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# **Surveying: A Profession**

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## *ABSTRACT*

SURVEYING IS GENERALLY REGARDED AS an occupation that has achieved professional status. Its origins are in the area of measuring and measurement science but it also has a history of understanding of land law and land management. Colonial development in New Zealand, and in other British colonies in the 18th, 19th and 20th centuries, required further skills to be developed in allied areas such as municipal engineering and town planning. The distinguishing features of a profession are examined in the context of the international literature. The discipline of surveying in New Zealand is then compared to the principles drawn from the literature.

*Keywords:* professions, land surveying.

## *Introduction*

**T**HE WORDS “PROFESSIONAL” AND “PROFESSIONALISM” are widely used in the common speech. However, they are not necessarily confined to a reference to people who are members of a recognised profession. There are professional golfers, professional jugglers and professional comedians, and in this context the term is used to refer to those who earn their living from an activity in order to distinguish them from amateurs. Sportspeople “turn” professional. The concept is extended when such people, or anyone else, are described as demonstrating “professionalism”. Here the word is harder to define, but it is suggested that it means to carry out a task in such a way or to such a level, that it demonstrates some of the attributes that, while remaining undefined, might be expected of a member of a profession.

Such common use of these terms in the general sense confuses any discussion about the status of an occupation as a profession. In order to adequately discuss whether an occupation is a profession, it is necessary to understand something of the origins and derivation of what once were called the “learned professions”.

### *What distinguishes a Profession*

The word “profession” originates from the verb “to profess”, that is, one who had taken the vows of a religious order (O’Day, 2000; Armstrong, 1994; Dyer, 1985). From the time of the Middle Ages there were three accepted or recognised “learned” professions, namely the Church, the Law and Medicine (O’Day, 2000). The Free Dictionary defines the learned professions as “one of the three professions traditionally believed to require advanced learning and high principles” (The Free Dictionary by Fairfax, [www.thefreedictionary.com/learned+professions](http://www.thefreedictionary.com/learned+professions)) and also identifies these as law, medicine and theology. A profession was a “calling” and the call had come from God and it was God to whom they were accountable (O’Day, 2000).

Over time the number of occupations falling under, or claiming the status of, a learned profession has grown steadily. Fone (2010) interprets from O'Day (2010) "the development of an educated class between the non-working leisured classes and the merchants, traders, craftsmen and labourers who comprised the working population of [England]" generated those occupations which are now called the professions. She further proffers "that during this period there was a growth of groups of men in the law, the church, and medicine with a common educational background and steeped in the ideology of service to the 'commonweal'" Fone (2010, p.1). The period identified by O'Day (1450-1800 AD) represents the end of the Medieval Era, and embraces the Renaissance, the Reformation, the Age of Enlightenment, the rise of science and the Industrial Revolution. Printing allowed the greater production of books, education became more wide spread, and the influence of the church was diminishing.

This elicits the first clue as to the fundamental requisites of a profession, which may be generally referred to as education and service. This view is supported by Wilensky (1964). It is no surprise that the range of new occupations desirous of claiming the status of a profession began to enlarge as education spread though Western civilisation. Other writers through the 20th century, beginning with Abraham Flexner in 1915, have created lists of criteria that they have claimed would need to be met in order for any occupation to be considered to have professional status. In some cases these lists become lengthy (see Routledge, 2011) and appear to be more of the nature of criteria for professional behaviour, rather than those criteria by which a profession may be recognised. In many cases these so called criteria could equally apply to other skilled occupations or trades and are not exclusive to professions. With the exception of Greenwood (1957) there is little challenge to Flexner's (1915) criteria in the subsequent literature, but largely extensions to, or expansion of, them.

Flexner (1915) listed five criteria, and the subsequent literature does not contest these, but tends rather to expand upon them. Flexner (1915) lists the following: specialised knowledge applied

without bias; application of the knowledge to practical problems; theory and practice that can be educationally communicated; a trusted self-regulating professional body that confers professional status; and an ethic that puts client's and society's interests ahead of the self-interest of the practitioner. While Wilensky (1964) reduces the list to two items, he does so by incorporating several related criteria together and in so doing loses nothing of Flexner's concepts.

Generally the issue of the sociology of professions has dissipated and the topic is rarely discussed (Saks, 2012). That aside, it is an appropriate place to start if there are doubts as to whether an existing occupation has changed significantly and in such a way that its classification as a profession is compromised, or that there are aspects of the discipline or specialties that may be considered to have achieved such status independent of their parent body.

### *Education*

Higher education has been a facet of professional status since the beginning. The early physicians and lawyers who were considered to be professionals had received their education firstly in the church as supplicants, but then they had specialised in their chosen discipline. Although there were healers outside the church, they would not have been considered professional, and in some cases were viewed as healers or novices at best, and possibly witches at worst. The literature on professions is in general agreement that the education, or learning, for a profession is required to be formal, complex, lengthy and of practical use to society. That is, there is an intellectual component to be applied to professional tasks. In order to ensure that it is to some extent standardised and sufficient, self-regulating professional bodies have come into existence. These bodies set criteria for entry into their particular profession. They may also have developed criteria for keeping up competence in their field, as well as mechanisms to deal with those who fall behind in the maintenance of their continuing competence or allowed their knowledge to become out-dated. Proof of having reached the original required level of knowledge and understanding is found

either by setting examinations by the professional bodies themselves or now more commonly, delegating that task to accredited universities. Professional bodies have other important functions as well, and these will be discussed later.

In earlier times reference was made to the “learned” professions. Flexner (1915) raises the question of whether there are non-learned professions. He concludes there are not. It must be assumed, therefore, that as the term has fallen into disuse, but that the expectation is that the principle has been absorbed into the concept of a profession to such an extent, that it is now considered to be superfluous and an unnecessary additional descriptor for a profession. The learning required for entry into a profession is formed into a “body of knowledge”, will be codified by the profession’s society, and will be taught, maintained and added to by professional schools, which are usually associated with universities.

### *Service*

Origins in the church leads to the other main attribute of a profession. That is, that the profession is carried out in the service of humanity, or more particularly for the benefit of the society in which the practitioner resides. The professions are frequently referred to as a “calling”, reminiscent of the ecclesiastic origins, and it is expected that the calling will be for life. Unlike other occupations, a profession is a vocation, and having once entered the profession it is not expected that the practitioner will leave it, even if there is a movement into specialisation or to a “fringe” or related occupation or profession.

The principle of service is such that the discipline is carried out impartially, that is, any client asking the same question would expect to get the same answer. A member of a profession is expected to exercise independent judgement based on access to the complex body of knowledge that defines the individual profession, and to interpret that body of knowledge in novel contexts so as to solve problems in the interest of the client. The solution should not be influenced by the interests of the practitioner. This is exemplified in

the law, where lawyers are “called to the bar” and become servants of the Court. There is, therefore a bond of trust between the client and the practitioner of a profession that the practitioner will apply their complex knowledge impartially to the problem or task presented by the client.

Furthermore, the level of service will not be related to the level of payment received by the practitioner. Whatever the task the member of a profession is engaged in, the same best efforts will be applied in finding the appropriate solution for the client and for society in general, irrespective of the reward offered. Continuing use of the Hippocratic Oath administered to those graduating in medicine remains an historic aspect of entering the medical profession. Such behaviour as might be considered professional is usually found encapsulated in a code of ethical behaviour. Such codes are established, administered and policed by the professional body (or bodies) related to the specific profession.

So while any practitioner expects to make a living from the practice of their profession, it is not the prime motivation for entry . . . or should not be. Service to society is the primary motivation of the true professional in that they have been “called” to this particular vocation.

### *Professional Bodies*

Professional bodies perform significant functions in assisting an occupation to become, and to maintain, the status of a profession. With respect to education, and in the first instance, professional bodies define the body of knowledge, a proven understanding of which is required before admission to the professional level of an occupation. Formerly the body of knowledge was passed on from one generation to another in ways similar to an apprenticeship, but is now usually administered by specific colleges or universities, who employ members of the profession to both educate aspiring entrants, and to add to the body of knowledge.

Many professional bodies will also require some demonstration of continuing competence or proof of keeping

up-to-date with advances in the profession in order to maintain membership of the profession or accreditation as a public practitioner. They may also provide the opportunities to members for keeping abreast of the latest developments through continuing education (CE) or continuing professional development (CPD).

With respect to the principle of service, professional bodies prepare and enforce codes of professional conduct or codes of ethics. In some instances, it is possible to distinguish between professional misconduct and unprofessional conduct. Professional conduct can be construed to indicate when a member of a profession acts in a manner that indicates that they are not competent in the technical aspects of the profession. Unprofessional conduct can indicate that the behaviour has been in breach of the standards of professionalism expected as set out in the code of professional practice. Investigations into these issues may be carried out by the one body, or may be shared, as they are in surveying in New Zealand, between a professional society and a licensing body. That is between the Cadastral Surveyors Licensing Board (CSLB) which will deal with technical competence in the cadastral area only, and the New Zealand Institute of Surveyors (NZIS) which deals with competence in other aspects of land surveying as well as all of the case of breaches of professional conduct.

### *Business versus Profession*

Many practitioners in professions now are employed by businesses or by government agencies. This is different from the past when most members of professions were in sole practice or in partnerships with similarly or complimentary members of professions. This can lead to compromising positions with respect to their ability to act in a professional manner (Wilensky, 1964 p.148), (Freidson. 1988-89, p.430), (Bowie, 1988).

Key factors in the exercise of a profession are impartiality, neutrality and autonomy. If a member of a profession is employed in a hierarchical organisation, they may be subject to constraints on their ability to fully exercise their professional judgement due



to policy directives within their organisation or to the requirement to conform to instructions from more senior professional or management staff. Their position may also be compromised if they have entered into business arrangements on their own account, where they use their professional skills to advance or promote their own private interests. In these situations there becomes a very fine line between being a business person and being considered a practicing member of a learned profession. While the occupation remains a profession, the ability of individuals to fully exercise their discipline in a professional manner, will depend on the skill of the individual practitioner in such cases.

### *Is Land Surveying a Profession in New Zealand?*

According to the criteria suggested by Flexner (1915) and Wilensky (1964) the discipline of land surveying qualifies as a profession. Education was standardised in 1900 through the New Zealand Institute of Surveyors and Board of Examiners Act 1900.

The methods of training set up under this legislation, articulated cadetships, have progressively been replaced by university degrees. The concerned bodies, the NZIS and the CSLB, have passed the education component of becoming a member of the surveying profession to these accredited courses. Parallel events in Australia have occurred, and since the 1892 Melbourne Convention there has been reciprocity between the two countries with respect to cadastral qualifications.

The body of knowledge has been codified by these institutions and incorporated into the current curriculum at the University of Otago's School of Surveying. The body of knowledge is based on the NZIS "Definition of a Surveyor", a policy adopted in 1992 (see Appendix A). That body of knowledge includes determining the boundaries and rights to land and natural resources; measurement of built and natural features; services such as project management, land use planning and subdivisional design, land development engineering; the management, interpretation and provision of geographic and hydrographic information; and precise engineering,

industrial and scientific measurement. At the international level the International Federation of Surveyors (FIG) also has a “Definition of the Functions of the Surveyor” (FIG, 2004) (see Appendix B).

Professional bodies have existed in the region since the Institution of Surveyors Victoria (ISV) was founded in 1874, becoming part of the federal Institution of Surveyors Australia (ISA) in 1951. The New Zealand Institute of Surveyors formed in 1888. The NZIS has had incorporated in its Rules (until the 2013 change to its constitution) Part V Conduct of Members. This included sections on ethics, professional conduct, public practice and advertising, followed by sections that dealt with the procedure to be followed in cases of breaches of the Rules and available penalties (NZIS, 2003). Under its newly adopted Rules, the Council of the NZIS is required to “adopt a code of conduct and/or other policies which it requires to cover the ethical, professional and other obligations of Members. . .” (NZIS, 2013).

The altruistic service provided by the profession at the national level has been largely by way of input into relevant legislation through negotiations with government officials and submissions to Select Committees of the Parliament (for example, the Unit Titles Act 2010, the Cadastral Survey Act 2002, the Resource Management Act 1991). At the regional or local level NZIS branches have input into regional and district plans. Additionally, many members make their skills available to sporting, cultural or not-for-profit organisations on a pro bono basis.

### *Conclusion*

From the above discussion, land surveying does meet the criteria defined in the literature to claim the status of a profession. The range of activities by which the surveyor is able to contribute to society is well defined at both the local and international level. The range is quite broad, and at the international level incorporates branches of surveying that in New Zealand would be considered separate disciplines (such as valuation).

A further criteria mentioned occasionally in the literature is the ability, or requirement, for any individual member of a profession to remain within the bounds of his or her expertise, and to recognise when other specialist input is required (Wilensky, 1964. p.141). Conversely, as knowledge advances in all areas, some professional functions are delegated to those with lesser educational qualifications who have not met the criteria for membership of the profession. Supporting para-professionals or technicians are related to most professions, although sometimes the distinctions are blurred.

It must be recognised that to act professionally, or to bring professionalism to one's occupation, is not sufficient to claim that the occupation is a profession. There is much more to it than that. While it is possible to analytically examine whether any particular occupation is, or is not, a profession, the final judgement will be made by society in general. Society will also confer professional status on an individual, from their own interpretation of the meaning of the word, irrespective of their education and service, and based on the observation of their interaction with the clients and the society they serve.

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## **Appendix A**

### **NZIS POLICY 1: Definition of a Surveyor**

A surveyor is a professional, skilled in measurement and resource management, who serves the public by the collection, provision and analysis of information on the extent and identity of land, water and other natural resources including legal, economic and environmental aspects and the provision of advice and services for their development, use and sustained management.

In particular, by virtue of their academic qualifications and professional training, surveyors;

- a) identify and determine the boundaries and rights to land, water and other natural resources whether above, on or below the surface;
- b) measure land, natural features and structures constructed thereon;
- c) provide support for the land title system and assist in settling questions of land ownership;
- d) evaluate land and other natural resources for their economic, social and development potential;
- e) provide services for land and property development in respect of;
  - i) project management;
  - ii) land use planning, concept and subdivisional design, and economic analysis;
  - iii) land development engineering;
- f) advise on and undertake management of land and property acquisition, utilisation and disposition;
- g) advise on the ethics of natural resources development, prepare and present applications and carry out the legal processes required for natural resources management;
- h) manage, interpret and provide geographic and hydrographic information and data associated with the identification, characteristics and use of land and other resources;
- i) advise on the sustainable use and conservation of natural resources; and,
- j) carry out accurate and precise measurements for engineering, industrial and scientific purposes.

Adopted by: NZIS Council Date: 20/21 March 1992

## **Appendix B**

### **FIG Definition of a surveyor**

#### **Summary**

A surveyor is a professional person with the academic qualifications and technical expertise to conduct one, or more, of the following activities;

- to determine, measure and represent land, three-dimensional objects, point-fields and trajectories;
- to assemble and interpret land and geographically related information,
- to use that information for the planning and efficient administration of the land, the sea and any structures thereon; and,
- to conduct research into the above practices and to develop them.

#### **Detailed Functions**

The surveyor's professional tasks may involve one or more of the following activities which may occur either on, above or below the surface of the land or the sea and may be carried out in association with other professionals.

1. The determination of the size and shape of the earth and the measurement of all data needed to define the size, position, shape and contour of any part of the earth and monitoring any change therein.
2. The positioning of objects in space and time as well as the positioning and monitoring of physical features, structures and engineering works on, above or below the surface of the earth.
3. The development, testing and calibration of sensors, instruments and systems for the above-mentioned purposes and for other surveying purposes.
4. The acquisition and use of spatial information from close range, aerial and satellite imagery and the automation of these processes.
5. The determination of the position of the boundaries of public or private land, including national and international boundaries, and the registration of those lands with the appropriate authorities.
6. The design, establishment and administration of geographic information systems (GIS) and the collection, storage, analysis, management, display and dissemination of data.
7. The analysis, interpretation and integration of spatial objects and phenomena in GIS, including the visualisation and communication of such data in maps, models and mobile digital devices.

8. The study of the natural and social environment, the measurement of land and marine resources and the use of such data in the planning of development in urban, rural and regional areas.
9. The planning, development and redevelopment of property, whether urban or rural and whether land or buildings.
10. The assessment of value and the management of property, whether urban or rural and whether land or buildings.
11. The planning, measurement and management of construction works, including the estimation of costs.

In the application of the foregoing activities surveyors take into account the relevant legal, economic, environmental and social aspects affecting each project.