

The Great Licensure Assumption: Erosion of Closure in the Canadian Engineering Profession

Michael Klassen

Ontario Institute for Studies in Education, University of Toronto, Canada

Abstract:

Engineering has been a regulated profession in Canada for nearly 100 years. In recent decades, pressures of globalization and economic competition, combined with increased student enrollments in university engineering programs have caused changes to the profession. This paper argues that engineering in Canada is undergoing processes of both deprofessionalization (Haug 1975, Scanlon 2011) and hybridization (Noordegraaf 2007, 2015), demonstrated by the small and declining proportion of engineering graduates who obtain their license to practice. Using secondary data from government surveys of university enrolment and labour market outcomes and qualitative studies of individual engineers' learning at school and work, I show how neo-Weberian perspectives combine with Noordegraaf's concepts of situated and hybrid professionalism to explain the complex changes taking place in engineering in Canada. The paper highlights a growing rift between licensed and non-licensed engineers manifested in conflicting membership criteria for professional bodies. This raises questions about the relevance of regulation and the future implications for professional education.

Introduction:

All professions can be understood as the intersections of simultaneous battlegrounds. In the "real" world, the forces of globalization, corporate influence, and pressure from citizens and governments are challenging the power base of the historic professions (Haug, 1975; Scanlon, 2011), at the same time as new occupations are pursuing their own professionalization projects (Larson & Larson, 1979; Paton, Hodgson, & Muzio, 2013). This battle for power and status is mirrored in the academic realm, as scholars of work and learning have questioned the privileged position of the sociology of professions (Gorman & Sandefur, 2011). Representatives of the Anglo-American incumbents of the discipline have fired back (Saks 2010, Adams 2015) while new voices have emerged to make sense of changes in the 'worlds' of professionals and the 'words' of schola I M

in Canada obtained closure through a regulative bargain with the state (Adams, 2010), aided by universities which created additional barriers to entry. Third, we present growing evidence of challenges facing the engineering profession and changes to the career structure and labour market outcomes for engineers (Adams, 2017; Prism Economics and Analysis, 2016). Fourth, we explain these changes from two different perspectives, showing how deprofessionalization and hybridization are distinct but complementary processes. Finally, we investigate the implications for the knowledge base, legitimacy and authority of the profession.

Professions and closure: the neo-Weberian approach

The term 'profession' is highly contested and has been the subject of a vibrant scholarly debate over the past century. The search for a conclusive definition has frustrated and exhausted numerous researchers, as professions have been analyzed from functionalist (Parsons, 1939), interactionist

Most are closed, self-regulating professions with regulatory boards, composed of elected practitioners, that can pass by-laws to regulate entry to practice, as well as their own functioning and at times, aspects of practice and training more generally. These professions have tended to have high entry requirements, necessitating extensive training and education (p. 59).

In a short internal article professional engineers, Peter DeVita (2012) quotes at length from a “visionary speech” from F.H. Peters, who rallied Ontario engineers in 1918 behind the idea of legislation with the following argument:

If we could get a law to define our status and bring us together so we could speak with one voice, then, if we were active, reasonable in our demands and consistent in our efforts, it seemed that we should certainly be able to gain the recognition and remuneration that was desired... The closely united organizations possessed by the lawyers and doctors, wherein they receive special privileges, are justified on one basis

a quota system, nor do the companies that hire graduates. Higher education scholars have shown how financial pressures cause universities to increase enrolment across the board (Clark, Moran, Skolnik, & Trick, 2009). Fallis (2013) argues that the current enrolment-based funding model in Ontario has led universities to increase undergraduate enrolments as a means to hiring more faculty to do research and thus increase international rankings.

The net effect has been a declining proportion of engineering graduates who obtain their license to practice professional engineering as it is defined in the Professional Engineers Act¹. In a recent comparative study of regulated professions in Ontario, it was shown that only 18-38% of engineering graduates had obtained their professional license three years after graduation compared to 63-67% for medicine, 88-90% for education, 92-95% for nursing, and 96-100% for law. The report concludes that “the evidence from the labour market is that an engineering degree is a valued qualification that can open doors to many different professional careers that are not covered by the Professional Engineers Act” (Prism Economics and Analysis 2016, p. 112). This indicates a declining relevance of the exclusive professional domain that engineers back in the 1920s had wanted to protect.

Another challenge to professional licensure in Ontario is the “industrial exemption”. This is an amendment to the Professional Engineers Act, which allows non-engineers to undertake “an act that is within the practice of professional engineering in relation to BT1 0 04n()-4(i) catesat-4(of)-7(rr13(f)i)5(o)3

To deepen our analysis, we draw on Mirko Noordegraaf's work to look beyond the notion of "pure" professionalism, which is "about applying general, scientific knowledge to specific cases in rigorous and therefore routine or institutionalized ways" (Noordegraaf, 2007, p. 765). Noordegraaf critiques this "pure" perspective for conflating occupational content (control of content) and institutional control (control of control) in the quest for closure. Echoing from the continental European tradition of studies of occupations that in Anglo-American perspectives are unproblematically "professional", he repeatedly draws the links between modern professions and medieval guilds, as both rely on power and occupational control for performing well in their work: "As professional work is not only theory driven and inferential but also experiential, it is important to shield off occupational practices so that knowledge and skills can be developed and transferred" (p. 767). Noordegraaf also distances himself from the internal arguments within the sociology of professions, focusing on the research task at hand: "Frameworks for understanding professionalism, such as the one presented earlier, solve conceptual puzzles" (p. 768).

Noordegraaf's situated professionalism can help us with the "conceptual puzzle" of the engineering profession in Canada. Situated professionalism views professionals as embedded within organizational systems, and thus illuminates how

engineering education can benefit significantly from a wider frame set in the sociology of professions, as presented here.

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