the clinical community that these repressed memories can be recovered through therapy. However, this line of thinking has led some researchers to claim that these "recovered memories" could be fictitious and brought about via suggestions from the therapist. In the laboratory, it has been shown that researchers can create "false memories" of mildly traumatic events (Strange & Takarangi, 2012)

Stereotype Threat

Stereotype threat is reduced performance due to your knowledge of a stereotype against your group. This phenomenon has been used to explain performance differences between high and low socio-economic population (Croizet, & Claire, 1998). The concept of stereotype threat has been used to explain differences between genders, races and individuals from different economic backgrounds. However, Walton et al. (2013) found that the typical finding where black students perform worse than white students disappeared when the questions were framed

as being nonevaluative, as opposed to evaluative of verbal ability. Also see Jussim et al. (2016) for a review of some of the controversy surrounding stereotype threat research.

Brain Plasticity

More than 100 years ago Spanish physician and Nobel prize winner posited the neuron doctrine, which stated that neurons do not regenerate. However, in the 1960's Joseph Altman and others found evidence for neural growth in brain regions associated with learning and memory (Altman & Das, 1966).

Corporal Punishment

Larzelere and Kuhn's (2005) meta-analysis of 25 years of research found that conditional spanking was associated with better outcomes than 10 of the 13 alternative disciplinary strategies that they tested. There were no differences with the remaining three strategies. On the other hand, in a meta-analysis of 50 years of research on spanking, Gershoff and Grogan-Kaylor (2016), found that the more children are spanked the more they are aggressive, anti-social and defiant. Clearly there are disagreements with the outcome of spanking, however most textbooks do not show favorable outcomes when it comes to spanking.

Video Game Violence

Regularly, after tragic events such as the Sandy Hook shooting, the question of whether media violence contributes to the increased societal aggression arises. Scholarly opinion and scientific evidence on this topic are very divided (see Australian Government, 2010 for a comprehensive review of the topic). Although early on scholars often proclaimed a consensus on the impact of video game violence on aggression, later preregistered research suggested that

this field was part of psychology's larger replication crisis, with preregistered studies generally failing to support effects (see Ferguson, 2020).

Kitty Genovese

Perhaps one of the most famous myths is the story of Kitty Genovese. As reported in many textbooks, Kitty was murdered in full view of various witnesses, who did not try to help Kitty. This story is used as a demonstration of the bystander intervention effect. Unfortunately, this story has been proven wrong (Manning et. al., 2007). The murder did occur, however, some of the witnesses who viewed the event did call the police and attempted to help Kitty. In addition, the number of actual witnesses was much smaller than reported in many textbooks. This myth may have originated from an inaccurate newspaper article that appeared days after the event.

Phineas Gage

Phineas Gage was a railroad foreman, who survived an accident, where a metal tamping rod was driven through his skull, destroying much of his left frontal lobe. Most accounts report major changes in his personality and behavior, and friends reported that he was a totally different man. However, there is evidence that after the accident, Phineas traveled to a foreign country (Chili), to run a long-range six-horse stagecoach (Macmillan, 2000), clearly demonstrating that he was not as incapacitated as is depicted in many textbooks.

Appendix B

Textbooks from Study 1:

Cacioppo, J. T. & Freberg, L. A. (2019). *Discovering Psychology: The Science of Mind*. Cengage.

Coon, D, Mitter, J & Martini, T. (2019). *Psychology: Gateways to the mind & behavior*. Cengage.

Feldman, R. S. (2015). *Understanding psychology*. Mc Graw Hill.

Feist, G. J. & Rosenberg, E. L. (2015). *Psychology: Perspectives and connections*. Mc Graw Hill.

Gazzaniga, M. (2018). *Psychological science*. Norton.

Gray, P. (2017). *Psychology.* Worth Publishers.

Hockenbury, S., & Nolan, S. (2016). *Discovering psychology.* Worth.

King, L. A. (2017). *The science of psychology*. Mc Graw Hill.

Krause, M. & Corts, D. (2016). *Psychological science*. Pearson.

Licht, D., Hull, M., & Ballantyne, C. (2017). *Scientific American: Psychology.* Worth.

Morris, C. G. & Maisto, A. A. (2016). *Understanding psychology*. Pearson.

Myers, D., & DeWall, N. (2017). *Psychology.* Worth.

Plotnik, R. & Kouyoumdjian, H. (2014). *Introduction to Psychology.* Wadsworth.

Pomerantz, A., (2018). *My Psychology.* Worth.

Schacter, D., Gilbert, D., Nock, M., & Wegner, D. (2016). *Psychology.* Worth.

Weiten, W. (2017). *Psychology: Themes and variations*. Cengage.

Textbooks from Study 2:

Bernstein, D. (2019). *Essential of psychology, 7th edition*. Cengage.

Cacioppo, J., Freberg, L. & Cacioppo, S. (2021). *Discovering psychology: The science of mind, 4th edition*. Cengage.

Ciccarelli, S.K., & White, J.N. (2020). *Psychology, 6th edition.* Prentice Hall.

Coon, D., Mitterer, J.O. & Martini, T.S. (2022). *Introduction to psychology: Gateways to mind and behavior, 16th edition.* Cengage Learning.

Feist, G., & Rosenberg, E. (2022). *Psychology: Perspectives and connections.* McGraw Hill.

Feldman, R. (2021). *Understanding psychology, 15th edition*. McGraw Hill.

King L. A. (2023). *The science of psychology: An appreciative view, 6th edition*. McGraw-Hill.

Krause, M., & Corts, D. (2015). *Psychological science: modeling scientific literacy, 2nd edition.* Pearson.

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Morris, C.G., & Maisto, A.A. (2018). *Understanding psychology, 12th edition*. Pearson.

Myers, D. & Dewall C. N. (2021). *Psychology, 13th edition.* Macmillan.

Nevid, J. (2022). *Psychology: Concepts and applications, 6th edition.* Cengage.

Nolan, S. & Hockenbury, S. (2022). *Discovering psychology, 9th edition*. MacMillan

Phelps, E. A., Berkman, E. & Gazzaniga, M. (2022). *Psychological science, 7th edition*. W. W. Norton & Company.

Schacter, D., Gilbert, D. & Noch, M. K (2023). *Psychology, 6th edition.* Mac Millan.

Wade, C., Travis, C., Sommers, S. & Shin, L (2020). *Psychology, 13th edition.* Pearson.

Weitan, W. (2022). *Psychology: Themes and variations, 11th edition.* Cengage.

Kalat, J. W. (2022). *Introduction to psychology, 12th edition*. Cengage