

Minding the Gap: Confronting the Standardized Testing Mindset in Higher Education

James J. Briganti, Nagasaki University School of Medicine, Japan

The Asian Conference on Education 2016
Official Conference Proceedings

Abstract

In Japan, standardized testing or 'teaching to the test' instruction continues into higher education and professional training. Near universal application of standardized testing as a measure of overall academic competence may result in 'gaps' in the learner's ability to judge critically new and unfamiliar information and contexts. This article examines how learners will often apply pre-conceived notions and beliefs in unfamiliar contexts and often fail to apply critical thinking strategies, instead relying on mythical, folkloric concepts based on national identity and the 'uniqueness' of the Japanese 'race'. Two such folkloric beliefs are examined, and learners are presented with contrary, factual data in order to reveal these 'gaps' to the learners themselves. Gaps in critical (scientific) methodology learners have exhibited include: confirmation bias, cherry-picking, equating published study with scientific 'truth', and disinformation through cultural/national mythology. This article reveals that for many medical students, there is a tendency to rely on memorization and preconceived notions when confronted with complex and unfamiliar situations, suggesting that it is important for educators to identify these non-scientific approaches to problem solving and attempt to correct these approaches in the learners themselves.

Keywords: standardized testing, critical thinking, confirmation bias, folklore.

iafor

The International Academic Forum
www.iafor.org

Introduction

Teaching to the test has become standard practice in Japan. The uniformity of instruction that this approach requires, as well as the apparent fairness of everyone being judged by the same standard, fits well within the parameters of conformity and equality that are hallmarks of Japanese society. Learners raised on this system become very comfortable with rote memorization and test-taking strategies. Those who excel in this system are on track to join the professional classes as lawyers, business leaders, and doctors.

In practical medical training at university level, however, complex, interacting variables in individuals and in populations as a whole confound this approach. 'Answers' are not merely a matter of black and white, of simple memorization, but rather the product of evolving knowledge of specific, interconnected, phenomena. The stark limitations of the 'standard' approach to learning are revealed through the 'gaps' students exhibit in their lack of prior knowledge, or presupposed misinformation.

For these reasons, this article will depart from the usual lines of critique of 'teaching to the test'. Such things as cultural, class, and racial or gender bias inherent in a particular standardized test itself will not be directly examined in this article. Instead, the article is an examination of the effects of this testing system, however bias in any (or other) of the abovementioned ways, on the overall approach particular students apply to complex, unfamiliar problems.

In requiring learners to confront their understanding of a particular phenomenon, and in doing so either defend it or evolve their opinion on said matter is in the author's humble opinion a crucial process in ensuring that everyone who passes through Nagasaki University School of Medicine on their way to a professional career has had not only the required vocational medical training, but will also employ their critical thinking skills in a constantly changing professional environment.

Methods

The author introduced a commonly held belief during the course of instruction as a means of introducing the idea of critical evaluation of assumed facts. It is a common belief in Japan that the Japanese people have longer large intestines than peoples from North America and European countries. This is also a common belief among medical students- not just freshmen, but those in the final stages of their training as well. There is reasoning behind this belief that can be summarized as follows: European peoples- and by relation those in North America as well (We will call these people 'Westerners'), developed their societies and cultures while thriving on a diet mainly of meat. This nutritionally dense Western diet meant that physiologically, the gastrointestinal system could easily absorb the necessary nutrition, meaning that waste could be eliminated quickly, thus requiring only a short alimentary canal and in particular, a comparatively shorter large intestine.

Japanese peoples on the other hand, developed their societies while subsisting on a diet that was based on rice and vegetables and therefore comparatively, nutritionally poor. Because of this the digestive system of a Japanese person would need more time to absorb the requirements of the body, thereby leading to the physiological

phenomenon of the comparatively long large intestine characteristic of the Japanese people.

The author, upon explaining this phenomenon and the reasoning behind it, proposed that if they could prove this to be supported by physiological evidence, they would be relieved of their responsibility to attend any more lectures that semester and would receive full credit for that semester's course. To the author's dismay, this proposal visually elated more than one student.

The Proof

A few students presented the following proof of the long large intestine claim. This first proof was retrieved from the Yakult page from the Internet Archives (http://blog.yakult.co.jp/cho/archives/2007/04/post_40.html) Complete URLs are in the References section of this paper. Yakult is a large company that sells probiotic drinks. In the piece, the head of the board of the Hiratsuka Intestinal Hospital, Hideo Hiratsuka, says the belief is factual. He claims he can see it from his own experience and from research. Japanese colons are 2~3 meters long, but Western colons are 1.2~1.3 meters long.

A second article, also found online, was offered as proof by a student. (Mynavi Corporation, full URL in References section) On this site, they list several negative effects that a western diet will have on Japanese due to this colon-length discrepancy. They note that the reason there are so many cases of constipation in Japan is because many Japanese have switched to a Western diet. There are many other similar claims online. The author does not wish to overwhelm the reader with any more 'proof' of these dubious claims. That would beleaguer the point.

The Facts

Saunders, et. al, (1995) noted "“There was no significant difference in total colonic length comparing Western (median = 114 cm, range 68-159 cm) to Oriental (median = 111 cm, range 78-161 cm) patients.” Nagata, (2013), replicated the original 1995 and came to the same conclusion; There is no difference in colorectal length between Japanese people and people from western countries.

Discussion

In confronting learners who profess beliefs not founded in critical thinking and the process of investigating claims, the foundations of specific confirmation biases can be shaken. In continuing to introduce other, more complicated and nuanced public health issues as students progress through the years, hopefully encourages them to evolve their opinion on a variety of topics over their years of study.

One troubling observation made was the overuse and reliance on the internet, where factual publications mix freely, and are wildly outnumbered by, biased, unreliable sites on the World Wide Web. There are many opportunities to cherry pick sites with claims that suit a student's biases and folkloric, nationalistic assumptions.

As this article was being put together, the author, through introducing a certain health topic, observed that some students are still-in their latter years of study-able to set aside critical thinking when their confirmation bias is satisfied through the claims made by multiple online sites.

Students were asked to do individual research on the use, misuse, or abuse of prescription medications in Japan or elsewhere. Several students chose the topic of anti-depressant use (SSRI drugs specifically). During one student's report in class, the student noted that although SSRI use is high in Japan, it is much lower in Korea. His explanation for this was that the difference lay in the differing DNA makeup of these two populations. Specifically he noted, Japanese are genetically predisposed to being anxious and that Japanese are more anxious than other people in the world.

The student was asked to present his sources for these claims (listed under SSRI in the Reference section of this paper).

The student presented an article on the site "Rocket News!" titled "Human emotion is also decided by genes! Research shows that Asians are genetically predisposed to feel anxiety." as one credible source he used in his research. The student also presented an opinion piece in a Japanese business news aggregator article titled "Overcoming the Gene Curse."

Upon further research, the author discovered that this theory originated with a single research article reported on in *The Economist* magazine, in an article titled 'Hope from a Pill', published February 28, 2008. So far, attempts to replicate the initial findings of this article have been unsuccessful. De Neve (2012) noted that their replication attempts 'showed mixed results' and that 'more work needs to be done...'

The readiness of the student to identify a genetic difference that separated Asians from non-Asians and then leap to the assumption that Japanese genetic uniqueness is further supported by this evidence presented in class, indeed indicates a gap in at least one individual's ability to overcome a strong confirmation bias.

Clearly, there is a need to help students to be more discerning, to use their critical thinking skills, when analyzing the 'proof' offered online.

Conclusion

The author continues to employ this approach, which is still developing new ways to expose and confront unexamined biases and critical thinking shortcomings among medical students. Further study containing specific, quantitative data regarding the efficacy of this particular model is warranted. Ideally, a longitudinal analysis of Nagasaki University medical school graduates, over decades, comparing the rate of malpractice, as well as the rate of outstanding performance in a specific field of research or practice, to the profession as a whole in Japan, would perhaps indicate that this method does encourage the development of critical thinking skills among students. As the author does not expect to be around long enough to see such a complex and vast reaching investigation through to its fruition, it is up to other educators and researchers to determine if such an effort should be made. In the interim, further research on the author's approach will be forthcoming.

References

Koichi NAGATA, "Colorectal Length in Japanese and American Asymptomatic Adults Based on CT Colonography." *Gastroenterol Endosc* 2013 ; 55 : 435-44.

Saunders, et al, "A peroperative comparison of Western and Oriental colonic anatomy and mesenteric attachments." *International Journal of Colorectal Disease*. 1995;10(4):216-21

The Economist, "Hope in a Pill." February 28, 2008. p. XXX.

中見鏡子 (April 12, 2007). 大腸トリビア. *腸科学ブログ*. Retrieved from https://web.archive.org/web/20071014023530/http://blog.yakult.co.jp/cho/archives/2007/04/post_40.html

衝撃！日本人が欧米人と同じ食生活をしてはいけない3つの理由 (2015/07/11). *マイナビ学生の窓口*. Retrieved from <https://gakumado.mynavi.jp/gmd/articles/15115>

SSRI

人間の感情も遺伝子で決まる！ アジア人は遺伝的に不安を感じやすいとの研究結果 (2011年10月25日). *ロケットニュース 24*. Retrieved from <http://rocketnews24.com/2011/10/25/145124/>

Overcoming the Genetic Curse (2012.12.17). *Nikkei BPNet*. Retrieved from <http://www.nikkeibp.co.jp/article/column/20121217/334146/?rt=nocnt> (Overcoming the Genetic Curse)

Contact email: jbriganti@nagasaki-u.ac.jp