Voluntary Professional Accreditation by the ASA

Ronald L. Wasserstein

Executive director of the American Statistical Association

ron@amstat.org

1 Introduction

The American Statistical Association (ASA) launched its accreditation program three years ago. We will summarize the program and its progress thus far, and discuss what we have learned from our experiences.

After nearly two decades of debate, in 2009 the ASA Board of Directors approved in principle an accreditation program for the association. Several more months were spent developing the guidelines for accreditation, and these were also approved by the Board. An accreditation committee was formed, process and procedures were developed and tested (including software to handle the application and review process online), and in late 2010 the accreditation program was offered to ASA members for the first time. Since, approximately 200 people have been accredited by the ASA, receiving the "Professional Statistician" (PStat®) designation. A list of accredited members is available on the accreditation website.

2 The accreditation procedure

The criteria for ASA accreditation are, in brief:

- An advanced degree (in the U.S. that is at least a master' s degree) in statistics or biostatistics, or in a closely related quantitative field with a sufficient concentration in statistics
- At least five-years documented experience in the application of appropriate statistical concepts and techniques
- Demonstrated professional competence
- Commitment to ongoing professional development
- Good communications skills
- Adherence to ASA's Ethical Guidelines for Statistical Practice
- Membership in the ASA

Like the accreditation programs in Australia, Canada and the United Kingdom, the ASA's accreditation program is portfolio-based, rather than examination-based. That is, to achieve accreditation one does not take a test, but rather submits a portfolio of credentials. These credentials are carefully evaluated against the criteria for accreditation by the ASA's Accreditation Committee. Successful applicants receive PStat® status for five years, after which they must apply for renewal. Unsuccessful applicants receive guidance on what they need to do to satisfy the requirements and to be successful on a subsequent application.

Keywords in the ASA's accreditation program are "voluntary" and "professional."

Accreditation is voluntary. It is not a requirement for ASA membership, and at present it is required for employment only in a very few instances. It is not intended for everyone. As noted in the ASA's guidelines for accreditation, "PStat® accreditation is offered by the American Statistical Association as a service to those of its members who find added value in a voluntarily obtained credential that provides recognition by peer. Not all statisticians will need or seek PStat® accreditation, and the lack of PStat® accreditation should never be construed by itself as evidence of lack of education, expertise, or competence as a statistician. However, holders of the PStat® credential have voluntarily applied for this status, have submitted materials that have been carefully reviewed by peers and found to be deserving of the credential, and must periodically undergo further review to maintain this status."

Implicit in the above statement is that accreditation is for professional statisticians. That is, the practice of Statistics is a job for skilled professionals. Accredited statisticians have been recognized by their peers for combining education, experience, competence and commitment to ethics at a level that labels them as professionals.

Accreditation provides a measure of assurance to employers, contractors and collaborators of statisticians, and a mark of accomplishment to society at large.
One does not have to be accredited to have these qualities, of course, but accreditation proclaims that statisticians are professionals, akin to architects, doctors, engineers and lawyers.
Why is this important? Many issues that have an impact our daily lives, such as our health and safety, our work, our standard of living, and the policies of our governments are crucially influenced by Statistics—the collection, analysis, presentation and interpretation of quantitative data in the presence of uncertainty. Sound statistical practice informs sound decisions, leading to better policy and better outcomes. Incorrect or unethical use of Statistics can produce misleading results, poor advice and worse choices.

3 The first outcome

Now let's look at the lessons learned in the first three years of the ASA's accreditation program. Perhaps "lessons learned" is not quite accurate. "Lessons more fully understood" may more accurately state the case.

1. *The practice of statistics is very broad, very diverse, and this is reflected in the varied needs of the statistical community. Accreditation programs may need to change to meet these diverse needs.*

We are such a diverse community that it is impossible for anyone program, much less an accreditation program, to meet the needs of every member of the community. Furthermore, the definition of "the statistical community" is a definition in flux, as new areas of statistical practice emerge. The implication for accreditation is that we need to continually evaluate the criteria for accreditation. We also must ask ourselves whether different criteria or different types of accreditation are needed for different areas of practice. As one example, the current criteria for accreditation may not meet the needs of many official statisticians.

2. *We need to more effectively articulate to individual statisticians the value of accreditation.*

The process of being accredited requires no small amount of effort on the part of the applicant, and there is a financial cost as well. This has to be balanced against perceive value for the effort and cost, and we have not been sufficiently successful in communicating to the statistical community the importance of having standards that indicate what it means to be a professional statistician.

3. *We need to more effectively articulate to employers the value of employing accredited statisticians.*

For the most part, we have not been successful in reaching out with the message of professional standards to people who hire or manage statisticians. At the ASA, we have come to realize that we need to seek the assistance of experts in communications and marketing to help us strengthen our messaging and the means by which we deliver these messages.

4. *Portfolio-based accreditation is effective and appropriate for statistics, but does not seem as serious as exam-based approaches.*

This is also arguably a communications problem. Doctors, lawyers, architects, etc., take tests in order to earn their licenses. Why doesn't the ASA have a test for statisticians? Of course, we could take such an approach. It is certainly possible to develop a test that would cover essential topics, and perhaps at some point we will reach the conclusion as a community to take that approach.
However, at least two things are noteworthy:

- Those doctors, lawyers, etc., have to pass licensing examinations in order to practice in their professions. At the present time this is not the case for statisticians.
- There are agreed-upon basic curricula for medical schools and law schools (for example), and these curricula are regulated by oversight bodies that accredit the schools. Again, this is not the case for statistics.

But we should not view that as a drawback. Portfolio-based accreditation allows us to look very broadly at the practice of statistics, and be inclusive of the many types of expertise that are developed by professional statisticians. The education and experience of accredited statisticians have been reviewed by qualified peers and found to meet specific criteria that have been agreed upon by several professional associations of statisticians. It is a worthy credential.

5. *It is not surprising that accreditation will differ from country to country or region to region. In fact, it is desirable.*

The ASA found it extremely useful to look at the criteria used by Australia, Canada and the United

Kingdom when setting up its program, but also found that the U.S. has some needs that differ from those countries. Similarly, other countries considering their own accreditation program should look closely at what others have done, but should also respond to the needs of their own communities. The process of thinking through the criteria a country or a professional society will establish is an essential part of developing a program.

4 Conclusion

In that spirit, we offer the ASA's experiences and experts to any group seeking to establish an accreditation program. Others helped us, and we are ready and willing to pay this favor forward.

Prior to the establishment of licensure, people suffered at the hands of so-called doctors and lawyers who were not properly trained and monitored. Of course, we hope there will not be statistical disasters at the hands of unqualified individuals to propel forward the professionalization of statisticians through individual accreditation. Rather, it is our hope that the worldwide community of statisticians will understand the value of professional accreditation and embrace it as an essential part of statistical practice. Doing so will lead to wider recognition of our profession.

.