

RUNNING HEAD: An Economic Model of Professional Certification

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## Abstract

Much attention has been given to professional certification examinations from a psychometric or professional industry point of view. This paper argues that the most basic reason for the existence of professional certifications is economic, and that the credential is at its very core a product that is being sold by an organization. Within this paper a model has been developed that considers all of the critical stakeholders of the credentialing process, outlines the benefits of each of the stakeholders, and identifies the necessary contributions that each makes to the value of the credential, and finally, how that value might be increased or decreased. This model has important implications for credentialing organizations seeking to increase the volume or value of the certifications they offer.

## An Economic Model of Professional Certification

Traditionally, certification tests have been viewed from a professional and psychometric perspective. Evaluations of testing programs, both formal and informal, focus on the testing policies (NCCA Standards, 2003), psychometric quality (Impara, 1995), and role of the credential within a profession. Certifications promote industry standards, provide career ladders, and serve to identify highly competent practitioners (Niero, 2008).

However, at its most basic level, certification is a consumer product. From a business point of view, it is just as important to evaluate the certification as a product from an *economic* perspective as it is from a psychometric perspective. Individually, certification organizations often think about how to increase the value and volume of their certifications, but little attention has been paid to these overarching goals across professions and certifications.

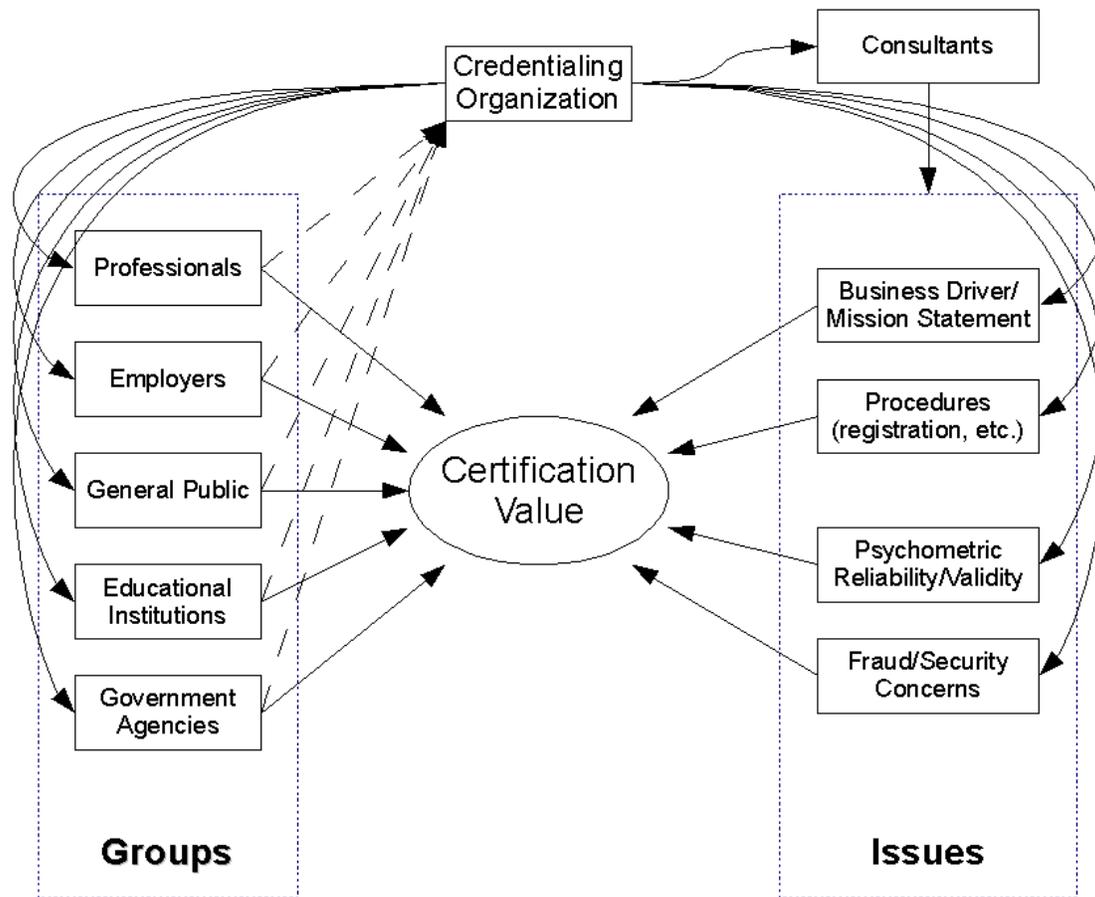
To draw an analogy, the most similar product to a certification is an educational degree. A degree is a product that is produced by a college or university that is being sold to potential students. Students attend college because they believe that a degree from their chosen institution will increase their personal value in the job market. It is an investment in human capital, where the student will pay for the degree under the premise that they will get a significant return on their investment in the future, although this return is not necessarily financial. This same concept extends to acquiring industry certifications. The concept of human capital, and the use of certifications to increase ones future worth, is an important investment. So much so, that it has been suggested that a professional manage their certifications as they would a financial portfolio (Salois, 2003).

While consumers in the general public tend to be seen as the “consumers” of a marketplace, the *real* consumers of a certification are the professionals who obtain the certifications and their employers who rely on the certifications to identify highly qualified candidates. To increase demand, the value of the certification must be increased in the perception of the professionals and the employers. Increasing the perception of the value in the general public is only one of several possible avenues.

Because of the single-source marketplace and several tiers of consumers, some of the normal rules and trends of the marketplace do not necessarily apply. The purpose of this paper is to explore the marketplace of certification by first outlining stakeholders in the certification process and factors that can directly affect the value and volume of the credential.

There are several types of roles affecting certification value, including the certifying organization (test sponsor), stakeholders, and consultants. Strong non-human roles are also played technical and practical issues. Figure 1 presents a model of the interactions between these roles. Stakeholders and issues directly affect the value of a credential. The credentialing organization affects the stakeholders, which also have input back into the organization. The credentialing organization also has control over the practical issues, supported by input from consultants, but the issues do not directly affect the organization. However, they can indirectly affect the organization because they affect credential values, and the organization must in turn address the issues.

Figure 1: Proposed model



*Types of certifications*

Currently, there are three types of work-related certifications, delineated by level of development/administration and therefore portability. First, corporate certifications are developed and administered by a business in an internal manner. For example, a company might certify all trainers or salesmen of a particular product. An individual who is “certified” is able to obtain jobs within the corporation and possibly compensation that would not be available otherwise. The portability of these certifications is often limited; employees are typically required to obtain new certifications upon taking positions in different corporations. A second type of certification, information technology (IT) certifications, are also designed for specific products or systems, but are applicable across many companies and are therefore more portable. A company that produces local area network hardware might certify employees at all workplaces that utilize their products. Employees that move between these organizations would keep the value of their credential, but only in other organizations that use the same brand of software/hardware, or in some instances, the similar types of software/hardware. An additional, unique, characteristic of IT certifications is the limited time span during which they are applicable; new hardware and/or software might be released every two years or on some other limited cycle, requiring the development of a new certification.

The most portable type of certification is professional certifications, where the certification is for the entire profession, such as ophthalmologists, medical assistants, or accountants. This article primarily focuses on professional certification, although much content will be applicable to corporate or IT certifications.

### *Credentialing organization*

The credentialing organization's role is of course unique in that it is involved with nearly every aspect of the credential, topics as divergent as governance, test development, test delivery, management, and continuing education. While much of the credential's value is out of the hands of the credentialing organization, no other organization has a greater or more important role.

While the credential is created for the profession, the very existence of the credentialing organization is dependent on its value. If the return-on-investment (ROI) in obtaining the credential is perceived as low in the profession, test volume will be low, and thus the credentialing agency will be unable to survive.

Credentialing organizations are also the secondary promoters of the credential's value, since they represent the credential as a whole. While the credentialing organization also promotes the value of the credential to employing organizations, consumers, and the general public, it also has the opportunity to work with related organizations. For example, an organization that certified ophthalmic assistants will work with organizations of ophthalmologists, ophthalmic nurses, and ophthalmic healthcare administrators. Additionally, because many professionals do not fully realize their stake in the credential, the credentialing organization must also market the value of the credential to the professionals.

### *Stakeholders*

While there are many stakeholders in the certification process, some are much more involved than others. Obviously, the stakeholder with the most concern is the candidates for the credential themselves (i.e., professionals to be certified). The credentialing organization also has substantial interest. The group with the next most concern is the employing organizations and their personnel, namely the direct supervisors and those making hiring decisions. The general public (i.e., customers or patients) is the intended recipient of the benefits of the certification process, but they are not often aware of the intricacies of the credentialing process and therefore are not typically the most involved stakeholder. Lastly, educational institutions are also a player in the credentialing process, as the need for credentials creates the need for educating bodies, but many professions do not require a formal educational degree as a prerequisite to certification.

It is important to realize that not only are stakeholders able to benefit from the credentials value, but also contribute to it. For example, every holder of the credential is a potential ambassador for the industry, as they can reinforce the premise that the credential implies high standards of professional practice.

In the development of a new credential, Hamm (2000) notes that the program must address some significant need of each of the stakeholders, otherwise a critical group will not accept and/or invest in the credential. Additionally, this is important to consider when marketing an existing credential.

### Professionals

First and foremost, the credential is created for the profession it represents, and the professionals are the target audience. Candidates attempt to become credentialed because they believe it will increase their professional opportunities, typically on both a financial and non-financial scale. In the case of licensure, the very opportunity to enter the profession depends on their success. In the case of certification, this underlying belief in the credentialing process is the primary determinant of test volume; the more personal value perceived by potential candidates, the more demand there will be for the credential. This is, however, offset by the expense of time and money to get the credential. Therefore, the principal goal of the credentialing organization with respect to potential candidates is to convince the candidates that there is a high ROI ratio. While obtaining the credential may require effort and expense, doing so will significantly increase their earning power and prestige.

Professionals not only benefit the most from the credential, they also are the greatest contributors. It is their work and demonstrated accomplishments on the “front line” that provides the supporting evidence to employing organizations, consumers/clients, and the public that the credential has value. Unfortunately, many professionals may not realize the important role they play in the reputation of a credentialing process. In such situations, the credentialing organization has to work on the behalf of the credentialed professionals to demonstrate the value.

### Employing organizations

Employing organizations benefit from the credential by the quality work performed by credential holders. However, this benefit is offset by having to increase compensation for certified professionals. Employing organizations contribute to the value of the certification by paying a higher premium for certified professionals. Because employing organizations hold this powerful position, they are a primary target of marketing efforts regarding the value of the credential. No matter how valuable the certification, if employers are not willing to pay these professionals more for their services, there will be little demand for the credential.

### General public

The consumers and clients in the general public obviously benefit from the increased quality of the services or goods they receive from certified professionals. They also contribute by relating their high quality experience to other consumers and clients as well as to the employing organizations. However, this is limited due to the lack of understanding both of the profession and of the credentialing process. For example, many in the general public do not know the difference between certification and

licensure, or do not know what the acronyms after the professional's name represents. This is clearly a target for education efforts.

In the case of licensure, the general public is technically the *only* stakeholder (Schoon & Smith, 2000). The testing program is established purely for the protection of the consumer, and any benefit to licensed practitioners is ancillary.

### Educational institutions

Educational institutions are not necessarily major players within a certain profession, and were therefore not included in the stakeholders discussed by Hamm (2000). However, they can be an important player, especially if a degree or diploma is a prerequisite to take the certification exam. The institutions benefit from the credential in that there is high demand for admission if there is high demand for the credential. They contribute to the credential by the fact they are providing the very knowledge and skills to the candidates that are purported to lead to higher quality work as professionals. In a profession where the educational institutions do play a major role, it is vital that the institutions recognize this role and embrace the certification as an extension and validation of the educational process.

A dangerous exception to this role of the knowledge and skills provider is educational institutions that are in the business of education for profit. It is a potentially precarious situation if a school receives payments from professionals regardless of their performance on the exam, as the school has reduced motivation to provide quality student preparation.

### Government agencies

Another stakeholder that is not necessarily present is government agencies. While always relevant for licensure tests, they are not always a factor in certification tests. However, some professions involve both licensure and certification, which can substantially affect the economics of the credential. If the credential is required in some locales it can increase demand both for work done by the profession and for the credential itself.

### *Issues Increasing Certification Value*

An increase in the value of a certification derives from an increase in demand from one or more stakeholders. It is difficult to increase value with regard to all stakeholders; most initiatives will target only one, with the primary targets being the professionals and the employers. Market research is invaluable in assessing targets and possible effects.

At the most basic level, the fundamental requirement for a certification is that the assessment be a psychometrically reliable and valid measurement. A test is reliable if it is repeatable and consistent in generating scores, which is primarily a function of well-performing items on the test form. A test score is valid if it actually does what it is being used for; in this case it is differentiating between levels of professional competence.

All other efforts are for naught without empirical evidence of reliability and validity, which is the reason that an empirical job analysis and extensive test specification process are necessary. These are the vital empirical links between performance on the test and performance on the job, making it an imperative investment by the credentialing organization. Unfortunately, many stakeholders do not fully understand this aspect, which leads to an understandable lack of appreciation for it. External accreditation, such as NCCA accreditation, is one way of assuring stakeholders of the technical quality, supported by evidences of reliability and validity, of the professional credential. NCCA accreditation also conveys the quality of the program in non-psychometric areas, and can therefore be important in communication with persons not familiar with credentialing.

These two characteristics also form the core of a credentialing organizations marketing message. The organization must convince potential candidates and employers that the test identifies more competent professionals. This is easier to do with empirical evidence; reports and information messages that draw from the test development process, such as a job analysis report, will serve this purpose. A credentialing program that invests in additional research can also further the message. For example, a survey could be conducted regarding the performance of certified vs. non-certified professionals, either with employers (Woodworth, Donshik, Ehlers, Pucel, Anderson, & Thompson, 2008) or the end-users in the population (Cegielski, Rebman, & Reithel, 2003). Surprisingly, this type of research is uncommon. McKillip and Cox (2000) surveyed 346 professional organizations offering more than 1,000 certifications, and only 18% had conducted research on this comparison. Conducting such surveys and summarizing the results in a concise, understandable manner for the stakeholder population can have a positive impact on the marketability and success of a credentialing program.

The same information must be given to the general public, but in an even less technical manner. Doing so will also increase the demand for the credential. The increase in demand from the general public, however, will not be larger than that from the actual consumers, due to the secondary nature of the marketing effort. The public might also need be educated regarding more basic information, such as the nature of the profession (i.e., what the professionals actually do in their work), or what the credential is intended to represent. This is especially necessary in a line of work where there are several similar professions and credentials, or where the profession is obscure.

A secondary message must also be given to the employers; one that involves a business value to them. The employer has to clearly see that the credentialed professionals produce higher quality/more efficient work that translates into more profitable products and services for their organization. While holders of the credential might require greater compensation, the employers will be eager to pay that if it entails an even greater increase in revenue.

Hamm (2000) pointed out that some of the value of the credential stems directly from the reputation of the credentialing organization as a whole. If the organization has a strong stature in the professional community, the credential will have more value. Therefore, an indirect method of increasing value is to increase the organizational presence in the community as more than just a test giver. Scholarships, continuing professional education, public education, scholarly research, and partnership with employers or related organizations are examples of the types of activities that can contribute to the value of certification.

There are also additional facets of the organization that are relevant. Operational processes such as applying for candidacy should be as simple and painless as possible. If there are unnecessary obstacles to the certification process, there will be inevitable attrition in the candidate population. A quality mission statement will also bring respect to the credentialing organizations – as will an obvious dedication to carrying it out. Additionally, people generally prefer to deal with organizations that are transparent and ethical, in which case independent audits have some value.

Hamm (2000) stressed the need for a comprehensive marketing strategy that takes considerations such as those iterated above into account, especially with respect to the professionals. A specific and documented marketing plan is key for any credentialing organization, especially when supported by market research and effective self-evaluation.

### *Issues Reducing Certification Value*

As would seem obvious, events that reduce the value of the certification should be avoided. Such events should be identified ahead of time, if possible, and checks put into place. The two most obvious issues that should be avoided are either unreliable or invalid assessment processes. Both of these instances can be avoided by expending the time and effort to utilize a psychometrically sound test development process. If stakeholders of the certification are less than competent, the value of the certification will suffer accordingly. Scoring errors are also a validity component, as they are invalid scores. If discovered and corrected, scoring errors do not technically reduce the reliability and validity of the assessment; candidates that should pass actually do pass, ultimately. However, such issues certainly hurt the reputation of the credential and the credentialing organization in the marketplace. Even worse, it can contribute to the misperception by potential candidates and educational institutions that the assessment process is a negative one that treats candidates inappropriately.

A major issue that potentially impacts all credentialing examinations is fraud-related threats to test security. If a test is compromised – for example, many items turn up on a “brain dump” internet site – the value of the credential is reduced because it is much easier for less competent candidates to pass. Even worse, the organization’s investment in those items is gone, and the expensive process of test development must be started anew. It is therefore important to educate candidates that cheating has far-reaching consequences, and can contribute to a decline in the credentials value, thereby decreasing their earning power.

Fraud issues continue after the test. Certifications might lapse and the former certificant still continues to use the credential. People might use the credential without ever passing the requirements. Even truly certified professionals might not complete the continuing education necessary to stay “on top of their game” and therefore produce lesser quality work. The certifying organization must monitor these types of issues.

In the big picture, a lack of effective policies and a reduced ability of organization to manage the credential can undermine the value of a credential (Hale, 1999). Even if the assessment process is perfect, the value of the credential will be vastly reduced with unclear policies and less effective resources. The same is true of an organizational staff that is incapable of the operations necessary to run the credential, leading to issues such

as eligibilities not being processed on time. Something as simple as not having enough help in the organization's office can seriously reflect on the professional credential.

A large problem that would prevent the full realization of a credential's value is the failure to identify the business driver (Hale, 1999). The business driver is the ultimate economic reason for the certification. Identifying the driver involves asking yourself foundational questions, such why does (did) the organization want to get involved in certification? For example, the business driver for various medical assistant certifications is typically the demand to make the medical office or doctor more efficient or to provide higher quality care with reduced cost. This original message for understanding demand from the stakeholders and economic reasons behind it might get lost in the day-to-day operations of a credential.

### *Supply and Demand with Certifications*

As mentioned previously, the normal dynamics of supply and demand do not apply to the certification marketplace. The most substantial difference is that there is potentially an unlimited supply of the assessment after the sunk cost of development is complete. After that point, there is nominal difference whether 50 or 5000 candidates take the test. Still, the supply of certifications to sell to candidates is controlled in a secondary fashion by the prerequisite requirements for taking the examination; if the requirements are highly selective this reduces the number of possible certifications.

Another difference is the multi-tiered demand network. In the conventional supply and demand system, there is a simple relationship between the supply of the manufacturer and the demand of the consumers. Any "middle men" such as distributors and retail stores are there to enable this relationship. With certification, the primary consumer is the professional, but the "behind the scenes" consumer is the employing organization and the ultimate consumer is the general public.

This difference translates to a different marketing climate. In the conventional manufacturing system, the marketing efforts can be concentrated on the primary consumers, the general public, to increase demand. In the case of certification, it is not enough to market to the primary consumers, the professionals. The employing organizations also have to understand the value of the credential, as do other stakeholders.

This fact must be acknowledged when a credentialing organization is attempting to increase demand to increase revenue. An increase in demand is even more difficult to produce if the credential is very difficult or expensive to achieve, or if the prerequisites are highly selective.

To increase income at the credentialing organization, through increased demand with all things being equal, the organization can either increase the price of the exam or the number of candidates. Increasing the perceived value of the credential enables both increased price and increased volume of candidates, but the supply/demand model makes it potentially difficult to increase both at the same time. For example, if the organization gets more candidates interested in the credential but increases the price of the exam, the number of candidates may remain steady. However, this still increases revenue.

### *Conclusions*

Like all products in a marketplace, certifications are subject to economic forces. However, the uniqueness of a certification marketplace requires a redefinition of some of these forces. While this might be difficult, it is essential to proactively mastering that marketplace.

The first step is the realization that certification is a product being produced by the credentialing organization. It is not simply the endpoint of a psychometric process or an artifact of policies regarding a profession. The next step in the redefinition is the outlining of the stakeholders in the process. In certification, all stakeholders both contribute to and benefit from the credential. The level of contribution and benefit of each varies among professions.

The complex interactions between the multiple levels of stakeholders are the core of the economic model of certification. The most important of these interactions is the multi-tiered demand network and its relationship to the value of the credential. For effective growth of the credential, this interaction must be deeply understood and appropriately targeted for a given profession.

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