Shelby Proft

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The Practice of Science

The everyday practice of science can be measured down to anything in the work force, common activities, as well as education. Such practice could be a student’s participation in a science fair in school. As Grinnell mentions in his book, “Even the science fair, one of the most popular and valuable science educational experiences, distorts practice” (Everyday Practice of Science, p. 19). As such a common example of what can make students have an educational experience with the practice of science, Grinnell clearly dislikes the outcome of what the typical science fair projects about the practice of science in the educational realm. Grinnell exemplifies his opposition between the factors of discovery, research, and presentation taking place in the example of a science fair. There is an obvious tendency to endorse the discovery aspect of the practice of science, and give personal thought and preference in displaying the research and outcomes of the discovery. So throughout the everyday practice of science there is a definite difference between the process of which discovery takes place and the way it is written down. The way in which the discovery is written down leads to a difference in the context and use of what is concluded from the discovery process, and the incorporated aspects of science and mathematics support and provide integrity for the discovery over all.

Primarily, there is a difference in the process of discovery and the way in which is presented formally. For example, the process of proving a geometrical proof and the process in which it is written down on paper are generally different. Through the process of discovery, there are so many different outlets in which your mind can travel, thinking of different ways to solve the problem along with the different paths that can be taken to the final solution. Compared to the process of writing down the proof, the process of discovery takes much more intellect and sustainability, although while involved in the procedure of finalizing and demonstrating the proof, there must be an capacity of clarity and accuracy in the technical and transcribing ability. The major differences between the process of discovery in a geometrical proof and the process of writing down the proof, as generally the same with any type of proof, not only geometrical, are summed up in the difference between intellectual exploration and rational clarity.

Secondarily, there is a defined difference between scientific textbooks compared to scientific research publications. Scientific textbooks are brought more into the realm of standard educational practices in schools, intended to teach about more general subjects. Their appearance definitely varies, but a general textbook is large with a variety of information contained in it, mainly to teach the reader. Compared to textbooks, scientific research publications and articles are also used in teaching but also in an optionally favored manner of inquiry. Articles are generally shorter than textbooks and may be used to teach, but are more likely to inform the reader about a specific discovery. Grinnell clusters textbooks and scientific research publications together to say neither of them include everyday practice of science. His general statement, “Science textbooks and research publications exclude everyday practice” (Everyday Practice of Science, p. 6), blatantly elucidate his view that textbooks and articles eliminate the process to which the discovery took place. Grinnell’s example of “Professor Anybody” and “Professor Particular” summarizes his claim on the obvious elimination of the process in textbooks and articles. “Professor Anybody” is “independent of personal or social interests, knowledge owned by everyone, disinterested, personal beliefs suspended” (Everyday Practice of Science, p. 6) who is present in textbooks were authors “usually present facts without clarifying where and how they arise” (Everyday Practice of Science, p. 6). “The adventure, excitement, and risks of real-life discovery disappear” (Everyday Practice of Science, p. 6) while “Professor Particular”, who is interested not in the structure of science, but the discovery of science, is not found in textbooks. Articles are grouped within this exclusion of the process of discovery, according to Grinnell, “Research publications also mask the work of Professor Particular” (Everyday Practice of Science, p. 6), so essentially, “The consequence is that practice becomes invisible” (Everyday Practice of Science, p. 6). While there are distinct differences between science textbooks and scientific research publications, there is a common association as well. The lack of clarity presented in each type of text pertaining to the discovery process and direct practice of science is clear.

Subsequently, there are certain mathematical techniques that fit into the practice of science. Statistics is a main component of the discovery, research, and result of an experiment. Statistics are not only part of one component of the scientific process, but largely compiled into every aspect of scientific practice. Within the discovery process, facts must be used to come to any part of conclusions, with data and corresponding essentials which come from statistics. In the presentation of a discovery, statistics are used variously and extensively. To supply an audience or reader with sufficient evidence supporting a claim, statistics must be present for support, and if there was no sufficient evidence represented to clarify and sustain the discovery, the following and belief of the claim will not be represented. On page five of *Everyday Practice of Science* by Frederick Grinnell, there is a diagram representing the relationship between discovery and credibility. Statistics appropriately fit into both sides of the relationship, but quite differently on each side. In the discovery section, statistics are a part of the process to develop a discovery. They are used determine and exemplify parts of the experiment that need clarification and observation. On the other side of the spectrum, statistics are clearly important factors in the presentation of results in the everyday practice of science. There must be statistically represented results from a discovery to engage and bring the reader or audience to absorb the results efficiently. So, predominantly, the range of what statistics can represent in science, is inclusively large, varying from the initial discovery process and practice of science to the mid point results, all the way to the presentation of discovery to an audience.

Conclusively, there is an overall, defined split between the idea of everyday practice of science being represented in general life and society through non-credible representation and the fact that everyday practice of science is in general, only correctly represented through a small amount of specific outlets, which define the accurately represent the actually process of discovery and do not only skip directly to the statistical results.

Works Cited

Grinnell, Frederick. *Everyday Practice of Science*. New York: Oxford UP. Print.