Policy, Practice, and the Construction of Paraprofessional or "Middle-Level" Vocational Education Curriculum in Victoria, Australia, 1957-1975

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Abstract

The paper considers policy and practice issues associated with the construction of Australian paraprofessional or middle-level vocational education curriculum in the 1950s and 1960s. It argues for an organic interpretation of post-compulsory vocational education and training, and policy-making as a series of loosely-contested outcomes produced through the machinations and interactions of industry and institutional stakeholders. Detailed policy at this time was rarely decreed by the government, a familiar twenty-first century practice. Rather, it grew incrementally, particularly in response to the influence of groups involved in curriculum-making. Utilizing the tools of the historian and insights gained from the field of policy analysis, the paper narrates and analyses the process of policy construction through the disproportional involvement of professional engineers on the development of technician programs. Historical links are made with contemporary vocational education practice.

Introduction

In a revealing passage from his *Education, Change and the Policy Process*, historian Harold Silver writes:

> The analysis of policy . . . is concerned with its origins and intentions — the complexities of competing and conflicting values and goals, the explicit and inexplicit representation of objectives which spring from diverse economic and social realities. It is concerned with the policy choices that are made, the decisions made — by whom, with what timing and with what authority. It is concerned with the guidelines, the rules, the regulations, the machineries of information, the interpretation in practice, the outcomes. At its most theoretical[,] the analysis is concerned with what happens and why; at its most pragmatically historical it asks what, in known instances, seems to have happened.[1]

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[1] Harold Silver, *Education, Change and the Policy Process* (London: The Falmer Press, 1990), 213.

In unpacking Silver's advice to the education policy historian and drawing from other sections of his text, the following policy analysis guidelines may be suggested. First, policy construction is a form of human practice grounded in a specific and heavily-contextualised time and place, and is amenable to the historian's investigative armoury. Second, history is a study of choices that seeks and is able to offer an understanding of human agency either collectively or individually. Third, history has the capacity to analyse connections between policy intentions and policy outcomes, both contemporaneously and across time. And finally, historical research has the capacity to debunk contemporary readings of the past and discover and re-discover traditions and alternative pasts, and from them perhaps extrapolate alternative futures.[2]

What, then, constitutes policy and practice and its analysis? Within the context of Australian educational policy research, Taylor, Rizvi, Lingard, and Henry remind readers that "policy" may be defined simply as "whatever governments choose to do, or not to do." From this, "policy analysis" may be considered as "the study of what governments do, why and with what effects"?[3] They suggest, however, that in practice, policy construction and its analysis is both broad in scope and highly complex.

First, they claim, *policy is more than the text*. The nuances and subtleties of the context in which text is written must be considered when interpreting textual meaning. Text represents "political compromises between conflicting images of how educational change should proceed."[4] Second, *policy is multi-dimensional*. Contributors to the policy construction bring particular and contestable, and differentially privileged world views. Third, *policy is value-laden*. Policy construction is permeated by a range of stakeholder values. Fourth, *policies exist in context*. Policies do not exist in a vacuum. "There is always a prior history of significant events, a particular ideological and political climate, social and economic context — and often, particular individuals as well which together influence the shape and timing of policies as well as their evolution and their outcomes."[5] Fifth, *policy making is a state activity*. The state must be regarded as a complex and non-unitary entity of competing parts, each of which has the potential to influence policy construction as progenitor, contributor, or critic. Sixth, *education policies interact with policies in other fields*. Although not always self-evident, education policies often have linkages with other departments and their policies, for example vocational education and social security programs, or distance education and rural development. Seventh, *policy implementation is never straightforward*. Implementation occurs in a social context that mediates policy through site-specific personnel and institutions. What may be intended is not always what is enacted. Eighth, and consequently, *policies result in unintended as well and intended consequences*. "Policy making is a precarious business, the consequences of which are unpredictable given the complex interrelationship of contextual factors, different and sometimes opposing interests, linguistic ambiguities and the variety of key players involved in the policy processes."[6]

Working with Silver's possibilities for historical policy research and Taylor, Rizvi, Lingard, and Henry's understanding of the complexity of the policy analysis task, the paper historiographically privileges narrative as the mode of representing the collected data. The author notes Stone's definition of narrative history as the chronological arrangement of material that constructs a "single, coherent story, albeit with subplots."[7] This form of story making, he continues, is defined further by its descriptive rather than analytical, and specific rather than statistical, focus. Story-making features people at its core rather

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[2] Ibid., 1-30.

[3] Sandra Taylor, Fazal Rizvi, Bob Lingard, and Miriam Henry, *Educational Policy and the Politics of Change* (Routledge: London, 1997), 35.

[4] Ibid., 15.

[5] Ibid., 16.

[6] Ibid., 17.

[7] Lawrence Stone, "The Revival of Narrative: Reflections on a New Old History," *Past and Present* 85 (1979), 3.

than abstract circumstance.[8] Although appearing to eschew structural and analytical techniques, the historian does not, however, remain blind to the types of explanatory tools suggested by Silver and Taylor et al. above. Geoffrey Roberts, for example, writes that "narratives of action" always include "some reason-giving account of why past actors did what they did." After all, he continues, "historians tell stories about the past because human beings are narrative creatures and action is narrative in character."[9] Within narrative, then, the mediation of theoretically-informed explanation is permissible. Further, as a final frame for informing story-making, the author draws inspiration from historians of education such as John Holford[10] who argues for a socially-contextualised explanation that moves beyond narrow, institutionally-based histories to include consideration of the wider construction and evolution of forms of policy, learning, and knowledge.[11]

This paper brings together theoretical analyses and narrative representation to address a key intersection in the construction of Australia's vocational education system: the mid-twentieth century confluence of the national definition of engineering as a profession and set of practices. This study looks at the engineering story's implications for the renewal of a set of sub-professional or middle-level technician-level occupations and their formal vocational education and training programs within vocational colleges. A feature of the emergence of these programs was the influential role played by professional engineers. The processes employed to shape curriculum and consequent employment practices rarely assumed the status of formal policy making; rather, they remained organic and negotiated outside the formal state political process.

Specifically, the narrative tells of the construction of paraprofessional vocational education programs in the Australian state of Victoria and their "bottom-up" embedding as policy through institutional practice. Following an outline of the economic, industrial, and educational context in which programs arose, this paper considers the influence of professional engineers on their construction. The key role of the public sector in engendering and legitimising the process is also examined. This discussion concludes with a brief comment on the possibilities for policy making as an organic stakeholder-driven process rather than through the twenty-first century assumed process of "top-down" ministerial decree or "ministerialisation."[12]

Context

In post-World War II Australia, approximately seventy per cent of the increase in manufacturing employment came from metals-based industries. This peak emphasised the long-term role of metals manufacturing in Australian history; for example, the mid-nineteenth century gold rushes created a similar demand for heavy equipment manufacturing and the education and training of engineers and metals-based tradespersons to operate them. The industrial and political muscle of manufacturing employers and their heavily unionised workers were enhanced through Australia's unique system of industrial arbitration that from Federation in 1901 encouraged the formation of national unions and

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[8] Ibid., 3-4.

[9] Geoffrey Roberts, "Narrative as a Way of Life," *Journal of Contemporary History* 31 (1996): 222-23.

[10] John Holford, "Is History Bunk? Adult Education's Historiography and the Notion of a 'Learning Society'" (paper presented at the 39th Adult Education Research Conference, University of the Incarnate Word, San Antonio, Texas, 14-16 May 1998).

[11] Peter Rushbrook and Richard Pickersgill, "Knowing Clio: VET History and the Mediation of Truth" (paper presented at the 12th International Conference on Postcompulsory Education and Training, Crowne Plaza Surfers Paradise, Gold Coast, Queensland, 6-8 December 2004).

[12] A.D. Spaull and Kevin Hince, *Industrial Relations and State Education in Australia* (Melbourne: AE Press, 1986), 99-100.

employer groups. The early privileging of these groups ensured their dominance of workplace industrial arbitration awards, including the employment and working conditions of apprentices[13]

The larger metals industries and a range of government utilities (for example, gas, electricity, water, rail, and telephone services) generally created workforces organised as a skills hierarchy, more so after the widespread post-WWII use of scientific (Taylorist) management as the preferred model of industrial organisation. The private and public sectors differed in their emphasis on the place of formal worker certification. The private sector preferred to pay the individual for his or her skill regardless of educational background, whereas the public sector, through strong unions, generally insisted on formal skills certification. In a typical industrial setting, the workforce, however certified, would consist of operatives, tradespersons, technicians and/or paraprofessionals, and professional engineers.[14]

While operatives and their minimal training were ignored by technical colleges, apprentices were very much part of their training mission, although the typical college exercised little control over the "iconic" nature of apprenticeship training. Its strict regulation ensured education authorities played little role in shaping or changing what obviously "worked."[15] The education of technicians and engineers, however, had long been the "bread and butter" provision of the technical colleges. As Adrian Haas has demonstrated, technician education over many years filled the gap between trade and engineer education, either as a partial engineer course or as a stand alone "terminal" program.[16] Professional engineering programs remained with technical colleges until their reform and transformation in the mid-1960s, after which they were taught in Colleges of Advanced Education (CAEs). From the late 1980s, after further higher education reform, all engineering education was located within universities.[17]

Professional engineers, however, played a more significant role. Concerned with privileging their occupation after years of perceived under-valuing, they mounted an industrial and educational campaign from the mid-1950s that ensured professional maintenance and the construction of insuperable entry barriers for the unworthy. Through a successful "Engineers Case" put to the federal industrial relations system and inveigling their way into curriculum bodies, professional engineers reinforced the creation of middle-level or paraprofessional workers who served the engineer-caste. As a community of practitioners, paraprofessionals completed terminal courses and picked up the work tasks defined out of the engineers' position descriptions. Similar to the vocational education systems with which they worked, the engineers encouraged vocational education change and valued credentialed learning. In the main, they were employees either of the state or engineering companies, and had a vested interest in industrial relations and educational change management.

The 1957-1961 battle for professional recognition by the Association of Professional Engineers, Australia (APEA), the industrial arm of the Institution of Engineers, Australia (IEA), is a pivotal moment

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[13] Peter Rushbrook, "The Construction of Technical and Further Education in Victoria, 1945-1985" (Doctoral diss., Monash University, Melbourne, 1995), Chapter 3; Rushbrook, "Australia's First National Report on Vocational Education: The Commonwealth-State Apprenticeship Inquiry (The Wright Report) 1954," *History of Education Review* 30, no. 1 (2001): 60-74; Adrian Haas, "Mechanics' Institutes and Schools of Mines in Australia" (paper presented to the Australian Mechanics Institutes Conference, Melbourne, 17-18 November, 2000).

[14] Mike Brown and Peter Rushbrook, "Bringing in the Operative: Case Studies in Work-based Training and Micro-economic Reform," in *The Economics of Education and Training, 1995,* ed. Fran Ferrier and C. Selby Smith (Canberra: AGPS, 1995).

[15] Ray Barker and Allyson Holbrook, "Meeting the Demand for Vocational Courses: Influences on the Development of Engineering Technician Training in New South Wales in the 1950s and 1960s," *Journal of Vocational Education and Training* 48, no. 3 (1996): 215-217.

[16] Adrian Haas, "The Development of Para-professional Engineering Education in Australia, Parts 1-3," *Technical Supplement — The Engineering Associate* 3-6 (July, October 1986; February 1987).

[17] Brian E. Lloyd, *A Biography of Issues: Social Developments In Engineering, 1950 – 2000* (Melbourne: Histec Publications, 2001).

in the construction of Australia's late twentieth-century Technical and Further Education (TAFE) system and twenty-first century Vocational Education and Training (VET) sector. The implications for the construction of technician and paraprofessional courses were significant. Out of these stories of struggle[18] can be traced the development of programs and ideas represented in the twenty-first century Australian Qualification Framework (AQF) that sediments middle-level occupational education as central to contemporary VET practice. The role played by Brian Lloyd, a Victorian professional engineer employed by the Melbourne Metropolitan Board of Works (MMBW) and chief researcher for the Engineers Case, is important because of his later contribution to middle-level technical education curricula and policy.[19] The ideas and conclusions he brought to curriculum development were formed largely as a result of his research during this period.

The Engineers Case

While appreciating Haas' argument that Australian technician education evolved from the long-term demands of industry and the public sector and from the response to this demand by technical education authorities,[20] technician education assumed a higher and qualitatively different profile in the post-WWII decades, in particular after the national professional engineers arbitration award case of 1957-1961. The award formally separated professional engineering practice from its former association with trade-technician skills and created more opportunities for paraprofessional employment mainly within government instrumentalities. Active participation over many years of professional engineers in Victorian technician education curriculum committees ensured that such paraprofessional education and training remained separate from professional engineering education, thus continuing to maintain for themselves hard-won professional identity. Other participating professional associations such as architects helped strengthen the divide between the professional and paraprofessional.[21] The policy-making practices utilized by engineers, associated professions, and their fellow travellers, senior bureaucrats, and educators within vocational education authorities are of interest because of their "bottom-up" formation and long-term effects on the shaping of New Millennium Australian vocational education.

Australia's conciliation and arbitration system was established in 1904 after the enactment of a Constitutional provision for the Commonwealth that set wages and working conditions for industries when a dispute was declared to cross state boundaries. To be eligible to argue a case on behalf of workers, professionals, or employers, legislation required that peak representative bodies such as unions, professional associations, and employer groups register with the arbitration system and agree to abide by its decisions. At the state level, wages boards or commissions were established from 1896 (Victoria) and served a similar function for state-based disputes.[22] Once the authority of the national system was affirmed, states wages boards more often than not adopted its decisions, particularly the setting of metals' industry awards, which because of the numbers of workers covered, determined the national wage standard. The Commonwealth Public Service (CPS), the nation's largest employer, set employment conditions through the CPS Board with a Public Service Arbitrator to settle disputes. Appeals against the

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[18] Peter Rushbrook, "Story Telling and the Role of the Historian in Adult and Vocational Education and Training (AVET) Research: Some Recent Examples" (paper presented at the 9th Annual NCVER VET Research Training Conference, Coffs Harbour, 4-7 July 2000).

[19] Lloyd, *A Biography of Issues*.

[20] Haas, "The Development of Para-professional Engineering Education."

[21] Rushbrook, "The Construction of Technical and Further Education in Victoria," 95-106; Lloyd, *A Biography of Issues*.

[22] R. Johnstone, D. McKenzie, and R. Mitchell, "The Industrial Relations Commission of Victoria, 1982-1992: A System Under Pressure," *Australian Journal of Labour Law* 6, no.2 (1993): 99-102.

arbitrator could be taken to the federal arbitration system.[23] Matters of law contested by parties in an arbitration dispute could seek clarification from the High Court of Australia. The system was described perceptively by one employer as "a very efficient way of redistributing wealth . . . without the necessity of having a revolution."[24]

A consequence of a centralised award system was to encourage national peak bodies to represent workers and employers as well as to create a tendency of federalising industrial disputes to avoid hearing separate state cases. While unions enjoyed comparative stability in representative organisations, particularly since the establishment of the Australian Council of Trade Unions (ACTU) in 1927, employer groups struggled to speak with one voice. Within their ranks, however, metals employers gathered under the banner of stable industry associations. First formed in 1873 after a strike in the New South Wales iron industry, and from 1943 known nationally as the Australian Metal Industries Association (AMIA), they stood out as a powerful forum of employer opinion.[25]

By the time of the Engineers Case, the engineering profession was represented by two complementary organisations: one to safeguard professional entry standards, the other to represent professional working conditions within the federal arbitration system. The IEA was formed in 1919 following the amalgamation of ten state, local government, and university engineering associations. The IEA's aims were to promote the science and practice of engineering, "raise the character and status" of engineering, gain the power to grant legally-recognised certificates of competency, guarantee the quality of a recognised engineer, and encourage the study of engineering through the award of scholarships and prizes. In 1938, a Royal Charter was granted to the IEA which gave corporate members the title "Chartered Engineer." In 1939, its membership was 4,259. By 1961, membership had risen to 14,419.[26]

At the end of WWII, it was clear to the IEA that the community applied a definition of "engineer" that extended beyond the profession to include almost any worker engaged in metals-based work, for example, fitter, machiners, and automobile mechanics. In the absence of any legal definition of engineer, a course of action was to register an organisation with the federal arbitration system and plead a case for professional recognition. The APEA was formed in 1946 for this purpose following activity within the IEA, although it was not registered until 1948 when Queensland joined, completing representation from each state.[27] In 1952, Commonwealth government engineers were included. One of the aims of the APEA was "to establish conditions which will enable all professional engineers to maintain a standard of living in keeping with the reasonable needs of a professional man."[28] In 1961, the APEA had a membership of 7,500, approximately 95 per cent of whom were employee engineers, a factor which distinguished engineers from predominantly self-employed professionals such as lawyers and medical practitioners. This led them to seek industrial registration as an employee organisation. Other IEA members remained within a range of public and private sector industrial organisations that represented their interests under non-engineering specific awards, for example the Metals Trades Award.[29] The APEA won its first award in April 1951 for local government engineers in Queensland, South Australia, and Victoria. It was

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[23] See: Bede Healey, *Federal Arbitration in Australia: An Historical Outline* (Melbourne: Georgian House, 1972); J.H. Portus, *Australian Compulsory Arbitration: 1900-1970* (Sydney: Hicks Smith & Sons, 1971);Johnstone, McKenzie, and Mitchell, "The Industrial Relations Commission of Victoria."

[24] Kosmas Tsokhas, *A Class Apart?: Businessmen and Australian Politics, 1960-1980* (Melbourne: Oxford University Press, 1985), 123.

[25] Ibid., 122.

[26] Brian E. Lloyd and W.J. Wilkin, *The Education of Professional Engineers in Australia* (Melbourne: The Association of Professional Engineers, Australia, 1962), 33-38.

[27] *Commonwealth Arbitration Reports* 97 (Canberra: Government Printer, 1961): 264.

[28] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 18.

[29] Healey, *Federal Arbitration in Australia*, 108; Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 18.

regarded as a temporary award until a general engineering claim was made. In 1953, the APEA secured a determination from the CPS Arbitrator on behalf of engineers employed by the Snowy Mountains Authority.[30]

After successfully testing its fledgling powers and not satisfied with the results, the APEA sought a national award from the Arbitration Commission in January 1957. A first step was to serve logs of claims on employers in all states, including public authorities and private employers. Similar claims were later filed with the CPS and the Department of Works in the Snowy Mountains Authority. Commissioner J.H. Portus, who was responsible for the engineering industry, dealt with the application and deemed it an interstate industrial dispute. An appeal to the High Court was lodged by some respondents on the grounds that government bodies and publicly-employed members of the APEA were not engaged in areas that could be defined as industrial and were therefore ineligible to be heard under the arbitration system. The decision handed down on 19 December 1957 declared that government authorities conducting trading activities (for example, electricity, housing, coal, and forestry) were to be regarded as industrial, while non-trading authorities (for example, roads boards, water boards, and public works departments) were not. In September 1958, following an appeal by the APEA, the High Court stated that all respondents were industrially occupied.[31]

In March 1958, the APEA was joined by the Architects, Engineers, Surveyors and Draftsmen of Australia (AAESDA), formed in 1944. The federal Metals Award and the Aircraft Industry Award[32] covered engineers in the AAESDA. In May, the APEA and the AAESDA were given extra clout by the entry into the dispute of the Professional Officers Association (POA) of the CPS, registered in 1911 and the oldest of the employee organisations represented. The POA sought a salary scale that justly recognised its engineer members.[33] That the case was going to be long and difficult was soon evident, as well as it having long-term repercussions for the public and private sector workforces. The APEA spoke for all engineers in seeking an award that if successful would set minimum salaries for all people employed as professional engineers in Australia.

The APEA based its application on an argument focusing on the maintenance of professional status for engineers. The profession should be legally defined, recognised, and rewarded: "[T]he general level of remuneration of professional Engineers, and the nature of their working conditions and industrial relationships, should be based upon the professional character of their work and their needs as professional men."[34]

Brian Lloyd and Bill Wilkin were asked by the APEA to prepare evidence to "convince the Commission that professional engineers were not fitters or mechanics."[35] They believed that if successful, an engineers' award would have a significant effect on workforce structures: "We expected that once a high value had been placed upon professional engineering work, there would soon be a sorting out of the workforce, with a delineation of professional from sub-professional work."[36] The influential product of their labour was presented to the Commission in 1958 under the title *The Education of Professional*

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[30] Healey, *Federal Arbitration in Australia*, 108.

[31] Ibid., 109-110; Spaull and Hince, *Industrial Relations and State Education in Australia*, 244).

[32] *Commonwealth Arbitration Reports*, 290.

[33] Ibid., 238, 270.

[34] Ibid., 241.

[35] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 1.

[36] Brian E. Lloyd, "TAFE and the Technical Workforce in Engineering: A Personal Account of Educational, Workforce and Terminology Issues, 1957-1983." Occasional Paper 5 (Adelaide: TAFE National Centre for Research and Development, 1984): 1.

Engineers in Australia.[37] It was subsequently revised and published in 1962 and 1968 as an authoritative reference.

In defining their argument, Lloyd and Wilkin made extensive use of the prevailing discourse of scientific management[38]. To enjoy fully the status of a professional, engineers required

> . . . the professional attributes of integrity, resolution and judgement; a mind trained in the scientific methods of appreciating and solving problems; together with the acquisition of a large body of information and the development of complex mental skills. *He does not need manual dexterity, though it may be of advantage to him.* His knowledge, skill and judgement are required in the appraisal of both material and social values, in the use of the material resources of nature, and in the organization of processes and management of men.[39]

Typically, the engineer had workplace relationships with a range of occupations that required differing levels of technical education at a lower "standard of learning [than] found within the profession." The demarcation between the professional and "lower" groups was defined by the qualifications needed to enter the IEA: the accepted standard was the education required for Corporate Membership. People holding the minimum standards were regarded as professional engineers; those whose technical education was "next under this level are known in present day parlance as technicians."[40]

In a classic Taylorist statement of how engineering levels are manifested in the workplace, Lloyd and Wilkin used the example of a large civil engineering project:

> Following the establishment of some need to be fulfilled, Professional engineers will develop various alternative proposals. Aided by specialized data and advice from such other professionals as surveyors and geologists, preliminary designs will be prepared for comparison purposes. Technicians will be used in the routine computation of survey and statistical data, and in drafting preliminary designs carried out under the direction of engineers who will establish the basic arrangement of the design as well as performing the more advanced computations. Following recommendations of the most attractive alternative, a decision to proceed must be made, after which designing engineers determine the arrangement and sizes of components . . . For these technicians will be used for the more routine calculation of simpler parts of the model . . . Decision on methods of construction will be influenced by the nature of the design, and may even be fixed by the designer, although are often left to construction engineers to determine . . . The actual direction of day-to-day tasks is carried out by works supervisors and foremen, who are either technicians or promoted tradesmen, and the actual physical work is carried out by tradesmen, with the assistance of mechanical plant and labourers both skilled and unskilled.[41]

The structure clearly demonstrated an occupational hierarchy predicated on control of the labour process. Engineers conceive or develop original ideas using skills based on high levels of conceptual

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[37] Brian E. Lloyd, *The Education of Professional Engineers in Australia* (Melbourne: The Association of Professional Engineers in Australia, 1968).

[38] Rushbrook, "The Construction of Technical and Further Education in Victoria," Chapter 3.

[39] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 1.

[40] Ibid., 31, 1.

[41] Ibid., 31.

understanding, flexibility, and formal learning. Routine tasks to portray ideas two-dimensionally were completed by technicians. The execution of ideas from the drawing board to three-dimensional structures was left to carefully-supervised tradesmen and semi-skilled and unskilled workers.[42] For vocational education, an imminent logic was suggested: to legally sediment the professional technologist at the apex of the engineering pyramid was to control the allocation of industry status and financial reward. Further, to control and rigidly separate entry standards to the profession and engineering sub-levels was to ensure maintenance of gains made in law. The logic of the argument was not lost on Lloyd.

Lloyd and Wilkin's statement to the Conciliation and Arbitration Commission on technicians and professional aids expressed concern over issues of supply, definition, and education standards. They noted that competent professionals trained in science and technology were scarce at a time of high demand, due largely to "the factors of intellect, interest and technology." One way to better utilise existing professionals was to ensure they spent more of their working day engaged in professional work with more routine tasks taken up by technicians. The natural area to recruit technicians was from students who failed to complete university or technical courses and tradesmen who demonstrated "above average ability."[43] Their argument clearly reinforced the existence of a functional or "systems"-based division of labour underwritten by the natural distribution of talent.[44]

Training courses for technicians, they noted, had generally existed "in hiatus" since the 1920s following the elevation of technical college engineering diploma courses to professional level. As a result, a need existed to develop appropriate courses, particularly since the mid-1950s when the CPS recognized the "Technical Officer" class, defined as "a person trained in a specific skill who bridges the gap between a tradesman and the professional man."[45] Lloyd and Wilkin mentioned that a 1957 meeting of the IEA recognised a shortage of technicians and supported the establishment of appropriate courses "suitably designated so that the possibility of confusion with the training of Professional Engineers may be avoided."[46] After reviewing the confusion of existing methods of technician training, for example, specific technician courses in New South Wales, non-formal industry and on-the-job training, and supplementary trade training and non-completing diplomates in Victoria, Lloyd and Wilkin pointed to the need for national course consistency and the development of suitable mechanisms for transfer from one course level to another. The ease with which technician students were able to move to professional-level courses was of some concern; problems could arise from inadequate training in higher-level subjects that would consequently threaten professional standards. As well, the net number of technician graduates would be low in a time of increasing demand. A suggestion was put forth that in order to guarantee a sufficient supply of technicians, technician courses should be terminal or non-transferable.[47]

Lloyd and Wilkin's evidence, together with legal argument and the testimony of eminent engineers such as Professor Charles Moorhouse of the University of Melbourne, convinced the Conciliation and Arbitration Commission that: the profession was homogenous, it was organised on a national basis, most engineers were employees, engineering salaries were not properly determined, engineers were "grossly underpaid," and that a case could legally be heard.[48]

Most private employers and the CPS did not object to national award minimums for engineers. For example, one employer representative argued that once minimum rates were set, further promotion was

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[42] Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1974).

[43] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 213-214.

[44] Lloyd, "TAFE and the Technical Workforce in Engineering," 1.

[45] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 215; Lloyd, "TAFE and the Technical Workforce in Engineering," 1.

[46] Lloyd and Wilkin, *The Education of Professional Engineers in Australia*, 214.

[47] Ibid., 222-224.

[48] *Commonwealth Arbitration Reports*, 286.

based "according to merit and value to profit making" and not on the public service principle of fixing "a rate on the job and not the man." However, substantial resistance came from state departments and instrumentalities. The basis of opposition was stated by the Commission as "a transcending desire to retain . . . self-governing powers under our system of federalism," a belief that salaries were adequate under existing awards, and a concern over possible effects of an award on the salaries of other employees.[49] The Commission concluded the case in June 1961 by granting awards based on each employee organisation's applications. The APEA Award was granted rates at two entry levels: first, at the minimum or "Qualified" level, a higher salary was paid to university graduates than technical college diplomates; and second, at the "Experienced" or Chartered level. The AAESDA and the POA were granted incremental rates consistent with recognised grades within the CPS.

In the aftermath of the award, state public service departments and instrumentalities quickly accepted the national minimums and adopted the CPS incremental scale. The consequent departmental restructures demanded consideration of the role, demand, salary, and vocational education and training of middle-level technicians and professional aides. The states, however, remained reluctant to deal with the APEA over the signing of agreements. Private employers, although accepting the award unopposed, were reluctant to pay above the level of Experienced engineer.[50]

Ironically, scientific management as a post-war strategy for private-enterprise industrial efficiency encouraged by the Department of Labour and National Service (DLNS) returned so powerfully to the public sector to formally define, through the Engineering Award, what was understood in industrial practice. Public-sector appeal to bureaucratic rationality and rule-making, and the size of the departments involved, established a fertile base for technical college vocational education and training. Private enterprise's preference to train informally and "in-house," and proportionally reduce the number of formally-trained tradespersons, reduced their potential to supply students to public-sector training institutions.[51]

The timeliness of the award and its implications for industry and public education were reflected several months after its handing down in comments made by the *Australian Financial Review*. With the chilling of relations with the USSR and the launch of Sputnik, Australia needed to keep pace with communist nations that already had introduced the term "technician." Australia had a "lagging performance" in introducing technology and automation and suffered from an inadequate supply of technologists and technicians. A gap was growing between the trades and the technologist that was often filled by professionals and regarded as "a costly drain on our already over-taxed social capital." Estimates that technicians would be needed at a ratio to professionals of 3:1 (at that time 1:1) suggested an immediate active recruitment of apprentices, school graduates, and skilled tradesmen. A perceptive remark was made that "a new type of technical school may be called for to train technicians . . . Such schools would provide courses falling in between the present trade courses, and the 'professionally recognised' diploma courses." Funding for technician programs, it was suggested, should come from industry and government and semi-government organisations that made use of technician graduates. A strident call was also heard for the Commonwealth to "participate much more fully" in funding state-based technological education. It was a portentous agenda for two decades of change.[52]

[49] Ibid., 297, 287.

[50] Raymond O'Dea, "Some Features of the Professional Engineers' Case," *Journal of Industrial Relations* 4, no. 4 (1962); Deryck Thomson, "Professional Engineers' Case," *The Australian Law Journal* 34, no. 1 (June 1960).

[51] Helen Taylor, "Training in Five-Hundred Manufacturing Undertakings," P*ersonnel Practice Bulletin* 22, no. 4 (December 1966): 27-38.

[52] "Education: Accent Switching to Technology," *Australian Financial Review* 21 (September 1961): 13.

Constructing Paraprofessional Curriculum and Policy

Brian Lloyd's association with John Kepert, the first Director of the Victorian Technical Schools Division (TSD)[53] began at about the time Lloyd and Wilkin were presenting their evidence to the Engineers Case. During this period, Lloyd extended further his "systems" or functional division of labour based on what he believed to be a scientifically demonstrable, hierarchical distribution of enterprise positions filled by workers with matching, naturally distributed, ability. For example, he believed that "there is little likelihood of substantial increases in the numbers of professional technologists because there is a limit to the upper intelligence stratum of the community from which such people are drawn.[54] His model was, essentially, an occupational caste system stratified by a careful matching of position with ability. Only in exceptional cases could a worker aspire to a position beyond his or her natural calling.

From the assumption of a scientific division of labour according to the distribution of natural talent, leadership of the caste system was, naturally, ascribed to the Brahman-technologists. Indeed, according to Lloyd, the delegation of routine tasks to technicians ultimately determined the degree of career satisfaction enjoyed by the technologist: "Professional engineers and their professional organizations therefore have a right and an obligation to be involved in questions related to sub-professional staff, through promotion of their education in adequate numbers and in appropriate ways, in creating suitable staff organizations and in managing work allocation." This approach of the IEA, he claimed, "looks beyond possible connotations of altruism on the one hand or self-interest on the other, to a vital need for the maximum clarity and order in the overall engineering employment structure."[55]

In effect, Lloyd's approach advocated a hegemonic system of industrial management both authored and administered by professional engineers. Because common-sense directed that the construction of a system of line-management was complementary to the "scientific" organisation of production, it was, as a result, an "objective" solution to the efficient and effective ordering of modern industry. The complex tensions, contradictions, and conflicts generated by the interaction of workplace capital and labour were simplistically re-formed as a series of engineering problems requiring engineering solutions. Organisational "clarity and order" became the desired value-neutral outcome. Issues related to workplace control and degrees of separation of conception and execution according to credentialed position, consequently, were masked by the engineers' self-serving and self-validating logic.

Armed with his naturalistic, technocratic, and paternalistic assumptions, Lloyd began his work at the IEA with Kepert, a man he regarded as an "energetic, enthusiastic and most likeable man, and a staunch fighter for the Victorian system."[56] Lloyd's agenda was seven-fold: to reserve the title "engineer" for the exclusive use of professional technologists; to define clearly the function of the technician; to establish IEA/APEA stewardship of engineering technician education; to establish a class of technician education in Victoria that was neither an added-trades course nor a failed-diplomates course; to ensure that technician courses were terminal and that in only rare circumstances would students be able to escalate to professional engineering courses; to encourage the private and public sectors to employ technicians and consequently employ their technologists more efficiently; and to separate the Technical Division from the Education Department to encourage greater clarity of industrial and professional purpose. His agenda was shared also by the many professional organisations whose members served on technician curriculum sub-committees, giving it widespread legitimacy.

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[53] A.D. Spaull and Peter Rushbrook, "John Kepert," *Australian Dictionary of Biography, Vol. 15* (Melbourne: Melbourne University Press, 2001), 10.

[54] Lloyd, *The Education of Professional Engineers in Australia*, 345.

[55] Ibid., 346, 246-249.

[56] Lloyd, "TAFE and the Technical Workforce in Engineering," 29.

The achievement of his goals drew him to Kepert because the TSD was a location where credentialing and professionalism were valued and legitimised, and a site from which award-based vocational education and training was conducted. Also, Kepert's status as a complicitous IEA councillor and 1961 Chairman presented a unique opportunity for insinuation of IEA/APEA policy into technical education.[57] And, the changes in the economic and educational climate provided a favourable context for innovation.

Initial discussions of the role of sub-professional engineers began in the 1950s in New South Wales and Australian Capital Territory branches of the APEA following the Australian Public Service's (APS) introduction of the skill category "Technical Officer," or a person bridging the gap between the tradesman and the technologist. The federal council of the APEA considered the issue further and in 1957 persuaded the IEA to recognise the shortage of technicians and to support moves to increase their formal training. Such training, however, "should be suitably designated so that the possibility of confusion with the training of professional engineers may be avoided."[58]

In 1958, the IEA established a Sub-Committee on the Training of Technicians, with Professor Moorhouse as chair. Committee members included Kepert, then principal of Melbourne's Caulfield Technical College, and Oliver Nilsson, Chief Inspector of Technical Schools. The Moorhouse committee ultimately did not reach any firm conclusions. The Victorian members, possibly because of Nilsson's influence, could not move beyond the conception of a technician as either an added-tradesperson or a sub-diplomate. They ignored or at least failed to incorporate the important work of the University of New South Wales in establishing free-standing sub-professional courses; nor did they consider the implications of technician courses for burgeoning numbers of white-collar positions, for example design drafting. Instead, they focused their attention on developing the trade-technician courses introduced to the Technical Division in 1959 by Nilsson. It took a 1961 New South Wales APEA sub-committee to articulate clearly the need for demarcation between professional and sub-professional work in the APS. Meanwhile, professional hackles were raised by sub-professionals in some states attaching the word "engineer" to their occupational associations.[59]

Alarmed at the erosion of hard-won professional exclusivity, Lloyd proposed joint IEA/APEA action. Although this did not eventuate, the two organisations unofficially cooperated. In 1964, Lloyd joined the IEA technician sub-committee and in the same year the APEA formed a Special Committee on Engineering Technicians to "examine matters related to education, training and employment of engineering technicians."[60] Lloyd argued for a single-level technician while his Engineers Case partner, Bill Wilkin, argued for two-tiered higher and lower-skilled levels (the engineering technician and the professional aide).

Meanwhile, in 1964, the IEA technician sub-committee was re-constituted under Gordon Colebatch of the Tasmanian Hydro-Electricity Commission. Along with Lloyd, the committee membership included Kepert. In July 1964, the committee resolved to use the term "engineering technician" to denote an officer "qualified by technical education and practical training" to apply techniques prescribed by a professional engineer. The IEA subsequently rejected the definition and questioned its involvement with the entire issue. In 1965, however, it reconsidered and approved a general definition of engineering technician that encompassed all qualified engineering personnel working between trade and professional levels. The IEA also called for national accreditation of technicians and for clarity of nomenclature. The Institution's display of only mild interest, according to Lloyd, was a missed opportunity "for the Institution to step in forcefully and take charge of the development of education and employment of engineering sub-

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[57] Spaull and Rushbrook, "John Kepert," 10.
[58] Lloyd, "TAFE and the Technical Workforce in Engineering," 5.
[59] Ibid., 7-28.
[60] Ibid., 11.

professionals, but attitudes of aloofness and lack of perception among the Council members clearly made such action not possible."[61]

In the absence of IEA interest, action to elaborate the role of the technician was left to the APEA sub-committee. In April 1964, Lloyd and his cohorts released a statement outlining criteria for the educational structure of the upper of Wilkin's two technician strata: separation from trade and professional courses, national standardisation of courses and nomenclature, course accreditation by industry and professional representatives, and suggested course outlines. With Kepert's approval, the statement formed the basis of the state's peak industry-vocational education liaison body, the Victorian Advisory Council on Technical Education (VACTE). The State Electricity Commission of Victoria and the CPS also showed interest in the APEA's statement. In 1965, the APEA released a further statement detailing criteria for sub-professional employment, including clarification of professional-technician relationships in the workplace. In justifying the relationship, Lloyd quoted Briton Sir Willis Jackson, doyen of the 1960s' professional engineer movement, who noted the trend for the "continuous downward transfer of duties" from the professional to the sub-professional level.[62]

In May 1965, Lloyd clarified his "systems" approach to the engineering workforce in an unpublished paper that heavily influenced Kepert's views on the future of technician education. Lloyd outlined the national confusion that existed in technician education and the need to rationalise existing educational practices. Kepert, who was about to leave for England as one of three Australian representatives to the 1966 Commonwealth Conference on the Education and Training of Technicians held at Huddersfield College, England, told Lloyd that a paper he was preparing drew heavily from one of his earlier papers. Lloyd remarked that "[i]t was obvious that his [Kepert's] thinking had been influenced quite significantly by it."[63]

Lloyd's quest for national coordination of engineering technician courses brought him to William McMahon, federal Minister for Labour and National Service since December 1958. At a Council of Professional Associations (CPA — an association of industrial bodies representing CPS professional employees) conference in April 1965, Lloyd, as CPA secretary, was interested in a paper by McMahon on the relationship between technicians and professionals. From it, Lloyd suggested that the DLNS would be the logical body to coordinate national technician education. In a follow-up response some months later, McMahon, in the manner of private employers before him, stated a belief that on-the-job training and experience were valid alternatives to credentialed college learning.[64]

The DLNS agreed to a meeting with technical directors and representatives of professional bodies to discuss Lloyd's views. The two meetings were chaired by Myer Kangan, First Assistant Secretary of the DLNS.[65] At the first meeting on 7 January 1966, the CPA asked the DLNS to consider the type of education that led to technician qualifications, the need for national uniformity, and formal national recognition of certification. The second meeting (including IEA and ACTU representation), held on 13 October 1967 considered the CPA agenda in more detail. The delegates, according to Lloyd, were intent on defending their own positions. Agreement was reached that professional education should be separated from technician education, though most supported (unlike Lloyd) the concept of student escalation. The ACTU was wary of the industrial repercussions of IEA/APEA control of sub-professional education and associations. Kangan, similar to his minister and the trades unions, argued that

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[61] Ibid.

[62] Ibid., 13.

[63] Ibid., 14.

[64] Ibid., 15.

[65] Peter Rushbrook and Ross Mackinnon, "Technocrat or Visionary?: Reflections on the Kangan Legacy," in *Different Drums, One Beat?: Economic Goals in Education and Training,* eds. Fran Ferrier and Damon Anderson (Adelaide: NCVER, 1998).

qualifications in the sub-professional area did not matter, and interference in existing practices would generate industrial problems. The educators, DLNS representatives, and employers present also expressed the belief that as far as they were concerned, industry meant *private* industry, and should be separated from issues related to *public* sector awards and qualifications.

The lack of interest shown in technicians and technician education by private sector union, employer, and government peak bodies demonstrates three points. First, in spite of increased industrial disputation, both unions and employers benefited from the post-World War II Keynesian settlement icons of full-employment and protection. To further contest the fragile industrial situation by introducing into the private sector a new level of training and credentialing may have destroyed what already precariously existed. The assumption was that issues of professional and technician relations are best left to the public sector. Second, the peak body reaction went some way to explain the marginality of technical education in relation to large sections of private industry. Credentialing simply was not widely valued. Third, the disinterest and even hostility shown by the federal bodies to the APEA and the CPA may explain why professional associations were often drawn to technical education peak bodies. If the battle for recognition of professional exclusivity, status and authority could not be fought in the national arena, then smaller victories could be won in a forum that valued what they stood for.

Conclusion

From 1974, paraprofessional education was cemented in national policy through its central role in shaping the direction of the seminal *TAFE in Australia: Report on Needs in Technical and Further Education*, known colloquially as the "Kangan Report" after its chair and much-changed DLNS First Secretary Myer Kangan.[66] In light of this, tracing the "bottom-up" embedding of technician or middle-level within Victorian vocational educational practice is extremely interesting. Many of the vocational education luminaries and acolytes were key players in developing the national framework. Kepert's innovatory establishment of the middle-level technical college in the late-1960s[67] that included a multi-tiered system of provision with paraprofessional education and residual professional education at its apex, formed the model drawn on by TSD bureaucrats working on the Kangan Report, although professional education was soon to be ceded to the CAEs and universities.

From this scenario, some interesting observations may be made about policy and practice, policy analysis, and the role of the historian in their unravelling. First, although the historical tools of narrative construction and analysis suggested by Silver, Stone, and Roberts[68] remain essential for unravelling the complex stories and subplots constituting the relationship between professional engineers and paraprofessional curriculum, further historical insights may be gained through utilizing the tools of policy analysis. The work of Taylor et al.,[69] for example, provides a number of conceptual anchors upon which to "freeze" particular historical moments as multi-dimensional, value-laden, and context-dependent. Conceptually and narratively, it is valuable for the historian to isolate policy formation and practice shaped by multiple stakeholders with vested interests, whether professional or instrumental, within the formation of post-World War II industrial identities informed by scientific management. These

[66] Myer Kangan, *TAFE in Australia: Report on Needs in Technical and Further Education*, 2 vols. (Canberra: Australian Government Printing Service, 1975); Rushbrook and Mackinnon, "Technocrat or Visionary?"

[67] Spaull and Rushbrook, "John Kepert."

[68] Silver, *Education, Change and the Policy Process;* Stone, "The Revival of Narrative"; Roberts, "Narrative as a Way of Life."

[69] Taylor, Rizvi, Lingard, and Henry, *Educational Policy and the Politics of Change*.

tools give substance to Roberts' call for historians to construct conceptually sharp "reason-giving accounts."[70]

Second, Taylor et al.'s[71] further insight that policy formation may produce unintended as well as intended consequences is well played out in the engineer and paraprofessional story in its unintended contribution to the formation of a national vocational education system. Given the reluctance of the apprenticeship system's stakeholders to change something they deemed not to be broken, the late 1960s' growth of public sector sparked a demand for trained technicians and a new type of college to meet their needs. Into the 1970s, Victoria and neighbouring state New South Wales[72] dominated national discussion and action to create a national system of Technical and Further Education (TAFE), later revised as the Vocational Education and Training (VET) system. Ironically, the VET system privileged private sector participation in policy formation and practice, underplaying or even dismissing the dominant role played by the public sector in legitimising work-based qualifications.

Third, the historian has something to contribute the field of policy analysis. Taylor et al. posit a framework that may in some aspects be limited to modernist rather than historical explanations. For example, the modes of policy construction may need to be pushed back further than their definition of policy as "what governments do, or do not do."[73] Although they posit the state as somewhat complex, policy construction may pre-date the state and policy-as-text, however defined. Policy origins then, though always political, may often be found outside the machinations of the party-based state. In the case of paraprofessional education, it existed in the organic or "bottom-up" politics of professional identity formation and not in Spaull and Hince's domain of policy "ministerialisation" through "top-down" political fiat.[74] This suggests a place for the skills of the historian to unravel individual agency in policy authorship. Brian Lloyd's contribution to the creation of paraprofessional policy and practice, for example, cannot be underestimated in the construction of New Millennium Australian vocational education. Lloyd acted politically as the representative of his profession but he did so outside of the state policy formation apparatus. Lloyd was able to succeed through the consent of fellow travellers within the vocational education system and in the absence of strong ministerial intervention or interest in his quest. His is an example of the possibilities of individual agency in an age of post-modernity that more often than not refuses to recognise such contributions.

Fourth, for the historian, the paraprofessional policy story is a reminder that narratives are essentially idiosyncratic and not always amenable to "neat" theoretical explanation in spite of the contribution of the tools of policy analysis. The penchant of the historian for the ideographic rather than the nomothetic, then, privileges historical methodologies in unravelling complex policy stories, particularly when involving a particular people, a particular time, and a particular place.[75]

Fifth, and finally, Silver's and Taylor et al.'s[76] emphasis on contextual issues related to the breadth of policy interaction beyond the education sphere is essential advice for informed policy analysis. In the case of the origins of the growth of paraprofessional education, an understanding must be reached of the peculiarities of Australian industrial relations system, the development of post-WWII industry policy, and policy initiatives emerging from a range of government departments and instrumentalities.

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[70] Roberts, "Narrative as a Way of Life," 222.

[71] Taylor, Rizvi, Lingard, and Henry, *Educational Policy and the Politics of Change*.

[72] Barker and Holbrook, "Meeting the Demand for Vocational Courses"; Adrian Haas, "The Development of Para-professional Engineering Education"; Haas, "Mechanics' Institutes and Schools of Mines in Australia," (paper presented to the Australian Mechanics Institutes Conference, Melbourne, 17-18 November 2000.

[73] Taylor, Rizvi, Lingard, and Henry, *Educational Policy and the Politics of Change*, 35.

[74] Spaull and Hince, *Industrial Relations and State Education in Australia*, 99-100.

[75] C.M.H. Clark, "Writing History in Australia," *Historical Studies*, 16, no. 4 (1975).

[76] Silver, *Education, Change and the Policy Process;* Taylor, Rizvi, Lingard, and Henry, *Educational Policy and the Politics of Change*.

In conclusion, this paper attempts to map the complexities of mid-twentieth century paraprofessional or middle-level policy formation and practice using the tools of the traditional narrative historian in concert with insights gained from the field of policy analysis. This was a time in recent history where policy formation and practice was informed and constructed through the "bottom-up" or organic interactions of key stakeholders rather than post-Millennial "top-down" decree, however informed. Overall, the conceptual intersection of historical and policy analysis is considered an area of great possibility for future research and a journey well worth taking.