

The Value in Emphasizing Critical Thinking

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(Editor's note: Leah Bigl is the winner of the Peggy S. Pittas LCSR award for the best essay dealing with a social problem in the 2013 Agora.)

In 1998, British medical surgeon and former medical researcher Andrew Jeremy Wakefield published a research study in which he outlined a correlation between regressive Autism Spectrum Disorders (ASD) and the MMR (measles, mumps, rubella) vaccination (Ferguson, 2012). News of this study immediately went viral throughout the United Kingdom, leading to nearly 20% decrease in MMR immunization rates for children, so that those vaccinated dropped from 92% of the population to 73% (Ferguson, 2012). As immunization rates decreased, measles outbreaks were seen initially in Britain, leading to the first measles death in more than a decade. Subsequently, measles outbreaks spread to the United States of America and to the rest of the world (Ferguson, 2012). However, in 2004, new information and research emerged discrediting Wakefield's claims of a link between MMR and ASD; the Center for Disease Control declared on its website in April, 2012, that there is no causal link between autism and MMR (Ferguson, 2012). What was it in Wakefield's research that managed to grip his late-'90s Western audience and convince them with a single study that the science behind the development of MMR was inherently flawed? Why is it that, despite a decade of valid research to the contrary, millions of adults still remain convinced that autism is directly correlated with childhood immunizations? The answer presents itself in the form of the public's perception; something in Wakefield's article speaks with authority that presents his findings as more trustworthy than anything produced by governmental studies. Whether this authority is due to validity in Wakefield's study or to the public's inability to accurately discern

truth is a point of contention. In the end, the public will always be presented with a lot of information that will contradict itself on many topics, well outside the issue of immunization. The problem is that the current American public, consumed with sensational media, has not been educated effectively enough to examine the validity of both scientific and pseudo-scientific research in order to draw their own conclusions on the validity of claims.

Since the advent of science, its goal has been twofold: to enable society both to know and to do things that were previously undiscovered and unexplored (Russell, 1951, p. 271). In many respects, science has already proven successful in both of these endeavors; the discovery of genetics has improved our understanding of the human body, and the advent of electricity has improved communication technology and increased productivity (Russell, 1951, p. 273). Nevertheless, in the United States in the twenty-first century, some scientific findings still remain significantly controversial. Supposedly scientific debates, such as creationism versus evolution, have created mass controversy and produced divisions in society. Increasingly, science has become less about facts and more about what Bertrand Russell (1951) predicted in *The Impact of Science on Society*: the development of mass psychology through the art of persuasion (p. 279). Just as Adolf Hitler was successful in convincing an entire nation that his policies were ideal despite their obvious flaws, science has become preoccupied with convincing the public of its validity rather than proving that validity through data and results.

This shift in scientific focus would be disheartening if it meant merely the loss of true scientific inquiry; however, an accompanying factor in this shift of focus makes the advent of “scientific” persuasion terrifying. The modern, twenty-first century society exists in a global world, one in which affluent and non-affluent individuals alike are presented with infinite

access to information in the form of print, radio, television, and Internet. Yet as access to information has increased, individuals' ability to discern and dissect the information has rapidly deteriorated. In an auditorium full of college faculty, impending graduates, and community members, a speaker felt the need to present the reminder: "Do not believe everything you see on TV" (Ferguson, 2012). The general public's ability to analyze scientific information seems to have evaporated as information floods in. No longer are the most reliable or proven scientific findings held in the highest esteem or widely acknowledged; the effect of Andrew Wakefield's 1998 article was astounding because it broke unspoiled ground when it captured the attention of a media-driven society. Wakefield's research claims were new and created controversy that fascinated a society consumed with sensationalism. Very few parents, however, stopped to analyze and draw their own conclusions on the validity of Wakefield's claims; instead, they immediately stopped vaccinating their children because some news article told them that vaccinations were dangerous.

In short, the education system seems to have failed to teach the rising generations to think critically for themselves. In 1762, Jean-Jacques Rousseau wrote in *Emile* his theories on the education of man, detailing the three great educators of man: nature, fellow man, and environment (p. 160). Though Rousseau (1762) included many concepts of gender and socioeconomic class that have since been discredited, in *Emile* he presented educational concepts that we may do well to consider today. Rousseau (1762) spoke out against education without comprehension, claiming that rote memorization without true understanding of the underlying concepts had no value (p. 186). Today this issue is often seen in children who can recite mathematical formulas but are unable to solve longer equations because they do not

understand the principles involved in problem solving; they can list the periodic table of elements but not the worth of the elements; they can describe the American political scene but not their own views on it. Unfortunately, the emphasis of our education system is not on individuals' comprehension but on systemic achievement of certain test grades, achieved through short-term memorization of details that children cannot relate to their real-world experience.

In today's American society, citizens are presented with large amounts of golden information, unrivaled in previous centuries in its rich complexity and ease of access. Nevertheless, the inability of average citizens to synthesize this information has led to an additional inability of individuals to make coherent and rational decisions. Since the late '90s, some parents have continued to vaccinate their children because they have analyzed the research and made an educated decision (Ferguson, 2012). In contrast, the parents who have chosen to abstain from vaccinating their children have been captured by the sensationalism-focused media. The large numbers of people who hold this misinformed view of vaccinations indicate a widespread change in the public's understanding of science; instead of considering facts and evidence, many individuals are now more likely to be persuaded by emotional, sensationalized claims of pseudo-science. To correct this problem, a corresponding change needs to be made in our education system. If citizens are to make thoughtful decisions for themselves and their families, our education system must change its emphasis from memorization to critical thinking. Then, individuals will be able to recognize valid science and will have the confidence to make appropriate decisions as a result.

References

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