Pengurusan Latihan Profesional

DCE 3603 (Unit 1-7/7)
Program Master Sains (PBMP)

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latihan di luar kampus, menjalankan kerja perundingan dan penyelidikan untuk organisasi kerajaan, swasta, dan badan-badan bukan kerajaan.

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MODUL DCE 3603: PENGURUSAN LATIHAN PROFESIONAL

Kandungan

Ringkasan Modul 6
Sinopsis Modul 7
Objektif Modul 8
Penilaian Pelajar 8
Tugasan 9
Jadual Pembelajaran 13
Buku Tek dan Rujukan 15

Unit 1 - Pengenalan Kepada Pendidikan Profesional Lanjutan 18

Unit 2 - Konsep dan Pengertian Profesional 24

Unit 3 - Bagaimana Profesional Belajar dan Membentuk Kepakaran 37

Unit 4 - Penganjur Program Pendidikan Profesional Lanjutan 45

Unit 5 - Pembentukan Program Latihan
Profesional

- Model Am Pennington dan Green
- Model Triple-Mode Houle
- Model Practice-Audit
- Model Nowlen: Update, Competence dan Performance

Unit 6 - Penilaian Program Latihan Profesional

Unit 7 - Keberkesanan Pendidikan Profesional Lanjutan

Apendix
Ringkasan Modul

Latihan merupakan satu aktibiti penting di dalam pembangunan sumber manusia. Setiap latihan yang dirancang perluah mengambil kira pelbagai aspek penting supaya program tersebut benar-benar mencapai objektif dan kesan yang hendak dicapai. Salah satu perkara yang perlu diberi perhatian penting ialah perihal peserta latihan. Di antara lain keperluan peserta latihan perluah diambil kira. Kita sedia maklum bahawa peserta latihan yang terdiri daripada kakitangan organisasi boleh dibahagikan kepada berbagai kategori, umpamanya buruh, perkerjaan, teknikal, separoh profesional, dan profesional. Setiap kategori ini mempunyai banyak perbezaan dari segi keperluan latihan, kepentingan bidang tanggungjawab, kepakaran, kaedah pembelajaran, dan sumbangan mereka kepada masyarakat. Oleh yang demikian personel pembangunan sumber manusia perluah mengetahui teori dan pendekatan yang sesuai untuk melatih peserta latihan kategori yang berlainan.

Sebagai perancang dan perlaksana program latihan profesional, pakar pembangunan sumber manusia perlu mengetahui dan mahir dalam perkara-perkara yang berkaitan dengan pembangunan sesuatu profesiion melalui proses pendidikan lanjutan.

Modul ini yang membincangkan kursus Pengurusan Latihan Profesional menumpukan kepada memahami perkara-perkara yang berkaitan dengan Pendidikan Profesional Lanjutan. Dengan ini pelajar akan dapat merancang suatu program pendidikan lanjutan (latihan) khusus untuk sesuatu profesiion.

![Sinopsis Modul](image)

Modul ini membincangkan kepentingan profesiion di dalam pembangunan sesuatu masyarakat; beberapa pendekatan konsep profesiion yang berlainan; model bagaimana profesiion belajar dan membentuk kepakaran; beberapa institusi yang menawarkan program pendidikan profesional lanjutan; model perancanaan program pendidikan profesional; penilaian program pendidikan profesional lanjutan; pendidik profesional lanjutan sebagai suatu profesiion; dan bagaimana meningkatkan keberkesanan program pendidikan profesional lanjutan.

Modul ini mengandungi tujuh unit yang diaingkan mengikut tajuk-tajuk tertentu yang berkaitan di antara satu sama lain. Bahan bacaan diletakkan di dalam apendik dan juga buku teks yang dicadangkan. Pelajar dinasihatkan untuk membaca dan memahami kesemua unit serta menjalankan aktiviti yang
disarankan. Tugas dan ujian akan berkait dengan modul ini di mana ianya meliputi bahan bacaan dari teks dan apendik berserta dengan jawapan kepada aktiviti yang disarankan.

**Objektif Modul**

Di akhir modul ini pelajar akan dapat mengenalpasti dan dapat berbincang mengenai literatur di dalam disiplin pendidikan profesional lanjutan. Selain daripada itu pelajar juga akan memahami dan mengetahui peranan seorang pendidik di dalam merancang, melaksana, dan menilai program pendidikan profesional lanjutan.

**Penilaian Pelajar**

Pembelajaran pelajar akan dinilai berasaskan kepada pencapaian objektif Modul di sepanjang semester. Terdapat dua kaedah penilaian akan digunakan iaitu; tugas dan ujian. Agihan markah bagi setiap kaedah penilaian adalah seperti berikut:
Tugasan = 40%
Ujian 1 = 30%
Ujian 2 = 30%
Jumlah = 100

Gred akan diberi berasaskan kepada skala plawai universiti seperti berikut:

80 - 100 A
75 - 79 A-
70 - 74 B+
65 - 69 B
60 - 64 B-
55 - 59 C+
50 - 54 C
47 - 49 C-
44 - 46 D+
40 - 43 D
0 - 39 F

Silia baca setiap tugasan dahulu untuk memudahkan anda merangka strategi pelaksanaan dan pengumpulan maklumat. Tugasan hendaklah dibuat secara individu, namun begitu perbincangan secara kumpulan adalah digalakkan. Tugasan perlu dilakukan dengan menggunakan font 12 dan langkah 1.5 baris. Pastikan anda menyimpan salinan tugasan sebelum dihantarkan kepada Pusat Pendidikan Luar (PPL). Dengan ini sekiranya tugasan tersebut tersesat atau
hilang ia boleh dihantarkan semula. Bagi setiap tugasakan sila tuliskan maklumat berikut:

- DCE 3603 : Pengurusan Latihan Profesional
- Pensyarah : Dr. Shamsuddin Ahmad
- Semester Mei 2004/05
- Tugasan
- Nama anda, Program, Alamat surat menyurat, dan no talipon.

Kelewatan menghantar tugasakan akan menyebabkan anda kehilangan markah sebanyak 0.5 markah setiap hari yang lewat. Anda perlu menghantar semua tugasakan kepada PPL melalui Penyelaras Pusat Pembelajaran. Dalam keadaan tertentu seperti tugasakan yang dihantarkan tidak sampai atau hilang. Anda boleh menghantar salinan tugasakan terus kepada pensyarah.

* Tugasan

Rancang satu program latihan hipotetikal (rekaan) untuk satu profesion dengan menggunakan salah satu daripada model atau pendekatan perancangan yang telah dibincangkan di dalam modul ini. Perancangan ini perlu dibuat daripada mula hingga ke peringkat perancangan penilaian. Selain daripada penerangan bagaimana ia perlu dilaksanakan setiap hasil daripada perancangan tersebut (seperti jadual latihan, kaedah penyampaian, dsb.) perlu disertai kecuali perancangan penilai tidak perlu disertakan penemuan hasil penilaian. Di antara perkara yang perlu dinyatakan di dalam perancangan ini termasuklah:
A. Latar belakang perancangan.
   ➢ Jenis organisasi
      i. Nyatakan Organisasi sebenar yang mempunyai Program Pendidikan Profesional Lanjutan.
      ii. Tulis sedikit latar belakang organisasi seperti matlamat organisasi, program latihan yang dilaksanakan kumpulan peserta latihan, dan lain-lain maklumat yang difikirkan perlu.
   ➢ Profesi dan tugas bakal peserta latihan
      i. Nyatakan latar belakang bakal profesion yang akan mengikuti latihan dan apakah tugas dan tanggungjawab utama mereka.
      ii. Maklumat demografi mereka seperti umur, lama bekerja, jantina dan tempat bekerja.

B. Model perancangan yang digunakan
   ➢ Latar belakang model – andaian, langkah-langkah yang perlu dilaksanakan, dsb.
   ➢ Dokumen yang dihasilkan setelah setiap langkah dilaksanakan.
   ➢ Bagaimana Program Latihan akan dinilai

Penerangan ini (10 hingga 15 mukasurat) perlulah diikatkan dengan pengetahuan yang telah anda dapati daripada modul ini terutamanya daripada Unit 1 hingga Unit 7. Tugas perlu diterima oleh pensyarah sebelum atau pada tarikh peperiksaan akhir semester.
Peringatan

Meniru adalah kesalahan besar di universiti. Oleh yang demikian pelajar yang dibuktikan meniru akan mendapat gred F di dalam konsep ini selain daripada tindakan disiplin oleh UPM seperti pembuangan daripada universiti, aatu pemahaman daripada belajar selama beberapa semester.

Pelajar yang didapati mempunyai persamaan di dalam penulisan tugas akan dituduh meniru. Pelajar yang bersubahat juga akan didenda. Oleh yang demikian pastikan tugasanda adalah tulin dan anda tidak membantu pelajar lain meniru tugas anda.

Ujian 1

Ujian 1 adalah penilaian atau peperiksaan pertengahan semester. Ujian ini meliputi Unit 1 hingga Unit 4. Pastikan anda memahami unit-unit tersebut dan mebaca dan membuat setiap bacaan dan aktiviti yang disarankan. Ujian ini berbentuk objektif di mana hanya jawapan yang benar-benar tepat akan mendapat markah.

Ujian 2

Ujian 2 atau peperiksaan akhir meliputi unit 5 hingga unit 7. Walau bagaimanapun konsep atau perkara penting di unit-unit terdahulu perlu dilingat juga kerana ia akan menjadikan asas untuk memahami unit-unit diadakan ujian 2. Ujian ini berbentuk objektif dan seperti ujian 1 pelajar perlu mendapat
markah. Oleh yang demikian pelajar perlu memahami perkara yang dipelajari. Hubungi pensyarah atau tutor untuk menjelaskan kemusykilan anda.

**Aktiviti**

Anda boleh menghantar aktiviti yang anda buat untuk mendapat markah bonus yang dibentuk mengikuti kualiti respon anda. Aktiviti bertujuan untuk anada menilai kefahaman terhadap apa yang dipelajari. Kumpulan aktiviti dihantar berasingan diaripada tugas tetapi pada masa yang sama jawapan setiap aktiviti adalah di antar 2 hingga 3 muka surat.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Perkara</th>
<th>Tarikh</th>
</tr>
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<tbody>
<tr>
<td>Unit 1</td>
<td>Pengenalan Kepada Pendidikan Profesional Lanjutan</td>
<td>Minggu 1 &amp; 2</td>
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<tr>
<td>Unit 2</td>
<td>Konsep dan Pengertian Profesional</td>
<td>Minggu 3 &amp; 4</td>
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<tr>
<td>Unit 3</td>
<td>Bagaimana Profesional Belajar dan Membentuk Kepakaran</td>
<td>Minggu 5 &amp; 6</td>
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<tr>
<td>Unit 4</td>
<td>Penganjur Program Pendidikan Profesional Lanjutan</td>
<td>Minggu 7</td>
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<tr>
<td>Ujian 1</td>
<td>Meliputi Unit 1 hingga Unit 4</td>
<td>Minggu 7</td>
</tr>
<tr>
<td>Unit 5</td>
<td>Pembentukan Program Pendidikan Profesional Lanjutan</td>
<td>Minggu 8 &amp; 9</td>
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<td>Unit 6</td>
<td>Penilaian Program Pendidikan</td>
<td>Minggu 10 &amp; 11</td>
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<td>Unit</td>
<td>Perkara</td>
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<tr>
<td>Unit 7:</td>
<td>Keberkesanan Program Pendidikan</td>
<td>Minggu 12 &amp; 13</td>
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<td></td>
<td>Profesional Lanjutan</td>
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<tr>
<td>Ujian 2:</td>
<td>Meliputi Unit 5 hingga Unit 7</td>
<td>Minggu 14</td>
</tr>
<tr>
<td>Tugasan</td>
<td>Diterima oleh pensyarah pada</td>
<td>Minggu 14</td>
</tr>
</tbody>
</table>
Buku Teks dan Rujukan


Teks


Bahan bacaan rujukan pula disediakan sebagai Apendik di dalam Modul ini. Pastikan kesemua bacaan rujukan terdapat di dalam Modul anda.

Bacaan Rujukan

Professional Development: Towares Effective Practice. 7 Sept. 1995. UPM, Serdang.


UNIT 1:
PENGENALAN KEPADA PENDIDIKAN PROFESIONAL LANJUTAN

Pendahuluan Unit 1

Selamat datang ke Unit 1 Modul DCE 3603. Unit ini membincangkan pengenalan mengenai Pendidikan Profesional Lanjutan (PPL). Di dalam Unit ini anda akan memahami bahawa perkataan profesion memberi erti yang berbeza daripada kefahaman umum dan mengapa profesion itu penting di dalam masyarakat dan peranannya di dalam pembangunan sesuatu negara atau organisasi.

Unit 1 mengandungi tiga tajuk, satu aktiviti, dan tiga bacaan. Sila ikuti setiap tajuk, aktiviti dan bacaan supaya anda dapat memahami apa yang diterangkan dengan lebih jelas sambil berfikir tentang apa yang anda lakukan.

Tajuk 1: Profesion dan Pekerjaan

Sesuatu pekerjaan atau jawatan yang telah diiktiraf sebagai profesi mempunyai kelebihan tertentu. Ia juga dianggap sebagai simbol status di mana profesi dipandang tinggi oleh masyarakat dan diberi imbuhan dan tanggung jawab yang lebih tinggi oleh majikan.

Kadangkala kita terdengar orang menyatakan seseorang itu telah menjalankan kerjanya secara profesional. Ini membawa pengertian yang sedikit berlainan. Diperintah individu pula seorang pekerja yang memegang jawatan profesi di panggil profesional. Walau bagaimanapun seorang professional boleh dilihat dari pandangan kemampuan individu tersebut di dalam melaksanakan tugas yang diamanahkan kepada mereka. Oleh yang demikian seorang pencuci boleh dianggap sebagai profesional sekiranya ia telah menjalankan tugasnya dengan segala kemampuan, kebolehan, dan kapasiti yang ada secara jujur dan bertanggungjawab.

Seseorang profesional juga boleh dianggap sebagai seorang yang bekerja sepenuh masa seperti dalam kontek pemain sukan profesional. Faman bola sepak profesional bermakna individu tersebut tidak menjawat jawatan lain kecuali bermain dan berlatih bola sepak sebagai sumber pendapatan utama.

Dalam Modul ini, profesional merujuk kepada jawatan atau pekerjaan khusus. Tahap pengertian ini ditumpukan kepada tahap pekerjaan dan bukannya kepada tahap individu. Perbincangan dalam banyak keadaan akan merujuk kepada jawatan bukan individu yang memegang jawatan profesion tersebut.
**Bacaan 1.1**


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**Tajuk 2: Mengapa Profesional Perlu Dibezakan Dengan Pekerjaan Biasa**

Kebanyakan pekerjaan di dalam kategori buruh, perkeranian, pentadbiran, dan pengurusan tidak dianggap sebagai profesi kerana secara tradisinya ia tidak dianggap sedemikian. Selain daripada itu pekerjaan-pekerjaan ini juga tidak memerlukan kelayakan akademik yang khusus dimana pencapaian ilmu dalam sesuatu bidang sains perlu dipelajari dalam jangka masa yang agak lama. Namun begitu terdapat beberapa pekerjaan yang dianggap sebagai separa-profesi seperti pembantu teknik dan sebagainya. Bagi jawatan guru pula di dapat ia di dalam usaha untuk mencapai taraf profesi daripada pengiktirafan kerajaan.

Pengiktirafan sesuatu pekerjaan sebagai profesi dibuat samada oleh kerajaan, persatuan profesional, atau masyarakat. Pengiktirafan ini banyak bergantung kepada ilmu yang diperlukan dalam pekerjaan tersebut. Di mana ilmu ini berasaskan kepada sains, tidak mudah untuk dipelajari oleh semua orang dan mengambil masa untuk mempelajari dan menguasainya. Selalunya ilmu ini boleh di dapat daripada institut pendidikan tinggi.

Secara amnya profesi menduduki hiraki yang tinggi di dalam tangan pekerjaan di mana pekerjaan ini diberi tanggungjawab yang besar termasuklah sebagai pemimpin di dalam sesuatu organisasi. Peranan kepimpinan ini menambahkan lagi pentingnya profesi di dalam sesuatu masyarakat dan negara.

Aktiviti 1.1

Pada pendapat anda, adakah pekerjaan yang anda sandang sekarang boleh dianggap sebagai profesi atau tidak. Mengapa anda menjawab sedemikian? Berikan jawapan anda mengikut bacaan yang disarankan.
Tajuk 3: Pendidikan Profesional Lanjutan

Pendidikan Lanjutan adalah term yang digunakan untuk merujuk kepada pendidikan yang ditawarkan selepas seseorang itu keluar daripada sistem pendidikan formal (sekolah dan kolej/universiti). Pendidikan Lanjutan juga merujuk kepada kursus/latihan yang ditawarkan kepada seseorang sebelum, semasa, atau selepas alam pekerjaan. Dalam konteks Modul ini Pendidikan Profesional Lanjutan merupakan latihan yang dijalankan kepada profesional untuk meningkatkan pengetahuan, kemahiran, dan sikap mereka bagi memastikan tahap pencapaian yang optima di dalam kecemerlangan sesuatu profesion.

Pendidikan Profesional Lanjutan adalah salah satu daripada sub-bidang Pendidikan Dewasa dan Lanjutan atau bidang Pembangunan Sumber Manusia. Di Malaysia sub-bidang ini masih diperkenal awal di mana ramai orang menganggap bahawa latihan untuk profesi adalah sama sahaja seperti latihan untuk pekerjaan yang lain. Oleh kerana profesi adalah satu pekerjaan yang berbeza daripada pekerjaan biasa maka penekanan untuk memahami dan mencari jalan bagaimana untuk meningkatkan kecemerlangan profesi tersebut melalui pendidikan lanjutan perlulah dibuat secara teliti dan berterusan.

Terdapat banyak latihan yang dijalankan untuk profesi di Malaysia oleh pelbagai organisasi. Kebanyakkan daripada latihan ini dirancang oleh perancang yang kurang mengetahui mengenai konsep dan literatur di dalam Pendidikan Profesional Lanjutan.
Bacaan 1.2

Aktiviti 1.2
Setelah membaca Bacaan 1.2 cuba terangkan keadaan Pendidikan Profesional Lanjutan di Malaysia. Adakah sama seperti di Amerika? Apakah persamaan dan perbezaan yang anda kenalpasti?
UNIT 2:
KONSEP DAN PENGERTIAN PROFESION

Penulisan Unit 2

Untuk memahami konsep profesi beberapa pendekatan telah dinyatakan di dalam literatur. Dengan memahami pendekatan ini anda dapat menilai pendekatan yang mana paling sesuai bagi diri anda. Selain daripada itu pendekatan yang digunakan untuk memahami konsep profesi akan dapat membantu merancang program pendidikan profesional dengan lebih berkesan.

Unit 2 membincangkan tiga pendekatan profesi yang terdapat di dalam literatur dengan memahami pendekatan ini anda akan dapat membandingkan persamaan dan perbezaan di antara ketiga-tiga pendekatan tersebut. Di dalam bidang akademik, salah satu keadaan untuk memahami sesuatu konsep adalah dengan menganalisis konsep tersebut dari pendekatan yang berbeza. Pendekatan-pendekatan ini berbeza di antara satu sama lain melalui ciri-ciri khusus yang telah dikenalpasti.

Unit ini terbahagi kepada empat Tajuk, empat Bacaan dan tiga Aktibiti. Sila ikuti setiap Tajuk, Bacaan dan Aktibiti supaya anda akan dapat memahai konsep profesi dengan mendalam. Dengan itu kefahaman ini akan menjadi asas kepada Unit-unit yang akan datang.
Bacaan 2.1

Tajuk 1: Pendekatan Statik

Tidak dapat disangkal bahawa profesion adalah amat penting di dalam pembangunan sesebuah negara disebabkan bidang kerja yang memerlukan kemahiran yang tinggi dan penting dibandingkan dengan kerja-kerja yang bukan profesional. Perbincangan mengenai definasi profesion telah lama berlaku bermula daripada satu artikel yang telah diterbitkan dalam tahun 1914 ditulis oleh Flexner. Hasil daripada penulisan Flexner (1914) beberapa pandangan lain telah diterima oleh masyarakat barat seperti penulisan Vollmer dan Mills (1966) dan Larson (1977) yang mempertikaikan pendekatan profesion oleh Flexner dan yang dinyatakan oleh penulis-penulis lain dengan mengemukakan pendekatan mereka yang agak berlainan. Walau bagaimanapun hingga sekarang tiada satu definasi yang dapat diterima ramai. Ini tidak bermakna usaha untuk memahami konsep profesion harus diketepikan kerana seperti yang telah dibuktikan profesion itu sendiri mempunyai peranan dan tanggungjawab yang besar di dalam sesuatu negara.
Mengikut Flexner (1914), perkara asas di dalam sesuatu profesio ialah semangat untuk membantu orang lain di mana ia menjadi tujuan utama sesuatu profesio la itu membantu masyarakat (alturisitc). Sekiranya profesional lebih mementingkan keuntungan diri sendiri ini akan menjatuhkan martabat profesio itu di mata masyarakat. Hingga sekarang profesio masih lagi, walaupun ia boleh dipertikaikan, memberi gambaran bahawa mereka meletakkan kepentingan masyarakat lebih daripada kepentingan mereka sendiri. Sifat alturistik ini telah menjadi satu sifat umum yang penting di dalam definasi profesio dengan menggunakan pendekatan statik.

Aktiviti 2.1

Cuba perhatikan profesio di sektor swasta (cth : doktor atau peguam), urusan pembayaran tidak ditentukan oleh profesional tersebut. Anda dikehendaki membayar yuran perkhidmatan atau mengetahui jumlah pembayaran di bahagian lain. Megapa keadaan ini berlaku.

Bacaan 2.2


Setelah membaca artikel Flexner anda sudah pasti mengetahui bahawa pendekatan Statik adalah satu pendekatan dikotomi yang tetap. Ini bermakna sekiranya sesuatu pekerjaan itu tidak memenuhi kesemua kriteria atau sifat profesion maka pekerjaan tersebut tidak di anggap sebagai profesion. Selain daripada Flexner terdapat penulis lain yang mempunyai konsep yang sama tetapi mempunyai satu set kriteria yang berbeza daripada Flexner seperti yang dinyatakan oleh Rose (1974). Rose menyatakan bahawa profesiion perlu mempunyai kriteria iaitu; berkaitan dengan pengetahuan berstatus tinggi, berkaitan dengan universiti, berkaitan dengan kelas sosial yang tinggi, berkaitan dengan aktiviti yang bernilai tinggi daripada pandangan masyarakat, berkaitan dengan satu proses yang dipercayai mempunyai mistik, dan berkaitan dengan pengaruh.

Mengikut Pendekatan Statik pekerjaan biasa tidak boleh berubah menjadi profesiion walaupun melalui pendidikan lanjutan dan pembangunan pekerjaan tersebut kecuali perubahan yang berlaku memenuhi kriteria yang telah ditetapkan.
Aktiviti 2.2

Huraikan sifat-sifat utama profesiion mengikut Pendekatan Statik yang dinyatakan oleh Flexner (1914).

Tajuk 2: Pendekatan Proses


Mengikut Vollmer and Mills (1966) setiap pekerjaan samada sedikit atau banyak adalah di dalam satu proses menuju kearah profesionalisasi yang mutlak. Proses
profesionalisasi ini banyak dipengaruhi dan mempengaruhi masyarakat sekeliling hingga menjadikan profesi amat penting di dalam membentuk sesuatu masyarakat berjalan dengan teratur.

Bacaan 2.3


Bucher dan Strauss (1961) menerangkan proses yang di lalui oleh sesuatu pekerjaan di dalam menuju kearah profesionalisma. Mengikut penulis profesi tidak semestinya mempunyai identiti yang sama, terdapat perbezaan dalam profesion itu sendiri yang dinamakan 'segments'. 'Segments' atau kumpulan-kumpulan kecil di dalam sesuatu profesion adalah hasil daripada proses pekerjaan itu menjadi profesion.

Aktiviti 2.3

Tajuk 3: Pendekatan Sosio-ekonomik


Dengan ini profesi akan cuba mengawal atau melakukan monopoli terhadap hasil pekerjaan mereka. Untuk menghasilkan perkhidmatan yang bermutu profesional perlu mendapat pendidikan tinggi yang berterusan. Dengan ini kelayakan pendidikan tinggi dan berterusan diperlukan sebagai syarat untuk menjadi seorang profesional.

Keadaan yang sama bertakai di Malaysia di mana penentapan oleh kerajaan menentukan samada sesuatu pekerjaan itu profesi atau tidak. Jawatan kerajaan telah ditentukan seperti profesional dan pengurusan, dan sokongan yang dibahagikan pula kepada sokongan 1 dan sokongan 2. Mengikut pembahagian ini kumpulan sokongan adalah bukan profesi.
Bacaan 2.4


Larson (1979) mengkaji pekerjaan dalam konteks sosiologi yang berkait rapat dengan sejarah dan menentukan bahawa profesion ditentukan oleh pendekatan sosio-ekonomi. Pendekatan ini mucul bersama dengan kewujudan sistem kapitalis yang memberi tumpuan kepada penghasilan komoditi yang diperlukan oleh masyarakat. Dengan ini masyarakat akan memberi imbuhan yang tinggi kepada profesion.

Aktiviti 2.4

Tajuk 4: Bidang Pendidikan Profesional Lanjutan


Di zaman teknologi ini pula ilmu yang dipelajari di institut pengajian tinggi tidak kekal dan akan berubah dengan cepat sekali. Tambah pula bidang amalan di tempat kerja terdapat perbezaan yang ketara daripada apa yang dipelajari di universiti. Oleh yang demikian, pendidikan berterusan adalah diperlukan apabila setiap profesional mula bekerja dalam bidang mereka. Secara purata profesional bekerja selama 30 tahun. Dengan itu ilmu yang didapati selama tiga atau empat tahun di universiti tidak mencukupi untuk memberikan perkhidmatan yang lama dalam zaman yang sentiasa berubah.

Di negara barat bidang PPL telah lama wujud dan bertambah maju. Di Malaysia, bidang ini masih baru dikenali walaupun latihan yang dijalankan untuk berbagai pekerjaan telah sekian lama wujud. Namun begitu kefahaman melalui pengajian yang terperinci mengenai profesion masih belum dilakukan oleh mana-mana pusat pengajian tinggi. Dengan ini adalah wajar sebagai sebahagian daripada
keperluan bidang Pembangunan Sumber Manusia, sub-bidang PPL dijadikan salah satu daripada keperluan yang utama. Dengan ini program pendidikan profesional lanjutan yang dirancang untuk profesional oleh orang yang berkeluarkan akan meningkatkan lagi sikap, pengetahuan dan kemahiran profesional.

Amalan PPL banyak bergantung kepada maklumat daripada bidang-bidang lain seperti bidang Pendidikan Dewasa dan Lanjutan dan Pembangunan Sumber Manusia. Literatur dalam bidang tersebut yang berkaitan dengan bagaimana orang dewasa belajar, motivasi pembelajaran, bagaimana merancang, melaksana dan menilai program, penilaian prestasi, pembangunan organisasi, organisasi pembelajaran, dll. Pendidik profesional lanjutan juga perlu mengetahui konteks profesiion tersebut kerana ianya berbeza dengan konteks pekerjaan yang lain.

Selain daripada itu dengan adanya pengajian dalam bidang PPL akan menambahkan lagi penyelidikan yang berkaitan dan ini akan dapat meningkatkan kecepatan perancangan dan perlaksanaan program PPL di Malaysia

Aktiviti 2.5

Mengikut pandangan anda adakah perlu membezakan pengertian profesiion kepada pendekatan-pendekatan tertentu?. Bolehkah setiap pendekatan digunakan untuk memahami profesiion? Pendekatan yang mana paling sesuai bagi anda? Bagi negara kita?
UNIT 3:
BAGAIMANA PROFESIONAL BELAJAR DAN MEMBENTUK KEPAKARAN

Pendahuluan Unit 3

Setelah memahami konsep dan pendekatan pengertian profesional Unit 3 pula menerangkan satu lagi konsep yang penting iaitu berkaitan dengan bagaimana profesional belajar dan membentuk kepakaran. Dengan mengetahui konsep ini pendidik profesional lanjutan akan dapat merancang bagaimana cara yang berkesan untuk meningkatkan lagi pengetahuan, kemahiran dan sikap profesional bagi bidang masing-masing melalui program pendidikan profesional lanjutan samada secara formal, atau tidak formal.

kaedah penyelesaian dengan menggunakan pengalaman yang ada amatlah diperlukan.

Unit ini bertujuan supaya pelajar dapat memahami konsep dan teori yang berkaitan bagaimana ilmu bagi sesuatu profesion dipelajari dan diamalkan hingga menjadi seseorang profesional itu pakar dalam bidang masing-masing. Keilmuan dan kepakanan ini juga yang akan membezaan tahap profesionalisma sesuatu profesion dan dapat membezaan antara profesional yang cekap dengan profesional yang biasa.

Unit 3 terdiri daripada dua tajuk iaitu; Bagaimana Pembelajaran Berlaku dan Model Yang Berkaitan Dengan Amalan Profesional.

**Tajuk 1: Bagaimana Pembelajaran Berlaku**

Ilmu (*knowledge*) adalah asas bagi kecepatan seseorang profesional. Pembangunan profesional perluah menekankan kepada penambahan ilmu disamping membentuk nilai-nilai yang murni di dalam diri seseorang profesional. Ilmu adalah gabungan daripada maklumat atau pengetahuan yang diamalkan dengan cekap oleh seseorang yang mempunyai sikap dan nilai yang positif dan murni. Oleh yang demikian tujuan PPL adalah untuk membentuk profesional yang berilmu supaya dapat menjalankan tanggungjawab mereka dengan berkesan tanpa penyelewengan nilai kemasyarakatan dan agama. Justeru itu PPL perluah mengambilkira bukan hanya kepada peningkatan pengetahuan dan amalan teknikal tetapi juga kesedaran mengenai pentingnya konteks amalan dalam organisasi, masyarakat, dan negara. Perancang program PPL perlu mengetahui bahawa profesional di dalam pekerjaan sehari menghadapi keadaan yang tidak semula di dalam buku; masalah yang dihadapi bersifat unik, tidak menentu atau mempunyai konflik nilai. Profesional yang mempunyai
ilmu yang tinggi akan dapat menyelesaikan masalah yang dihadapi dengan berkesan. Ini akan membezakan di antara profesional yang mahir dengan yang biasa. Kelayakan universiti sahaja tidak dapat membezakan antara profesional yang mahir dan kurang mahir.

Sebelum merancang program PPL, satu perkara yang penting adalah mengetahui bagaimana profesional itu belajar untuk membentuk ilmu. Terdapat berbagai pandangan yang telah dikemukakan oleh ahli psikologi yang menyelidik bagaimana pembelajaran berlaku. Mengikut saikologi perilaku, pembelajaran berlaku apabila seseorang itu berubah dari segi perilakunya. Walaubagaimanapun ahli psikologi kognitif pula pergi lebih jauh dengan mengkaji bagaimana pembelajaran itu berlaku di dalam otak seseorang. Ini adalah satu perkara yang rumit untuk mengkaji bagaimana otak berfungsi. Secara ringkasnya apa saja yang telah kita pelajari atau ketahui adalah merupakan pengalaman yang lalu yang dipanggil skimata. Skimata ini akan kita gunakan untuk menerima atau mempertikai sesuatu perkara yang baru yang kita pelajari untuk membentuk skimata yang baru. Pengetahuan yang baru ini apabila kita sentiasa amalkan sehingga menjadi spontan penggunaannya akan membentuk kemahiran.

Oleh yang demikian pendidik dan perancang program pendidikan profesional lanjutan perluah mengambilkira pengalaman lalu (skimata) profesional tersebut sebelum merancang program latihan yang berkesan untuk mereka. Kaedah pengajaran yang menggunakan skimata profesional akan membuatkan pembelajaran berlaku dengan lebih berkesan. Pendekatan perbincangan, kajian kes, perbahasan dan lain-lain kaedah yang menggunakan pengalaman lalu adalah lebih berkesan dalam mengajar profesional berbanding dengan kaedah pengajaran yang sehala. (didatik).
Bacaan 3.1

Aktiviti 3.1
Sila jawab soalan berikut berkaitan dengan pembelajaran anda di tempat kerja. Setelah selesai menjawab, hantarkan salinan borang soalselidik ini kepada pensyarah.
1. Nama anda: .................................................................
2. Jawatan anda: .................................................................
3. Nama organisasi anda: ......................................................
4. Bagaimanakah anda belajar untuk menjalankan kerja anda dan nyatakan kekerapannya

<table>
<thead>
<tr>
<th>Kaedah Pembelajaran</th>
<th>% Kekerapan</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Latihan / kursus / seminar / bengkel</td>
<td>.............</td>
</tr>
<tr>
<td>b. Tunjuk ajar daripada rakan sekerja</td>
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<tr>
<td>c. Tunjuk ajar daripada ketua / penyelia</td>
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<td>d. Belajar sendiri melalui pembacaan / pemerhatian</td>
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<tr>
<td>e. Belajar dari pengalaman mencuba</td>
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</tr>
<tr>
<td>f. Belajar secara tidak sedar / tak langsung</td>
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</tr>
</tbody>
</table>

5. Daripada 6 kaedah pembelajaran di atas kaedah mana yang paling berkesan bagi anda. Tuliskan salah satu nombor 1 hingga 6 bagi setiap kaedah mengikut keutamaan keberkesanan.
Kaedah Pembelajaran

<table>
<thead>
<tr>
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<th>Keutamaan</th>
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<tbody>
<tr>
<td>a. Latihan / kursus / seminar / bengkel</td>
<td>..........</td>
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<td>f. Belajar secara tidak sedar / tak langsung</td>
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</tbody>
</table>

**Bacaan 3.2**


**Tajuk 2: Model Berkaitan Dengan Amalan Profesional**

Model atau teori yang menerangkan bagaimana profesional menjalankan kerja mereka dengan menggunakan ilmu yang ada tidak banyak didapati di dalam literatur. Salah satu daripadanya adalah model yang dinyatakan oleh Schon (1983). Schon menyatakan bahawa pandangan yang dominant berkaitan dengan ilmu profesional ialah *technical rationality*. 


Knowing-in-action. Berbeza dengan model technical rationality, model ini mengandaila bahawa untuk mengetahui tahap ilmu seseorang profesional itu adalah dengan melihat apa yang diamalkannya. Kebanyakkan daripada amalan atau apa yang dilakukan oleh profesional adalah secara spontan dimana profesional itu sendiri tidak dapat menyatakan apakah asas yang digunakan di dalam sesuatu keputusan yang dibuat. Ilmu yang terkandung dalam pemikiran digunakan secara spontan tanpa menilai dahulu secara cender. Kaedah mengetahui secara ini mempunyai tiga sifat ia itu: 1) profesional membuat sesuatu tindakan tanpa menilai samada semasa atau sebelum melakukan perkara tersebut, 2) mereka tidak sedar bagaimana kaedah tersebut telah
dipelajari, dan 3) mereka tidak dapat menyatakan perkaitan antara amalan yang dibuat dengan ilmu yang mereka ada.


Sekiranya profesional tidak menghadapi situasi dan masalah yang baru, mengikut model ini profesional tersebut akan beku walaupun ia telah bekerja berpuluh tahun. Mungkin pengalaman setahun hanya diulang sepuluh kali. Penambahan ilmu tidak akan berlaku. Oleh yang demikian profesional perlulah menghadapi situasi dan masalah yang baru dan mencabar untuk mereka terus belajar, berubah, dan terus mengekalkan kecekapan dan kemahiran mereka. Model reflection-in-action dengan ini dapat membentuk ilmu yang berasaskan
kepada keadaan sebenar dan lebih praktikal untuk digunakan dalam amalan sesuatu profesion.

**Bacaan 3.3**

UNIT 4:
PENGANJUR PROGRAM PENDIDIKAN PROFESIONAL LANJUTAN

Pendahuluan Unit 4

Dengan mengetahui konsep profesi dan bagaimana profesional belajar dan membentuk kepakaran, sekurang-kurangnya kita telah dapat merangka pendekatan yang paling sesuai untuk merancang program PPL. Namun begitu merancang program PPL perlulah mengambil kira konteks institusi di mana kita bekerja sebagai pendidik atau perancang program latihan. Naungan pengajar yang berlainan akan memberi kesan kepada pendekatan yang digunakan.

Selain daripada itu konteks institusi memainkan peranan yang penting untuk menentukan keberkesanan PPL. Ini disebabkan ukuran keberkesanan perlu mengambil kira pencapaian matlamat organisasi. Dengan ini konteks institusi memberi kesan yang signifikan kepada bagaimana amalan pendidik profesional lanjutan.

Unit ini membincangkan institusi-institusi yang menganjur dan menawarkan program PPL dari segi situasi, kelebihan dan kekurangan setiap institusi. Selain daripada itu Unit 4 juga membincangkan apakah strategi yang perlu dibuat supaya setiap institusi yang menganjur dan menawarkan program PPL dapat menjalankan tanggungjawab mereka dengan lebih berkesan. Tangapan ini berasaskan andalan bahawa matlamat utama program PPL adalah untuk meningkatkan kecekapan dan kemahiran profesional supaya dapat memberi manfaat yang maksimum kepada masyarakat dan negara.
Unit ini terdiri daripada dua tajuk iaitu: Jenis Penganjur dan Kerjasama di antara Institusi Penganjur.

**Tajuk 1: Jenis Penganjur**

Setiap penganjur adalah unik walaubagaimanapun institusi penganjur boleh dikumpulkan kepada jenis yang berbeza berasaskan kepada latarbelakang institusi tersebut. Kajian yang menyeluruh mengenai institusi yang menawarkan program latihan secara umumnya masih belum dijalankan di Malaysia apabila lagi kajian yang mengkhususkan kepada penganjur program PPL. Walau bagaimanapun terdapat dua kajian terhad yang telah dijalankan oleh UPM dan Unit Perancang Ekonomi di Jabatan Perdana Menteri mengenai institusi yang menawarkan program latihan secara umum di mana kedua-dua kajian ini tidak mengkhususkan kepada latihan yang dijalankan kepada profesion.


bertujuan untuk mengumpul maklumat berkaitan dengan latihan yang ditaja oleh industri di Malaysia. Namun begitu kajian ini tidak melihat secara terperinci latihan yang diberikan kepada profesi secara khusus.

Bagi program PPL kebanyakkan institusi penawar tidak mengkhususkan kepada profesi kecuali program latihan yang dijalankan oleh pertubuhan profesional itu sendiri seperti Malaysian Medical Association (MMA), dll. Persatuan profesional ini bukan sahaja menawarkan program PPL tetapi juga menentukan kriteria perlesenan profesi di mana salah satu daripada kriterianya adalah dengan memenuhi keperluan jam latihan yang diwajibkan.

**Bacaan 4.1**


Setelah membaca Bacaan 4.1, anda telah mengetahui latar belakang setiap penawar program PPL terutamanya dari segi kelebihan dan kekurangan setiap institusi berbanding dengan institusi yang lain. Selain daripada itu anda juga diterangkan mengenai konteks setiap institusi supaya jelas bagaimana pendidik PPL boleh menjalankan tanggungjawab mereka dengan berkesan berdasarkan keperluan institusi yang unik.

Sebagai contoh, Universiti Putra Malaysia menjalankan latihan untuk profesional melalui Pusat Perniagaan Universiti (*University Business Center*) dan Fakulti yang
terlibat. Pusat ini menerima permintaan daripada agensi atau badan profesional untuk merancang program latihan untuk kaitangan profesional mereka. Penyelaras akan dilantik untuk merancang latihan tersebut. Tenaga pengajar akan dilantik daripada pensyarah daripada fakulti yang bersesuaian dan latihan akan dilaksanakan samada di UPM, di pusat latihan agensi yang terlibat atau di tempat latihan luar seperti hotel dsb.

Aktiviti 4.1

Jawab soalan berikut untuk mengetahui pengetahuan anda berkaitan dengan jenis institusi pengenjur program PPL.

Namaikan lima (5) institusi yang menawarkan program PPL di Malaysia:

Institusi Latihan Kerajaan
1. ..............................................................
2. ..............................................................
3. ..............................................................
4. ..............................................................
5. ..............................................................

Institusi Latihan Swasta
1. ..............................................................
2. ..............................................................
3. ..............................................................
4. ..............................................................
5. ..............................................................

Persatuan Profesional
1. ..............................................................
2. ..............................................................
3. ..............................................................
4. ..............................................................
5. ..............................................................

Pertubuhan Bukan Kerajaan (NGO)
1. ..............................................................
2. ..............................................................
3. ..............................................................
4. ..............................................................
5. ..............................................................
Tajuk 2: Kerjasama Di antara Institusi Penganjur


Perkaitan di antara berbagai institusi penawar PPL telah banyak dibincangkan. Terdapat penulis yang menyokong kerjasama, namun begitu tidak kurang juga penulis yang lebih memihak kepada persaingan dan monopoli. Mengikut Cervero (1988) terdapat beberapa bentuk perkaitan di antara penawar PPL iaitu: 1) monopoli, 2) setara, 3) persaingan, 4) kerjasama terhad (cooperation), 5) penyelarasan, dan 6) kerjasama menyeluruh (collaboration).

Bacaan 4.2

Kesimpulannya, perhubungan dan jaringan yang mantap di antara organisasi penawar program PPL boleh meningkatkan lagi keberkesanan latihan di mana ia akan menghasilkan profesion yang lebih berkesan untuk kemajuan masyarakat dan negara.

### Aktiviti 4.2

Nyatakan mengapa institusi penawar program latihan untuk profesional perlu mewujudkan perhubungan di antara mereka? Tidak berkesankah sekiranya masing-masing menjalankan program mereka tanpa menghiraukan apa yang dilaksanakan oleh institusi penawar yang lain?
UNIT 5: PEMBENTUKAN PROGRAM PENDIDIKAN PROFESIONAL LANJUTAN

Pendahuluan Unit 5

Salah satu daripada aktiviti utama dalam PPL adalah merancang, melaksana dan menilai program latihan. Perancangan program latihan untuk profesional perlu mengambil kira banyak perkara di mana ia banyak bergantung kepada model yang dipilih atau gabungan model-model. Sebagai panduan perancangan program PPL perlulah memahami setiap kelebihan dan kekurangan model yang terdapat di dalam literatur supaya pemilihan model yang akan digunakan sesuai dengan konteks organisasi. Terdapat berbagai model di dalam literatur, walau bagaimanapun Unit 5 akan menerangkan hanya enam model iaitu Model Am Pennington dan Green, Model Triple-Mode Houle, Model Practice-Audit, Model Update, Competence dan Performance Nowlen.

Namun begitu kajian-kajian yang telah dijalankan menunjukkan bahawa terdapat perbezaan di antara model yang disyorkan di dalam literatur dengan amalan perencangan oleh pengamal. Kajian yang dilakukan oleh Pennington dan Green (1976) menunjukkan keperluan latihan, penentuan objektif, dan penilaian yang komprehensif tidak dilakukan. Selain daripada itu prinsip-prinsip dalam perancangan pengajaran juga tidak dikuti dengan sepenuhnya.

Setelah selesai mengikut Unit 5 pelajar akan dapat mengetahui asas penting setiap model dan dapat menerangkan persamaan dan perbezaan setiap model. Unit ini dibahagikan kepada empat tajuk ia itu Model Am Pennington dan Green, Model Triple-Mode Houle, Model Practice-Audit, dan Model Update, Competence dan Performance Nowlen.
**Tajuk 1: Model Am Pennington dan Green**


Mengikut Pennington dan Green, proses perancangan program adalah aktiviti membuat keputusan di dalam konteks pengurusan atau pentadbiran yang tertumpu kepada enam himpunan aktiviti seperti Rajah 1 di bawah ini. Himpunan atau kumpulan aktiviti ada di antaranya bertindih di antara satu sama lain dan kesemua kumpulan aktiviti berkait secara langsung atau tidak dengan kumpulan aktiviti yang utama iaitu Mencetus Idea.

Himpunan aktiviti yang pertama (Mencetus Idea), tercetus daripada beberapa punca seperti analisis keperluan latihan yang dibuat secara

1. Mencetus Idea
2. Menguji Idea
3. Membuat Komitmen
4. Merancang Program
5. Mengajar Peserta
6. Menilai Impak

52
Rajah 1: Model Am Perancangan Program

formal, permintaan daripada klien, kewujudan sumber kewangan untuk latihan, kehendak polisi atau mandat yang telah ditetapkan, dan cadangan yang dikemukakan oleh kakitangan akademik. Setelah idea untuk menjalankan latihan tercetus himpunan aktiviti yang kedua pula ialah Menguji Idea.

Menguji Idea terdiri daripada beberapa aktiviti seperti mendapatkan pandangan pengamal profesional terhadap minat dalam idea yang dicetuskan, mendapatkan pandangan komuniti di universiti untuk mengetahui sumber yang boleh digunakan, membuat sorotan literatur, mendapatkan maklumat mengenai minat institusi terhadap idea, kumpulan perancang latihan dibentuk, analisis pasaran terhadap program dijalankan, dan analisis keperluan yang lebih berstruktur dijalankan. Namun begitu tidak semua perancang menjalankan aktiviti seperti diatas.

Himpunan aktiviti ke tiga pula ia lah Membuat Komitmen. Aktiviti ini terdiri daripada membuat keputusan samada menggunakan tenaga pengajar daripada universiti atau daripada luar, pemilihan fasilitator, menentukan samada
membentuk kurikulum baru atau menggunakan yang sedia ada, mendapatkan maklumat asas peserta, dan memulakan kerja-kerja logistik seperti menentukan tempat latihan dan pengiklanan.

Himpunan aktiviti ke empat pula ialah Merancang Program yang menumpukan kepada rekabentuk program latihan yang bakal diadakan. Di antara aktiviti yang terlibat ialah menentukan objektif, menentukan kurikulum latihan, mengumpul dan membentuk bahan pengajaran, dan menentukan kaedah pengajaran.


Himpunan aktiviti yang terakhir atau yang keenam ialah Menilai Impak. Di antara aktiviti yang dijalankan termasuklah menentukan kaedah penentuan kejayaan program latihan, menentukan apa yang hendak dinilai, membentuk instrument penilaian, menentukan siapa yang akan menggunakan hasil penilaian, mentadbir aktiviti penilaian, dan menggunakan hasil penilaian.

**Tajuk 2: Model **Triple-Mode** Houle**

Model ini berasaskan daripada sintesis beberapa model dalam bidang pendidikan profesional perubatan. Houle berpendapat bahawa proses perancangan itu sendiri adalah satu proses pendidikan yang menyeluruh di mana tiga corak penglibatan sepatutnya berlaku iaitu pengajaran, pencarian, dan pengukuhan.
Proses perancangan program latihan yang disyorkan oleh Houle adalah satu proses penglibatan yang menyeluruh yang terdiri daripada 10 langkah iaitu:

2. Membentuk satu pencapaian yang sempurna (ideal) berasaskan daripada standard amalan yang telah diterima.
3. Menentukan pencapaian minima bagi standard amalan yang telah dipilih.
4. Memastikan setiap anggota yang terlibat dalam perancangan bersetuju dengan ketiga-tiga langkah di atas yang telah dijalankan.
5. Menentukan prestasi (performance) semasa staff berasaskan standard amalan yang telah diterima.
6. Prestasi semasa dibandingkan dengan prestasi sepantuknya dan prestasi yang sempurna (ideal) untuk menentukan jurang perbezaan yang menjadi masalah prestasi. Dengan ini sebab mengapa jurang itu berlaku dapat dikenalpasti.
7. Mereka bentuk rancangan pembelajaran dengan melibatkan proses pengajaran.
8. Rancangan pengajaran ini dilaksanakan dengan mengambilkira pengubahsuai yang mungkin berlaku (flexible).
9. Selepas pengajaran dijalankan, prestasi yang baru akan diukur dan dibandingkan dengan standard amalan prestasi yang telah diterima untuk melihat perubahan yang positif.
10. Hasil daripada penilaian di dalam langkah ke 9, rancangan untuk memperbaiki program akan dilakukan.

Dengan mengikut proses perancangan program ini daripada langkah 1 hingga 6, profesional dengan sendirinya telah melibatkan diri dengan dua aktiviti pendidikan iaitu pencarian dan pengukuhan. Perancang akan mempelajari
mengenai prestasi mereka dan dengan tidak secara langsung telah memulakan langkah untuk meningkatkan prestasi. Untuk perubahan yang lebih sistematik, perancangan untuk pengajaran akan dilakukan dimana langkah 7 dan seterusnya perlu dijalankan.

Model Houle adalah Model Klasikal di mana ia berbentuk preskriptif dan selari dengan model yang disyorkan oleh Tyler. Langkah 1 hingga 6 adalah cara yang terperinci untuk menentukan keperluan penerima menakala langkah 7 dan 8 adalah proses penentuan objektif, menentukan dan mengatur pengalaman pembelajaran. Langkah 9 dan 10 pula adalah langkah menilai pencapaian objektif.

**Tajuk 3: Model Practice Audit**


Terdapat tujuh fasa dalam pendekatan ini yang melalui proses berikut:

1. Satu jawatankuasa perancang dibentuk yang terdiri daripada 6 hingga 10 anggota yang mewakili (i) jabatan akademik yang berkaitan daripada universiti, (ii) persatuan profesional di peringkat negeri atau nasional, dan (iii) agensi kerajaan yang mengawal profesi tersebut.
2. Membentuk senarai amalan tugas dan tanggungjawab profesi
yang terdiri daripada tugas utama yang umum, tugas khusus, dan
tugas harian. Amalan tugas dan tanggungjawab Ini akan disahkan
oleh pengamal profesi tersebut.
3. Membentuk standard tahap prestasi yang diterima atau tidak
diterima, serta kaedah, dan instrumen untuk mengukur prestasi.
Pembentukan ini dibuat secara simulas.
4. Menjalankan aktiviti *practice audit* di mana kira-kira 40 hingga 50
pengamal profesi dikumpulkan untuk berbincang mengenai
tahap prestasi yang telah dibuat di dalam fasa 2.
5. Membandingkan tahap prestasi yang diamalkan oleh profesional
dengan standard yang dibentuk di fasa 3. Gap atau jurang yang
ditemui akan menjadi asas kepada program pendidikan lanjutan.
6. Program PPL digubal untuk mengatasi kekurangan yang ditemui
di dalam fasa 5.
7. Penilaian program PPL dibuat melalui borang soalselidik yang
akan dihantar kepada peserta selepas enam bulan untuk
mengetahui bagaimana pembelajaran yang diterima diamalkan di
tempat kerja.

**Bacaan 5.1**

education for professionals. San Francisco: Jossey-Bass
Tajuk 4: Model Nowlen: Update, Competence dan Performance


![Diagram](image-url)

Rajah 2: Model Update
Model Competence (Rajah 3) selain daripada mempunyai unsur-unsur yang terdapat dalam Model Update juga memberi tumpuan yang lebih kepada apakah tugas dan tanggungjawab yang sebenarnya dilakukan oleh profesional di tempat kerja. Mengikut Nowlen apa yang diperlukan ialah seorang profesional yang berketramipilan (competence) untuk menjalankan tugas dan tanggungjawab mereka dengan berkesan. Profesional yang berketramipilan bukan sahaja mempunyai pengetahuan dan kemahiran yang terkini tetapi juga seorang yang mempunyai kemampuan, kesesuaian, dan kebolehan. Model Competence merangkumi unsur-unsur Model Update ditambah dengan unsur kemahiran berfikiran kritis, persediaan peranan baru, dan perhubungan manusia gunaan. Namun begitu model ini banyak menumpukan kepada ketrampilan individu profesional tanpa mengambil kira kesan dan sumberan faktor-faktor lain di dalam organisasi. Kekurangan ini menyebabkan Nowlen membentuk satu lagi model yang dinamakan Model Performance.

Mengulangi dan memperkembangkan
Pengetahuan dan kemahiran

Kemahiran berfikir secara peranan Kritikal

ANALISIS FUNGSI
TUGAS

Persediaan baru

Perhubungan manusia gunaan

Rajah 3: Model Competence
Model *Performance* (Rajah 4) yang dicadangkan oleh Nowlen mengambilkira sifat-sifat individu dan kesan-kesan budaya organisasi di dalam merancang program PPL. *Performance* tidak boleh dinilai dengan hanya mengkaji hasil kerja seseorang profesional. Unsur-unsur Model *Performance* termasuklah kemahiran hidup, pengaruh alam sekitar dan budaya amalan, keperluan mengemaskini, persediaan peranan baru, perhubungan manusia gunaan, kemahiran berfikir secara kritikal, kemahiran belajar individu dan organisasi, dan kesinambungan di antara pembangunan diri dan organisasi.

![Diagram](image.png)

*Rajah 4: Model Performance*
Performance atau ketrampilan seseorang profesional bukan hanya bergantung kepada individu tersebut sahaja tetapi perlu mengambil kira dinamik di tempat kerja. Ketentuan ketrampilan bergantung kepada hasil ketrampilan rakan, kumpulan, dan institusi. Nowlen mencadangkan bahawa penawar program PPL perlulah mengwujudkan 'perhubungan pembelajaran' dengan budaya tempat kerja dan persatuan profesional.

Untuk merancang program PPL mengikut Model Performance, Nowlen menggunakan langkah perancangan seperti yang disyorkan oleh Houle dengan membuat lapan langkah keputusan.

**Bacaan 5.2**


**Aktiviti 5.1**

Setelah mengetahui kesemua model perancangan program PPL yang dikemukakan oleh beberapa penulis, cuba nyatakan persamaan dan perbezaan yang terdapat di antara model-model tersebut.
UNIT 6: PENILAIAN PROGRAM LATIHAN PROFESIONAL

Rajah 2: Model Update

Pendahuluan Unit 6

Penilaian merupakan satu proses yang penting di dalam setiap pendekatan perancangan program latihan. Aktiviti ini sentiasa dilakukan di akhir setiap program latihan yang dijalankan. Namun begitu kajian menunjukkan penilaian hanya dijalankan diperingkat minimal. Walaupun ia dilaksanakan dengan formal, tetapi tidak sistematis dan komprehensif. Terdapat berbagai sebab mengapa penilaian yang sempurna tidak dilaksanakan di antaranya ialah kekurangan sumber samada kepakaran, kakitangan, masa, dan kewangan; penilaian tidak dianggap penting oleh pihak pengurus; amalan penilaian tradisi; dan tujuan program latihan yang hanya memberi perkhidmatan.

Penilaian latihan yang biasa dijalankan oleh pengangur latihan adalah yang dinamakan 'smiling sheet' atau penilaian reaksi selepas tamat latihan. Penilaian ini bertujuan untuk mendapatkan pandangan peserta terhadap variabel latihan seperti persepsi mereka mengenai tempat tinggal, makan minum, pengurusan latihan, pengajaran, pencapaian objektif latihan, dan cadangan untuk memperbaiki latihan di masa hadapan. Walaubagaimanapun, pendekatan penilaian ini tidak dapat mengukur dengan sebenarnya pembelajaran, perubahan ditempat kerja dan impak latihan.
Jestru itu isu yang penting di dalam penilaian latihan adalah bagaimana kaedah yang paling sesuai dapat digunakan untuk membuat penilaian latihan dengan mengambil kira kesemua faktor yang membuatkan penilaian tidak dapat dijalankan seperti yang disyorkan oleh literatur. Terdapat beberapa model penilaian yang mengambil kira faktor di atas dan ianya boleh dicuba untuk menilai program PPL.

Unit 6 bertujuan untuk mendedahkan pelajar kepada konsep penilaian latihan profesional disamping itu mencadangkan beberapa model yang sesuai untuk diamalkan. Unit ini terdiri daripada tiga tajuk iaitu Mengapa Penilaian Penting, Model Penilaian dan Model Penilaian Cervero.

**Tajuk 1: Mengapa Penilaian Penting**

Penilaian latihan ialah satu proses sistematis untuk menentukan nilai *(worth)* sesuatu program latihan dengan mengukur perubahan yang dirasai oleh peserta dan organisasi samada dari segi kepuasan, pembelajaran, tingkahlaku, dan impak. Oleh yang demikian tujuan penilaian latihan adalah untuk:

1. Membuktikan pentingnya latihan yang berkesan
2. Memperbaiki latihan yang akan datang
3. Membuktikan penggunaan sumber seperti wang, tenaga, masa, dan fizikal digunakan dengan berfaedah
4. Mengenalpasti kekuatan dan kelemahan perancangan dan perlaksanaan sesuatu program latihan
5. Menyediakan maklumat secara telus untuk makluman pihak yang terlibat *(stakeholders)* seperti penganjur, perancang, fasilitator, peserta, dan organisasi bagi tujuan membuat keputusan tertentu
Bagi program PPL, penilaian bertambah penting disebabkan latihan untuk membangunkan sesuatu profesion memerlukan pelaburan sumber yang tinggi untuk memastikan kecemerlangan profesion. Mengikut Houle (1980), penilaian latihan profesional bertujuan untuk mengukur perubahan yang disebabkan oleh program PPL, untuk menentukan kualiti aktiviti pembelajaran, dan untuk menjangkakan prestasi sesuatu profesion. Oleh yang demikian penilaian latihan profesional perluah dirancang bersama-sama dengan perancangan program latihan itu sendiri. Dengan ini maklumat yang penting dapat dikumpul semasa perancangan dilakukan.

Pendekatan atau kaedah penilaian yang digunakan bergantung kepada model yang diikuti. Walau bagaimanapun kaedah ini merupakan satu *continuum* yang terdiri daripada yang paling mudah (*ad-hoc*) hingga kepada yang paling saintifik dengan menggunakan kaedah penyelidikan yang sistematik. Penilaian perluah mematuhi kaedah yang betul supaya hasilnya boleh dipercayai dan digunakan bagi tujuan-tujuan tertentu.

Siapakah yang paling sesuai menjalankan penilaian latihan? Persoalan ini bergantung kepada betapa pentingnya hasil penilaian tersebut hendak digunakan. Bagi tujuan pemasaran program latihan atau untuk menunjukkan program ini sangat berkesan dan tidak *bias*, selalunya penilaian dikontrakkan kepada penilai luar. Selain daripada itu sekrianya unit atau baahagian yang menjalankan latihan tidak mempunyai kepakaran dalam, penilai luar juga akan digunakan. Bagi program latihan yang sentiasa dijalankan dan mempunyai kepakaran dalam, penilai dalam akan digunakan. Penilai dalam mungkin terdiri daripada orang yang merancang atau melaksanakan program latihan tersebut. Kekurangan yang wujud dengan menggunakan penilai dalam adalah ianya terbuka kepada *bias* berbanding dengan penggunaan penilai luar.
Tajuk 2: Model Penilaian

Terdapat lebih daripada lima puluh model latihan yang dicadangkan di dalam literatur. Hampir kesemua model ini mencadangkan penilaian yang formal, sistematik, dan komprehensif. Model penilaian adalah kaedah yang dicadangkan untuk melaksanakan sistem penilaian. Ia mengandungi cara bagaimana sistem itu dapat dijalankan.

Penilaian Formal. Penilaian latihan menjadi satu daripada langkah yang dinyatakan di dalam perencanaan sesuatu program latihan. Ia sentiasa dilaksanakan bersama-sama dengan perlaksanaan latihan. Dengan adanya penilaian formal segala persediaan terutamanya peruntukan kewangan, kepakaran, dan masa dapat diagihkan dengan lebih awal.


Penilaian Komprehensif. Ini pula bermaksud bahawa penilaian dijalankan sepanjang proses perancangan program dijalankan. Ianya dijalankan semasa merancang, melaksana, dan selepas program latihan untuk menjamin latihan dilaksanakan dengan betul daripada mula. Oleh kerana tujuan utama penilaian ialah untuk memperbaiki program yang akan datang maka setiap proses perancangan dan perlaksanaan perlu dinilai supaya kebaikan dan kelemahan
program dapat diketahui pasti untuk dimantapkan atau diubah suai secepat mungkin.

Dalam bidang latihan, penilaian selalu diikuti walaupun ia dianggap sangat mustahak oleh perancang program latihan. Mengikut Stakes (1981) penilaian latihan hanya tertiup kepada penentuan samada objektif latihan tercapai atau tidak. Steele (1989) mencadangkan penilaian latihan dibuat untuk:

1. Menentukan samada latihan telah dijalankan seperti yang dirancang dan perubahan apakah yang perlu diambil kira untuk menilai latihan tersebut.
2. Menentukan samada stakeholders bersetuju dengan tujuan latihan dan penilaian.
3. Menentukan samada rekabentuk latihan boleh menghasilkan perubahan yang dikehendaki.
4. Menentukan samada faedah daripada penemuan penilaian mencukupi dan berharga berbanding dengan kos penilaian tersebut.

Selain daripada itu kesemua aspek perancangan program latihan perlu diambil kira supaya hasil penilaian dapat difahami dengan sepenuhnya. Steele juga mencadangkan supaya kesemua hasil latihan samada dijangka atau tidak dijangka dan positif atau negatif perluah diambil kira untuk menentukan samada sesuatu program itu berkesan atau tidak.


1. Membentuk soalan penilaian yang perlu dijawab (membentuk kriteria penilaian).
2. Mengumpul maklumat yang sesuai untuk menjawab soalan di atas.
3. Menganalisis dan mentafsirkan data sebagai jawapan kepada persoalan penilaian yang telah dibentuk.
4. Memperbaiki dan mengubahsuai latihan berasaskan penemuan yang diperolehi.

**Tajuk 3: Model Penilaian Cervero**


Cervero mencadangkan tujuh kategori persoalan yang berkait dengan kriteria berikut:

1. Rekabentuk dan perlaksanaan program latihan
2. Penglibatan peserta
3. Kepuasan peserta
4. Pengetahuan, kemahiran, dan sikap peserta
5. Penggunaan pembelajaran selepas program latihan
6. Impak daripada penggunaan pembelajaran
7. Ciri-ciri program yang berkait dengan hasil latihan

Maklumat yang diperolehi daripada setiap kategori tidak berkait dengan kategori yang lain. Sebagai contoh sekitarannya peserta banyak menglibatkan diri dalam aktiviti latihan tidak semestinya menjamin kepenuhan peserta. Di antara
persoalan yang dikemukakan semasa penilaian dijalankan mengikut model ini adalah seperti berikut:

**Rekabentuk dan perlaksanaan program latihan.** Soalan-soalan penilaian yang dikemukakan di dalam kategori ini adalah untuk melihat apa yang telah dirancangkan, apa yang dilaksanakan, dan adakah terdapat persamaan atau perbezaan di antara perancangan dan perlaksanaan. Di antara soalan yang ditanya adalah yang berkaitan dengan kaedah pengajaran dan pembelajaran dan keadaan fizikal tempat latihan. Maklumat boleh didapati daripada peserta latihan, fasilitator, dan perancang program melalui beberapa kaedah seperti pemerhatian, temubual dan borang soalselidik. Sekiranya terdapat jurang di antara apa yang dirancang dengan apa yang dilaksanakan bersama-sama dengan sebab mengapa ianya berlaku, maka penemuan ini akan dapat membantu untuk memastikan program yang akan datang akan dapat berjalan dengan lebih lancar.

**Penglibatan peserta.** Persoalan berkaitan dengan penglibatan peserta penting untuk menunjukkan samada program latihan telah dirancang dengan betul atau tidak untuk memastikan peserta hadir dan terlibat di dalam aktiviti yang telah dirancang. Bagi latihan yang tidak menarik, bilangan peserta yang hadir keseluruhannya latihan mungkin tidak banyak. Selain daripada itu peserta yang bermimpi akan melibatkan diri dalam aktiviti pengajaran dan pembelajaran yang dilakukan. Maklumat berkaitan dengan kriteria ini boleh didapati melalui dokumen kedatangan, pemerhatian, temubual, dan borang soalselidik.

**Kepuasan peserta.** Persoalan mengenai kepuasan peserta terhadap ciri-ciri program adalah penting bukan sahaja untuk menentukan keberkesanan tetapi juga untuk melihat kecenderungan profesional dalam belajar. Di antara perkara penting yang menjadi persoalan kepuasan peserta ialah kandungan latihan (kurikulum), proses pendidikan (kaedah mengajar), fasilitator (kecekapan),
kemudahan fizikal (bilik latihan dan peralatan), dan kos latihan. Kaedah yang digunakan untuk mendapat jawapan kepada persoalan mengenai kepuasan peserta biasanya dilakukan dengan temubual atau borang soalselidik sebaik sahaja tamat latihan.

Pengetahuan, kemahiran, dan sikap peserta. Pada kebiasaannya perubahan kepada pengetahuan, kemahiran, atau sikap adalah menjadi objektif sesuatu program latihan. Oleh yang demikian ialah perlulah dinilai untuk memastikan pencapaian objektif. Namun begitu bagi objektif yang tidak khusus pengukuran pembelajaran adalah sukar untuk dijalankan. Oleh yang demikian kriteria perubahan ini hanya akan berkesan apabila program latihan mempunyai objektif yang khusus dan boleh diukur. Untuk menjawab samada terdapat perubahan pembelajaran, kaedah yang paling berkesan ialah dengan menggunakan ujian pensel-dan-kertas yang dibuat sebelum dan sesudah program dijalankan. Bagi peserta profesional ujian yang dijalankan untuk mengukur pembelajaran perlulah dibuat dengan terperci. Ujian ini mungkin dibuat dengan kaedah yang benar-benar dapat mencungkil perubahan yang berlaku.

Penggunaan pembelajaran selepas program latihan. Kriteria ini bermaksud setelah menjalani latihan yang sesuai perubahan yang diperolehi dari latihan boleh digunakan di tempat kerja. Oleh yang demikian maklumat bagi menjawab persoalan untuk kriteria ini perlu dibuat setelah pembelajaran diamalkan semasa bekerja. Ini boleh dilakukan dengan menggunakan kaedah pemerhatian, temubual dengan penyelia, dan laporan sendiri oleh peserta kursus atau gabungan kaedah. Biasanya ia dilakukan secara berterusan setiap tiga bulan atau enam bulan selama setahun. Walaubagaimanapun terdapat beberapa faktor lain yang mungkin menghalang kepada penggunaan pembelajaran di tempat kerja oleh peserta latihan seperti tiada peluang untuk penggunaan pembelajaran yang disebabkan bekerja di tempat yang tidak sesuai, tiada
peralatan, atau halangan daripada penyelia. Selain daripada itu terdapat juga perubahan yang tidak boleh diukur secara objektif akan membuatkan pengamalan pembelajaran di tempat kerja tidak kelihatan.

**Impak daripada penggunaan pembelajaran.** Persoalan penilaian bagi kategori ini adalah merujuk kepada hasil daripada pengamalan pembelajaran peserta di tempat kerja. Ia berbentuk tidak langsung di mana ianya bertaku setelah penggunaan perubahan berlaku. Sebagai contoh sekiranya jururawat mengamalkan kaedah penjagaan pesakit dengan lebih berkesan ini akan membuatkan pesakit cepat sembuh dan dibenarkan balik kerumah (discharge) dengan lebih awal daripada dahulu. Untuk memastikan discharge disebabkan oleh latihan kepada jururawat yang telah memperbaiki prestasi mereka, faktor-faktor lain perlulah dikawal. Ini dapat dilakukan dengan membuat perbandingan di antara prestasi jururawat yang menghadiri latihan dengan yang tidak menghadiri latihan.

**Ciri-ciri program yang berkait dengan hasil latihan.** Tujuan penilaian untuk mengenalpasti ciri-ciri program yang berhubung secara positive dengan hasil latihan adalah supaya mendapat panduan tentang ciri-ciri yang perlu ditekankan untuk program yang akan datang. Ini disebabkan oleh ciri-ciri yang telah dikenalpasti telah terbukti memberi kesan yang baik terhadap hasil latihan oleh yang demikian ianya perlulah dimantapkan. Selain daripada itu persoalan penilaian di dalam kriteria ini juga dapat mengenalpasti ciri-ciri latihan yang memberikan kesan yang negative. Kaedah yang berkesan untuk mendapatkan maklumat untuk menjawab persoalan ini termasuklah dengan menggunakan temubual dengan peserta, jurulatih, dan penyelia; borang soalsoalan yang diisi oleh peserta; dan pemerhatian.

Mengikut penyesuaian amalan penilaian yang sebenarnya mungkin kesemua tujuh kriteria soalan penilaian tidak dapat digunakan. Oleh yang demikian...
Cervero mencadangkan supaya penilai terlebih dahulu mendapatkan jawapan kepada persoalan berikut supaya rancangan penilaian yang dibuat benar-benar praktikal dan berkesan untuk keperluan mereka:

1. Apakah tujuan latihan yang sebenarnya?
2. Apakah tujuan penilaian dan siapa yang memerlukannya?
3. Apakah halangan praktikal dan etikal yang berkait dengan penilaian latihan?
4. Apakah sumber yang ada untuk menjalankan penilian?
5. Apakah nilai dan minat penilai yang memberi kesan kepada penilaian?

**Bacaan 6.1**

UNIT 7: KEKERKESANAN PENDIDIKAN PROFESIONAL LANJUTAN

Pendahuluan Unit 7

Keberkesanan program PPL bergantung kepada beberapa perkara penting yang telah dibincangkan di dalam Modul ini seperti konsep profesional, bagaimana profesional belajar dan membentuk kepakaran, pengajur program PPL, pembentukan program PPL, dan penilaian program PPL. Selain daripada itu, isu berkaitan dengan etika, walaupun tidak dibincangkan dengan terperinci di dalam Modul ini juga adalah penting untuk membentuk program yang berkesan. Perancang dan pendidik program PPL perluah mengintegrasikan perkara-perkara yang mempengaruhi kekerkesanan semasa merancang, melaksana, dan menilai program mereka.

Setelah melalui Unit ini pelajar akan dapat mengenalpasti beberapa isu penting yang akan digunakan untuk menilai kekerkesanan program PPL. Selain daripada itu pelajar juga akan memahami bagaimana untuk mengesinisis unsur-unsur yang membentuk kekerkesanan program PPL.

Unit 7 terdiri daripada tiga tajuk ia itu Pendidik Program PPL Sebagai Profesional, Keberkesanan Amalan PPL, dan Meningkatkan Prestasi Amalan PPL.
**Tajuk 1: Pendidik Program PPL Sebagai Profesional**

Pendidik program PPL terdiri daripada perancang dan fasilitator kepada program latihan untuk profesional. Mereka bertugas untuk membentuk, mengajar, dan menilai program PPL. Kerja ini adalah suatu profesi di mana ia memerlukan kepakaran tertentu yang diperolehi daripada latihan yang terperinci.

Sebagai seorang profesional, pendidik program PPL perlu mempunyai pegangan dan kepercayaan tertentu terhadap konsep profesi. Pandangan yang paling sesuai adalah mengikut Pendekatan Kritikal dimana pendidik program PPL perlu mengetahui bahawa profesional bekerja di dalam suasana yang tidak menentu di mana sesuatu masalah yang dihadapi tidak boleh diselesaikan dengan cekap dan berkesan dengan hanya mengaplikasikan prinsip dan pengetahuan yang ada. Profesional perlu secara kritikal sedar bahawa mereka terpaksa membuat pilihan mengenai apakah masalah yang hendak diselesaikan dan bagaimanakah cara untuk menyelesaikannya. Ini disebabkan masalah yang dihadapi oleh profesional adalah bersifat unik, tidak menentu dan mempunyai konflik nilai.

Seperti profesional lain, pendidik program PPL perlu mengetahui bahawa mereka juga perlu membuat pilihan masalah mana yang hendak diselesaikan dan bagaimana untuk menyelesaikannya. Sebelum itu pendidik program PPL perluah mengetahui perkara yang menjadi asas kepada amalan PPL.

**Tajuk 2: Keberkesanan Program PPL**

Amanah PPL bergantung kepada tiga asas utama yang berkait di antara satu sama lain yang dikenali sebagai asas etika, kontekstual, dan epistemologi.
Pendidik program PPL perluah memahami asas ini secara bersepadu supaya amalan mereka cekap dan berkesan.

**Asas Etika.** Pendidik program PPL berusaha untuk mengubah peserta yang mengikuti program mereka kesuatu keadaan tertentu yang dianggap sempurna dan sepupunya. Ini merupakan suatu kepercayaan yang berasaskan kepada etika yang telah dipengaruh dengan kuat oleh pendidik program PPL. Oleh yang demikian amalan mereka perlulah diukur berasaskan kepada etika tersebut. Etika amalan ini jarang dibincangkan oleh pendidik program PPL kerana mereka mengandaikan terdapat suatu persetujuan yang telah diterima sekiranya mereka berkerja di dalam suatu organisasi dan situasi yang sama. Walau bagaimanapun, etika amalan berbeza mengikut organisasi dan situasi yang berlainan. Sebagai contoh pendidik program PPL terpaksa menjawab soalan etika seperti apakah ilmu yang perlu disampaikan kepada peserta mereka? Siapa yang menentukan ilmu apa yang perlu diajarkan? Sekiranya terdapat permintaan untuk merancang suatu latihan kepada jurutera dengan tujuan menambahkan ilmu mereka untuk membina senjata nuklear. Sekiranya organisasi dan pendidik program PPL berserta dengan masyarakat secara umum percaya bahawa membina senjata nuklear adalah sesuatu yang diperlukan, maka keberkesanan amalan adalah apabila senjata nuklear dapat dibina oleh kumpulan jurutera tersebut. Tetapi sekiranya terdapat penentangan daripada masyarakat atau organisasi atau rakan pendidik program PPL tersebut terhadap pembinaan senjata nuklear, maka latihan untuk membina senjata nuklear tersebut adalah tidak berkesan. Ini disebabkan ia tidak sesuai dengan satu set etika yang bercanggah. Oleh yang demikian keberkesanan amalan PPL adalah bergantung kepada satu set etika yang diterima oleh semua pihak.

**Asas Kontekstual.** Program PPL dirancang, dilaksana, dan dinilai mengikut keadaan di mana ianya berada iaitu dalam sebuah organisasi dan situasi tertentu. Oleh yang demikian organisasi dan situasi ini perlulah diambil kira
apabila hendak menentukan keberkesanam amalan yang dijalankan. Tidak adil sekiranya keberkesanan amalan diukur dalam suatu keadaan yang sampuma walhal kita mengetahui bahawa organisasi dan situasi mempunyai kekurangan, keperluan, dan misi tertentu. Ini bermakna keberkesanam amalan PPL tidak hanya diukur daripada kesempurnaan perlaksanaan teknikal tetapi bergantung kepada kefahaman apa, mengapa, dan bila amalan tersebut dilaksanakan. Sebagai asas kontekstual, organisasi penawar program PPL memainkan peranan yang penting untuk menentukan samada amalan PPL berkesan atau tidak. Sebagai contoh, organisasi penawar kerajaan tidak mementingkan keuntungan daripada program latihan mereka. Oleh yang demikian pulangan kepada modal tidak menjadi ukuran keberkesanan berbanding dengan organisasi swasta yang mementingkan keuntungan. Mungkin satu set panduan boleh dibentuk untuk menentukan keberkesanan program PPL, namun begitu ia perlulah berasaskan kepada konteks di mana program itu ditawarkan. Pembentukan set panduan yang berasaskan kepada keberkesanan amalan semata-mata tanpa mengira keadaan di mana program itu ditawarkan adakah tidak berguna.

**Asas Epistemologi.** Epistemologi adalah satu bidang yang mengukur dan menjelaskan bagaimana sesuatu ilmu pengetahuan itu dibentuk oleh otak atau fikiran manusia. Dalam konteks keberkesanan amalan pendidik program PPL, epistemologinya adalah bagaimana pendidik PPL mengetahui apa dan bagaimana penggunaan ilmu yang diamalkan sehari-hari dalam melaksanakan tugas dan tanggungjawab mereka. Untuk berkesan pendidik program PPL perlu mengetahui dan menjadi pakar di dalam ilmu untuk merancang, melaksana, dan menilai program PPL. Seseorang pendidik program PPL tidak akan berkesan di dalam tugas sekiranya ia hanya boleh menerangkan bagaimana merancang, melaksana, dan menilai program PPL. Epistemologi yang lebih bermakna adalah apabila pendidik program PPL dapat menghubungkan apa yang mereka tahu dengan keputusan yang dibuat dalam keadaan yang unik, tidak menentu, dan berhadapan dengan konflik nilai. Mengikut Schon (1987), kemampuan untuk
membina semula keadaan yang unik, tidak menentu, dan berhadapan dengan konflik nilai tersebut adalah asas kepada amalan yang berkesan. Schon mensyorkan epistemologi yang dinamakan reflection-in-action. Reflection-in-action adalah proses bagaimana profesional membuat keputusan dengan menggunakan pengalaman lalu untuk menyelesaikan masalah yang dihadapi dengan lebih cekap dan berkesan. Epistemologi ini menerangkan bagaimana pendidik program PPL membuat keputusan di dalam membentuk dan menilai aktiviti pendidikan, meningkatkan penglibatan peserta dalam aktiviti tersebut, dan membentuk perhubungan antara organisasi untuk mengukuhkan lagi program PPL.

**Tajuk 3: Meningkatkan Prestasi Amalan PPL**

Secara ringkas, keberkesanan prestasi amalan PPL memerlukan pendidik program PPL membuat keputusan yang terbaik dalam konteks dan rangkakerja etika yang khusus. Oleh yang demikian untuk nilai samada amalan PPL berkesan ianya perlulah melihat penggunaan epistemologi reflection-in-action dalam konteks organisasi dan set etika yang tertentu.

Prestasi amalan PPL boleh ditingkatkan dengan empat cara ia itu:

1. Menilai kembali proses reflection-in-action yang telah dibuat.
   Dengan ini pendidik program PPL dengan sedar akan dapat menjelaskan apa yang telah mereka lakukan dalam menyelesaikan sesuatu masalah yang dihadapi.

   Pengetahuan teknikal yang diajar perluah melalui kaedah experiential seperti kajian kes, simulasi, dan main peranan supaya pengetahuan tersebut dapat menjadi sebahagian
daripada himpunan pengetahuan dan pengalaman pendidik program PPL.

3. Menambahkan kepakaran melalui pembelajaran informal di tempat kerja. Ini boleh dilakukan dengan menyelidik dan menggunakan ilmu yang wujud di tempat kerja yang mungkin selama ini tidak disedari.

4. Meningkatkan aktiviti penyelidikan oleh penyelidik PPL. Ini dapat dibuat dengan mengembangkan lagi unit atau jabatan PPL dengan mengwujud unit penyelidikan dan menggalakkan penyelidikan yang berkaitan dengan PPL. Selain daripada itu, galakan penyelidikan akademik juga boleh dilakukan kepada pelajar di institusi pengajian tinggi.

APENDIK
A ONE DAY SEMINAR ON CONTINUING PROFESSIONAL DEVELOPMENT IN A LEARNING ORGANIZATION: TOWARDS EFFECTIVE PRACTICE

September 6, 1995

Organized by:

INSTITUTE FOR DISTANCE EDUCATION AND LEARNING
PUSAT PENGEMBANGAN DAN PENDIDIKAN LANJUTAN
UNIVERSITI PERTANIAN MALAYSIA

IN COLLABORATION WITH

COLLEGE OF EDUCATION
UNIVERSITY OF GEORGIA, ATHENS, USA.
Continuing Professional Education: The Years Ahead for Malaysia
by
Dr. Azahari Ismail
En. Khairuddin Idris
Dr. Shamsuddin Ahmad

Introduction

The thought of doing something we consider as important today and finding it worthless tomorrow can be unnerving. What more if our practices may prove to be the mistakes of the future. To be held accountable and etched into the halls of infamy as the culprit of a disaster may be the ultimate reproach to a professional. In times of rapid development such as what Malaysia is currently experiencing, professionals are facing heavy demands for their expertise. Professionals are expected to perform in an environment that may be different from that they faced yesterday. They have to meet the challenges of a continuously changing world. These changes are more rapid, more complex, more turbulent, and more unpredictable than ever before (Lands, 1992). Words such as excellence, paradigm shift, peak performance, globalization, borderless, competitive, market driven and a few others are relentlessly uttered in the hallways of Malaysia Incorporated to the point of being meaningless cliché’s. However, the rapid changes and demands remain a nagging reality for professionals. Professionals need to stay on top of a situation. They must meet deadlines and fulfill quality and quantity standards. These demands underscore the need for continuous competency upgrading.

This paper will present the current and future challenges for the professionals. We believe that the only way a professional can remain competent is to continually learn. Thus this paper will discuss the issues in continuing professional education (CPE) and what CPE means to the practicing professional, the country and the world we live in.

Professionalism

It is difficult and perhaps even futile to distinguish between a professional and one that is not. No concrete agreements exists in the literature to describe a profession. The
debate on what is a profession stems back since 1915 (Cervero, 1988). In general there are three approaches found in the literature to identify a profession. These are the static, process and socio-economic approaches (Cervero, 1988). According to the static approach, an occupation must meet certain criteria in order to be considered as a professional. The criteria are: (1) involve intellectual operations, (2) derive their material from science, (3) involve definite and practical ends, (4) possess an educationally communicable technique, (5) tend to self-organization, and (6) be altruistic. This approach firmly divides professions with those which are not. The process approach will view all occupations as existing on a continuum of professionalization. The relevant question in this approach is how professionalized is an occupation. Occupations are dynamic in nature and it can be deprofessionalized. There is no clear-cut boundary that separate professions from other occupations.

It is deemed that professions must have a relationship with the society. Professionals are regarded as necessary to the smooth and orderly functioning of society. In return, society provides professionals with a relatively high status and money as rewards for their work. The socio-economic approach views that there is no such thing as an ideal profession and that no set of criteria is necessarily associated with it. The division are only regarded by the general public whether an occupation is a profession or not. The public see a profession as an honorific title. Therefore a profession is determined by a particular society at a given historical time. This approach also views professionalization as a process by which producers of special services constitute and control the market for their services. In another words, a professional must be adequately trained (credentials are given by an institute of higher learning and socialized to provide recognizable distinct services).

Bines and Watson (1992) underlined four important characteristics of professions and professional organization. These include: guaranteed competence where qualifications should reflect the ability to perform a task; licence when an institution or organization undertakes the accreditation of competence; independence pointing the self-regulating role of the professional organization in maintaining the standards and public accountability; and expectations of the society towards the skills of the professionals and its resulting rewards and status.
Labrero (unpublished) provides a more liberal concept of professionalism. He views the level of professionalism as an important distinguishing factor regardless of the occupation. A professional is regarded as one who has (1) authority, (2) capability, (3) responsibility in terms of the job or profession (see figure 1).

![Diagram showing the relationship between Authority, Professionalism, Capability, and Responsibility.]

*Figure 1: Professionalism*

These factors are interrelated to one another and form the foundation of a triangular pyramid. Professionalism is enhanced with the converging increment in the three factors. Thus it can be said, at the peak of professionalism a person can determine what needs to be done, can do it competently and is held accountable for what has been done. Similarly, one is not a professional when one of the aforesaid facets is missing.

Central to the idea of professionalism is the issue of competence. Prospective professionals are required to fulfill a certain level of pre-service training. This training is often undertaken by a learning institution (in cohort with a professional body) which determines the requisite of learning. Subsequently a professional body provides the accreditation required for a professional to practice. Practice is regulated through a code of ethics and the level of performance. To ensure quality in performance, a professional is expected to keep abreast of innovations in the field. It would not do for professional to practice on obsolete information or technology. This is especially true in times where knowledge may double over a seven year period (Apps, 1988). Furthermore, it is estimated
that half of what professionals learn in formal training will become obsolete in five years in some professions (Lindsay, et. al. 1974). It is also purported that this half-life of knowledge would probably be reduced to six months in view of the tremendous exponential growth of knowledge.

Continuous learning for the professional is closely related to the intellectual operations of a profession. In fulfilling the duties of a profession, the professional is revered in his or her ability to make learned judgements. A professional is seen as a leader who is able to manage his or her environment, especially in managing changes. A professional has to be visionary and be able to anticipate the challenges of the field. He or she is expected to be innovative and proactive in actions.

The information era we live in now has a direct and powerful consequence on the work of the professional. The amount, accessibility and speed of information compels the professional to be alert and action oriented. Quick and informed decisions is the name of the game. In a competitive environment, information can be a factor of survival. One who is able to retrieve and process information efficiently and effectively will progress. This situation underscores the importance of the information technology (IT). Computers and the networking afforded by existing information technology stimulates the flow of information. Networking enables professionals to readily communicate and exchange information. Kanter (1989) notes that an increase in peer networking in the current managerial environment. Managers derive internal powers through greater reliance on external relationships. In addition, networking was also identified as the activity most correlated to managerial success (Luthans, 1986). Through IT, professionals are able to determine the best course of action. Thus professionals are better able to maximize resources. In times where sustainable resource use manifests as the prevailing issue, professionals are looked upon as models of prudent resource consumers.

As models, professionals should embark upon a mission of developing others. This obligation is exemplified by the prophet Muhammad (PBUH) and the other messengers of god. As a service to the society, a professional should seek to develop not only those directly under his or her authority, but also the community at large. The professional must participate in the initiation and operation of issues for the common good. This service provides a meaningful existence of the professional.
Apart from taking a leadership position, a professional should also be a good disciple. Leadership means nothing if there are no followers. Being learned in nature, a professional knows the difference between facts and fallacies, good and bad, and the right thing to be done. A professional acknowledges what he or she believes is the truth and thus act accordingly. If others are better leaders, then a professional is prepared to follow.

In essence professionals are multi talented individuals who are able to adapt to changes. They are leaders as well as followers. They use their knowledge and skills for the benefit of the society. They are able to anticipate and determine what is good for mankind and the future existence of the human civilization. Thus the underlying issues is: How can one be a true professional?

Continuing Professional Education

We as a society are beginning to reap the harvest of a well planned national development programme. The correct focus on significant societal issues with an emphasis on human development has resulted in beneficial changes. Poverty has been reduced to 17.1 percent in 1990 from 49.3 percent in a period of 20 years (RRJP 2, 1991). Unemployment rate is at 3.7 percent in 1992 and forecasted to be at 2.8 percent in 1994 (Dept. of Statistics Malaysia, 1993). The Gross Domestic product has exceeded the targeted growth of 5.0 percent by 1.7 percent in the Fifth Malaysia Plan (Government of Malaysia RM6, 1991). Recent report has indicated a growth of above 9 percent against a projected 8.5 percent. Labor productivity per worker is projected to increase from RM 11,950.00 in 1990 to RM 14,660.00 in 1995. The increase is most significant in the manufacturing sector for the same time period i.e from RM 16,750.00 to RM 21,690.00 (Government of Malaysia RM 6, 1991).

The indicators of growth is indeed encouraging in almost all aspects of national development. The development of human resources will remain as an emphasis in Malaysia Second Long Term Plan (RRJP 2). Continued focus on manpower development and science and technology can be expected to spur the country’s development. Therefore education and learning will remain in the forefront of Vision 2020. Merriam and Cafarella (1991), point out that learning is affected by the nature of the society at any particular point in time. Thus a conducive learning environment exists in a vibrant society such as ours, where learning
is promoted. People in general do not have an excuse not to learn.

Among professionals it would thus seem that there is a tremendous opportunities to learn. The development of continuing education has increased dramatically. Although empirical data is unavailable as yet, most organizations have departments or units to deal with the training of their workforce. Workplace learning has become very important. Multinational companies in the electronic industries for example stipulates up to 48 hours of training per year for each worker as a requirement (excludes long term programmes leading to certification which is also made available). Workers are trained and retrained in order to keep up with new knowledge and skills. Training may also seek to develop more positive attitudes towards working for the organization. Training centers and privately owned training companies have also flourished in recent years. Various kinds of training programs ranging from a few hours of lecture or seminar to long term training programmes are available for learners.

For the professional, continuous learning determines the ability of the professional to perform in his or her profession. The professional undertakes the process to learn in order to improve himself or herself through a continuum of self-directed learning to structured training programmes. Continuing Professional Education (CPE) is believed to have a greater advantage over other educational modalities. Programmes are usually designed to enable the professionals to readily learn.

Although CPE overlaps with other educational practices, it has several distinguishing factors. For once, CPE is itself a field of professional practice (Cervero, 1988). Practitioners of CPE should not just follow trends of what works previously for other educational activities. The demands of the profession itself in a rapidly changing and unpredictable environment has bearings on the content and process of CPE. Moreover, the future may present different needs for clienteles of the professionals. The changing societal values, education and technology use may pose different problems that the professional needs to address. The changing environment therefore provides an interesting array of challenges for the professions. Most professions now embrace some form of CPE. However most professions still do not have accredited continuing education providers. The traditional view is that the CPE function must be organized by its own members. However, the emerging view is that people who are trained in continuing education are most appropriate for this
function.

A majority of CPE providers are usually members of the profession themselves. It is only recently that people with an academic background in training and human resource development are getting involved in CPE practice. These people see CPE as a viable venture. Perhaps this could be the reason for university graduate programs in Human Resource Development (HRD) have become so popular lately. Universiti Pertanian Malaysia's Masters and Doctoral programmes in HRD for example have received an influx of applications from prospective students. The HRD programme encompasses the development of life-long human potential. This differs from Human Resource Management which in general is restricted to the organization. Thus the HRD personnel would plan, implement, and evaluate programmes that is more holistic in nature. Programmes are designed to take into account the professional and his or her relationship to the organization, the community, the environment and also the relationship to God. The emphasis of these relationships provides professionals with a more meaningful work-self relationship. In addition, there is a need for CPE providers to connect the CPE activities to the university-level pre-education received by the profession. This will provide better continuity and integration of CPE.

The issues on CPE also centers around the question of what makes CPE practitioners effective. Perhaps this question can be answered by knowing how professionals learn? What motivates professionals to engage in continuing education? What theories and models underlie CPE programs? How does the institutional contexts of professional education shape its practice? (Cervero, 1988). In addition, CPE practitioners must disengage themselves from their assumptions. These assumptions may constitute their views and principles on what works now. However the changes in the environment may render these assumptions obsolete. Furthermore, CPE itself as a field is growing. New ideas and other innovations may present different challenges. Thus the CPE practitioner must be ready to continuously change their outlook and practices. CPE practitioners must be continually informed and have ample knowledge and skills in the discipline of CPE. As a field of practice, CPE is quite young. Most of the concepts used are borrowed from other disciplines or from the providers themselves. However, the future for CPE is bright and affords ample opportunities for practice.
Conclusion

We would like to end this paper by posing the following questions for further considerations in this Seminar.

1. Are prospective professionals adequately equipped to handle specific task?
2. What are the current standards of professionalism?
3. What is the underlying philosophy of CPE?
4. Who should conduct CPE - plan, implement, and evaluate?
5. How to integrate the learning?
6. How to maximize learning?
7. How to measure professionalism - product, skill, knowledge?
8. Is professionalism a function or a process?
9. Who are the learners?
10. What are the access to learning?
11. How do providers think about learners?
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An Overview of
Continuing Education for the Professions
in the United States of America

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Introduction

I am honored to be asked to present a paper at this important conference on continuing education. I wish I could have been here to speak with you in person. However, I am well represented by my colleagues from the University of Georgia. I am looking forward to future discussions about the specific ways of organizing continuing education in Malaysia.

My purpose today is to present some information about the systems of continuing education in the USA. My talk is divided into three major parts. First, I will provide some brief historical and contextual background for understanding where continuing education fits in the larger scheme of things. Second, I will describe five major characteristics of the systems of continuing education in my country. Third, I will end with a summary and some concluding observations about the long-term future of continuing education in the USA.

Some Background for Understanding Continuing Education in the USA

First, I would like to make a distinction between the terms adult education and continuing education. Adult education is the more general term and is used to describe all forms of education undertaken by all adults, including literacy education, workplace education, and education for leisure pursuits. An important component of adult education is continuing education for the professions, which refers to those who have already achieved basic (usually university-based) training in fields such as
medicine, engineering, science, government and business management, and school teaching. The professions account for about 29 million people, which is 27 percent of our workforce.

I will have great difficulty making any sweeping generalizations about the systems of continuing education for the professions for two reasons. First, each profession organizes its own system of continuing education with very little attention to what other professions are doing. Thus, these abstract generalizations are expressed in different ways in each profession. Second, no systems are fully mature and are in a rapidly progressing developmental process. Thus, what I will present is a photograph of the current scene when a movie camera would provide a more accurate picture.

As I am sure you agree, every human activity has a history and continuing education is no exception. Until about 25 years ago no systematic thought was given to the organization of systems of continuing education. It was believed that the three to five years of preservice training was sufficient for a lifetime of work. However, with the rapid social changes and technological innovations, the need for continuing education is nearly universally accepted. In this paper I will describe the first awkward steps the professions have taken to translate this need for continuing education into a material system in the real world.
Characteristics of the Systems of Continuing Education

I will describe five general characteristics of the systems of continuing education as they currently exist: 1) purposes, 2) methods of delivering continuing education, 3) what institutions provide continuing education, 4) how these providers are organized into a system, and 5) the relationship of continuing education with previous levels of education. I will describe the general condition of continuing education as well as some promising new ideas and directions for each characteristic.

Purposes of Continuing Education

The great majority of preservice professional education in universities is concerned with the transmission of the theoretical and empirical knowledge base of the profession. This knowledge base is constantly changing; it is estimated that 90 percent of all scientific knowledge has been generated during the past thirty years and this knowledge pool will double by the end of the century. Thus, there is a tremendous pressure on systems of continuing education to simply keep pace with the generation of new knowledge being produced by universities, business, and other research institutes.

Without a doubt, the primary purpose of most continuing education is to keep professionals up-to-date with the newest knowledge. However, an increasingly common observation is that this formal knowledge is not translated into practice. For example, a major study of physicians’ performance has found that
when they make errors in their performance, this is due to a lack of knowledge only four percent of the time. Thus, continuing education programs are dealing with a wider variety of content than the research-based knowledge of the discipline. This is done by putting a greater emphasis on identifying the needs that professionals have in their work, instead of relying simply on university faculty to identify the newest knowledge that practitioners should have. Let me identify three other purposes that flow from the analysis of professionals’ needs.

The first purpose is to help professionals recognize the ethical choices they make in their work. For example, in the nuclear power plant industry many choices made by engineers and managers deal with questions of how much should be spent to protect citizens from accidents that have only a small likelihood of occurrence.

The second purpose is to help professionals recognize and be able to deal with problems that require the collaboration of several professions. Thus, the knowledge base of one profession alone cannot solve the problem. A prime example is the increase of interprofessional continuing education being developed to deal with Acquired Immune Deficiency Syndrome (AIDS). This is not just a medical problem involving physicians and nurses but a social problem requiring the expertise of teachers, social workers, and the clergy.

The third purpose stems from the recognition that professionals do not have the same needs at the different stages
of their careers. In addition to helping professionals adapt to the changing nature of their field, continuing education assists them in learning new roles within the profession. For example, as scientists and engineers progress in their work, they often take on managerial responsibilities for which they are ill-prepared. Thus, continuing education programs are offered to help them learn this new set of skills.

Method of Delivering Continuing Education

The primary method used to deliver continuing education is didactic, with a teacher giving a lecture to a group of professionals in a limited time period. The great advantage of this method is its usefulness in transmitting information in a compact manner. This is especially relevant for the purpose of keeping professionals up-to-date in the knowledge base of the field and is a necessary method for all systems of continuing education.

These lectures are increasingly delivered through technologically sophisticated means such as two-way video conferencing. My own university has had seminars where the speaker has been in a studio on-campus and could be seen and heard at many different universities around the country. Furthermore, the presenter could see and hear the audiences in all those remote locations.

This didactic delivery system is slowly giving way to a greater variety of methods. One cause for this movement is that
almost universal finding of educational research that much of
what professionals learn is acquired by less formal means than
attending courses and seminars.

My own research with engineers illustrates this
generalization. In a survey, we asked engineers to rate the
usefulness of various activities in assisting them to remain
current with the latest technology. Leading the list of methods
for keeping current with new developments was the most informal
method of learning, discussion with colleagues, which 53 percent
judged as very useful. The next most useful method was courses
sponsored by the workplace, followed by university sponsored
courses, and reading the engineering journals.

As leaders conceptualize and implement profession-wide
systems of continuing education, they need to consider both the
formal and the informal methods by which professionals learn. If
they are to adapt these systems to the reality of professionals’
worklives. Although this is beginning to be done, formal courses
offered in a didactic fashion is the dominant conception of
continuing education in the USA.

What Institutions Provide Continuing Education?

The institutionally-based provision of continuing education
can best be described as pluralistic, with many different types
of organizations acting as sponsors. The vast majority of
education is provided by three types of institutions:
universities, workplaces, and professional societies. Each of
these types of institutions has their strengths and weaknesses, which I shall summarize next.

Universities are the primary source of theory and research for many fields. It is appropriate that the faculty members who originally develop this knowledge should teach it to practitioners in continuing education programs. However, several weaknesses limit their efforts in continuing education. Because continuing education is not a primary function of universities it is difficult to obtain reliable institutional financing and to convince professors to spend their time presenting at a program.

Workplaces such as hospitals, governmental agencies, and business firms offer a tremendous amount of continuing education to their employees. Their great strengths are to be able to identify the needs of their workers in a most direct fashion and the minimization of lost work time due to attending programs outside the workplace. A problem with workplace education can be that employers promote only a limited vision of how to solve a work-related problem through learning activities.

There are about 3000 national professional societies in the USA, nearly all of which provide some form of continuing education for their members. One of the major strengths of this provider is their ability to secure a wide array of talent for their continuing education programs, thus offering a variety of viewpoints to their members. The major difficulty is that staff members cannot take long-term leadership for continuing education
because they are generally viewed as subordinate to volunteer committees of society members.

Although systems of continuing education will remain pluralistic for the long-term future, there is an increasing investment by the workplace, particularly corporations, to invest in continuing education. Today’s corporate leadership is very concerned with its ability to respond to and manage change, which means they need a highly skilled and informed workforce.

Some data illustrate this trend. Most corporations spend 2 to 4 percent of their budgets on the education of their employees, with some companies in the knowledge-intensive industries like computers investing 10 percent in such activities. Ninety percent of the nation’s largest companies have an executive responsible for continuing education at the corporate level. Finally, over half of the continuing education provided to engineers, business managers, and health care professionals is sponsored by the workplace.

The Organization of Institutional Providers

Current systems of continuing education for most professions are characterized by each provider planning and offering programs with little regard for what other providers are doing. It is fair to say there is no overall plan guiding the continuing education systems for the professions. There are many instances of cooperative relationships among different institutions, such as a workplace contracting with a university to have a speaker
provide a series of lectures to its employees on a certain topic. However, there is no overall plan to determine which institutions should offer what types of programs in which locations.

There is an emerging interest in some professions to create an authoritative body to coordinate their continuing education systems. Many of these plans call for a plan relating the efforts of professional societies, universities, and workplaces. Plans have recently been proposed for the continuing education of physicians and of engineers. Because of the particular interest of this conference in engineering, I will briefly outline the plan developed by the Department of Electrical Engineering and Computer Science in the Massachusetts Institute of Technology.

This plan presents a vision for what the authors call "Lifelong Cooperative Education." The rationale for the plan is that: "natural evolution by spontaneous educational mutations is ... much too slow a process to rely upon in responding to our urgent problems." The fundamental principle for this vision is the development of an intimate collaboration between industry and universities, which also preserves the essentially different roles of the two types of institutions.

The plan calls for the development of a Council, which would include members from universities, industrial corporations, and professional societies. The responsibilities of the Council would include: 1) secure specific commitments to collaborative efforts from universities and industrial organizations, 2) develop broad outlines of courses that need to be developed and
promote the development of these courses, 3) serve as a clearinghouse for information on educational needs and resources.

The authors of the plan argue that the educational programs are intended to benefit the individual engineer as much as their employers. Thus, it is essential that the needs of individual engineers be high on the Council's priority list. They suggest, therefore, that the professional societies in the Council must assume the role of speaking for the engineers.

As with all the other plans for profession-wide systematic plans for continuing education, this one will not be implemented any time soon. The current system in which individual institutions offer continuing education programs, often in a cooperative relationship with another institution, will be dominant for some time to come. In the longer term of 20 to 30 years, however, we are likely to see some form of coordinated provision of continuing education for the profession.

Relationship of Continuing Education to Preservice Education

The idea of lifespan learning is readily accepted, in abstract terms, by the leadership of every profession. In fact, nearly every professional would claim if asked that they must continue to learn throughout their lifetime. However, there is a great discontinuity between the systems of preservice professional education and the related systems of continuing education. The common pattern now consists of secondary school, followed by a combination of pre-professional and general courses
in college, a professional school, and a licensing examination. This linear educational system then ends and little within that system is planned to prepare for or correlate with the 40-year-
long continuing education system to which the professional then goes.

Although several professions have advocated a specific plan for a coordinated lifelong educational system, "only in the officer corps of the armed services—where a continuing assessment of performance has been fully accepted—has anything approaching a systematic career-long pattern of study been worked out." As other professions recognize the need to monitor the performance of their members throughout the lifespan, it will become necessary that the linear educational systems that now end at entry into practice be extended for a professionals entire careers.

If these coordinated lifelong professional educational systems are to be developed, the workplace will need to be involved in some significant way because of the need to monitor performance. There are several examples of this already. Thirty-one corporations now offer college-level degree programs in a wide variety of professions such as management, accounting, and engineering. For example, the General Motors Institute, which is a wholly owned subsidiary of the General Motors Corporation, is a degree-granting institution chartered in the state of Michigan. With approximately 2200 students, "this Cooperative
Engineering and Industrial Administration School is a major source of engineering and management talent in General Motors. Another example is the National Technological University, which was developed by 15 universities from the Association for Media-Based Continuing Education for Engineers together with twelve leading corporations. This university operates by satellite to reach engineers in corporate classrooms for advanced professional work leading to a master of science degree.

These are but halting first steps in the development of a lifelong system of professional education. Many difficult issues need to be addressed before such systems can be constructed. However, as the gap between university-based preservice professional education and the demands of practice become increasingly apparent, most parties will find it in their interest to develop such an approach to education. In that approach continuing education will be one part of a lifelong educational system.

Summary and Conclusion

The present system of continuing education may be characterized as: 1) devoted to updating professionals about the newest developments, and 2) transmitted in a didactic fashion, 3) by a pluralistic group of providers, 4) which do not work according to some overall plan, and 5) which are almost entirely unconnected to the previous levels of professional education.
As I have indicated, however, there is much change occurring in all five of these dimensions. In historical terms, systems of continuing education are in their infancy. We expect to see a tremendous growth and development in these systems in the coming decades. By way of analogy, continuing education is in the same state of development as preservice education was at the beginning of this century. At that time systems of professional education were also in their infancy. Medical education serves as a useful example on this point. In 1910, of the 155 medical schools in this country, only 16 expected that their incoming students would have any previous college work. It is clear that no one at that time would have been able to predict the structure of medical education today. Likewise, systems of continuing education are likely to grow in size and stature so that they are seen as important as the preservice stage of professional education.
IS SOCIAL WORK A PROFESSION?

Before beginning to consider whether social work is or is not a profession, I must confess a very genuine doubt as to my competency to undertake the discussion. My acquaintance with social work, with the literature of social work and with social workers is distinctly limited,—far too much so. Hence if the conclusions that I have reached seem to you unsound or academic, I beg you to understand that I should not be disposed to press them.

The word "profession" or "professional" may be loosely or strictly used. In its broadest significance it is simply the opposite of the word "amateur." A person is in this sense a "professional" if his entire time is devoted to an activity, as against one who is only transiently or provisionally so engaged. The professional nurse, baseball player, dancer and cook thus earn a livelihood by concentrating their entire attention on their respective vocations, and expect to go on doing so; whereas the amateur nurse enlists only for the duration of the war, or the amateur baseball player, during early youth or college life. Social work is from this point of view a profession for those who make a full-time job of it; it is not a profession for those who incidentally contribute part of themselves to active philanthropy.

However, I have not been asked to decide whether social work is a full-time or a part-time occupation, whether, in a word, it is a professional or an amateur occupation. I assume that every difficult occupation requires the entire time of those who take it seriously, though, of course, work can also be found for volunteers with something less than all their time or strength to offer. The question put to me is a more technical one. The term profession, strictly used, as opposed to business or handcraft, is a title of peculiar distinction, coveted by many activities. Thus far, it has been pretty indiscriminately used. Almost any occupation not obviously a business is apt to classify itself as a profession. Doctors, lawyers, preachers, musicians, engineers, journalists, trained nurses, trapeze and dancing masters, equestrians and chiroprists—all speak of their "profession." Their claims are supposed to be established beyond question, if they are able to affix to their names one of those magical combinations of letters that either are or look like an academic degree. On this basis chiropracy would be a profession because the New York School of Chiropracy confers the degree of M.Cp., and social work might qualify at once with the degree S.W. Some years ago, the president of a western university told me that he had compiled a list of all the degrees ever conferred by his institution. In the list appeared a very ominous combination of letters—nothing less, in a word, than N.G. I was relieved to be informed that this was not an effort to characterize the entire academic output, but signified only "graduate nurse." If the academic degree decides, nursing is a profession for that reason, even were there no other.

We need waste no time in endeavoring to formulate the concept of "professional,"
if the concept is to include the indiscriminate activities touched on above. If there is a dancing profession, a baseball profession, an acting profession, a nursing profession, an artistic profession, a musical profession, a literary profession, a medical profession, and a legal profession—to mention no others—the term profession is too vague to be fought for. We may as well let down the barriers and permit people to call themselves professional for no better reason than that they choose in this way to appropriate whatever of social distinction may still cling to a term obviously abused.

But to make a profession in the genuine sense something more than a mere claim or an academic degree is needed. There are certain objective standards that can be formulated. Social work is interested in being recognized as a profession only if the term is limited to activities possessing these criteria. The social worker wants, I assume, to be a professional, if at all, only in the sense in which the physician and the engineer are professional, and he wants to make common cause with them in defending the term against deterioration. In this narrower and elegiastic sense, what are the earmarks of a profession?

One has, of course, no right to be arbitrary, notionally or unhistorical. The nature of a profession has undergone a readily traceable development; and the number of professions has not remained stationary. Occupations that were once non-professional have evolved into full professional status. These changes will continue to go on. The definition that we may formulate to-day will therefore need recasting from time to time; and internal modifications will occur in many of the activities that we shall mention. My present concern, however, is not to consider the evolutionary aspects of the problem, but rather to ask what are at this moment the criteria of a profession and to consider whether social work conforms to them. There are professions universally admitted to be—law, medicine and preaching. Is there one by analysis and criteria with which, at least, one might the characterization of professions we proceed. We shall consider how far conception has been widened or modified the addition of new professions and, if to what extent social work measures the standard thus reached.

Would it not be fair to mention as one mark of a profession that the activities involved are essentially intellectual character? Manual work is not meant to be excluded; the use of tools is not necessarily excluded. The physician is not the member of the profession because he feels a pulse and his hands sound a pulse; the engineer is not the less a member of a profession because he employs instruments and tools. But in neither of these instances does the activity of the essential character from its instrument the instrument is an incidental or adventitious; the real character of the activity the thinking process; a free, reason and unhampered intelligence applies problems and seeking to understand master them—that is, in the first in characteristic of a profession.

Wherever intelligence plays thus the responsibility of the practitioner once large and personal. The problem be dealt with are complicated; the facts are less abundant and abundant as to what he shall do. He is not orders; though he be cooperating with others, though the work be team work more less than individual work, his responsibility is personal not less complete and not less personal. Quality of responsibility follows fr
fact that professions are intellectual in character; for in all intellectual operations, the thinker takes upon himself a risk. If then intellectuality with consequent personal responsibility be regarded as one criterion of a profession, to merely instrumental or mechanical activity can fairly lay claim to professional rank; for the human mind does not, in instrumental or mechanical activities, enjoy the requisite freedom of scope or carry the requisite burden of personal responsibility. The execution or application of a thought-out technique—be it crude or exquisite, physical or mental—is, after all, routine; some one back of the routinizer has done the thinking and therefore bears the responsibility, and he alone deserves to be considered professional.

We are accustomed to speak of the learned professions. What is the significance of the word learned in this connection? Does it imply that there are unlearned as well as learned professions? I suspect not, for the intellectual character of professional activity involves the working up of ideas into practice, involves the derivation of raw material from one realm or another of the learned world. Professions would fail short of attaining intellectuality if they employed mainly or even largely knowledge and experience that is generally accessible—if they drew, that is, only on the usually available sources of information. They need to resort to the laboratory and the seminar for a constantly fresh supply of facts; and it is the steady stream of ideas, emanating from these sources, which keeps professions from degenerating into mere routine, from losing their intellectual and responsible character. The second criterion of the profession is therefore its learned character, and this characteristic is so essential that the adjective learned really adds nothing to the noun profession.

Professions are therefore intellectual and learned; they are in the next place definitely practical. No profession can be merely academic and theoretic; the professional man must have an absolutely definite and practical object. His processes are essentially intellectual; his raw material is derived from the world of learning; thereupon he must do with it a clean-cut, concrete task. All the activities about the professional quality of which we should at once agree are not only intellectual and learned, but definite in purpose. The professions of law, medicine, architecture and engineering, for example, operate within definite fields and strive towards objects capable of clear, unambiguous and concrete formulation. Physicians rely mainly on certain definite sciences—anatomy, physiology, pharmacology, etc.—and apply these to the preservation and restoration of health; architecture relies on mathematics, physics, etc., and applies these to the designing and construction of buildings. Ends may, of course, be concrete and practical, without being physical or tangible. University professors, engaged in teaching, in the training of teachers, in the increase of knowledge or the development of thought, stand the tests that we have thus far enumerated —their work is intellectual, learned in quality and definitely practical in object.

Each of the unmistakable professions already mentioned for the purpose of illustration possesses a technique capable of communication through an orderly and highly specialized educational discipline. Despite differences of opinion about details, the members of a given profession are pretty well agreed as to the specific objects that the profession seeks to fulfill, and the specific kinds of skill that the practitioner of the profession must master in order to attain the object in question. On this basis, men arrive at an understanding as to
the amount and quality of training, general and special, which should precede admission into the professional school; as to the content and length of the professional course. These formulations are meant to exclude from professions those incapable of pursuing them in a large, free and responsible way; and to make sure that those potentially capable are so instructed as to get the fullest possible benefit from the training provided.

A profession is a brotherhood—almost, if the word could be purified of its invidious implications, a caste. Professional activities are so definite, so absorbing in interest, so rich in duties and responsibilities that they completely engage their votaries. The social and personal lives of professional men and of their families thus tend to organize around a professional nucleus. A strong class consciousness soon develops. But though externally somewhat aristocratic in form, professions are, properly taken, highly democratic institutions. They do indeed tend to set up certain requirements for matriculation, so to speak; but democracy, I take it, means not the annihilation of distinctions, but rather the abrogation of gratuitous and arbitrary distinctions. If membership in a profession were conditioned on some qualification not essentially related to the activities involved—on birth or wealth or some other accident—professions could be fairly charged with being scholastic or aristocratic; but if qualifications are determined by the nature of the responsibility alone, and if membership, depends solely on satisfying terms thus arrived at, then professions must be adjudged thoroughly democratic in essence.

There is, of course, always danger that the interests of an organization may conflict with those of the body politic. Organizations of physicians, lawyers and teachers may find the personal interests of the individuals of whom they are composed arrayed against those of society at large. On the whole, however, organized professions of this kind are, under democratic conditions, apt to be more responsive to public interest than are unorganized and iso social organizations. In any event, under the sure of public opinion, professionals have more and more tended to view themselves as organs contrived for the advancement of social ends rather than as formed to stand together for the cause of rights or the protection of interests in common. I do not wish to be under as saying that this development is as complete as it might be. Such is far from being the case. Organizations of ten doctors and lawyers are still apt to cut, first of all, for “number one.” But time goes on, it may very well come to pass that a mark of professional character that professional organization is explicitly and importantly meant for the advancement of the common social interest through the professional organization. Devotees to the doing and the doing more and more likely to come an accepted mark of professional activity; and as this development proceeds the pecuniary interest of the individual practitioner of a given profession as yield gradually before an increasing recognition of responsibility to a larger end.

Let me now review briefly the six criteria which we have mentioned: professions evolve essentially intellectual operations; large individual responsibility; they do their raw material from science and learning; this material they work up to a critical and definite end; they possess an essentially communicable technique; they tend to self-organization; they are being increasingly altruistic in motive. It will be interesting to submit various forms of activity to the test in order to determine whether these criteria work.
We begin with a crude and obvious example, plumbing. Plumbing possesses certain professional characteristics: it is definite in purpose, possesses a technique communicable through education, and has developed a very definite organization. Nevertheless, plumbing is not a profession. The plumber is a mechanical performer, acting on the instrumental rather than the intellectual level; the data which he uses are the property of common experience, not immediately or recently derived from the realms of science and learning; finally, there is as yet no convincing evidence that the spirit of plumbing is becoming socialized. Plumbing is still prosecuted too largely for the plumber’s profit. It is therefore a handcraft, not a profession.

Banking is an activity with certain professional characteristics. Its purpose is definite; it gives a good deal of scope to intelligence; it develops a distinct class consciousness. But the disqualifications are plain: banking is as yet far from being to a sufficient extent the application of economic science; it is largely a matter of what is vaguely called “business sense” or “business experience,” “common sense” or “rule of thumb.” The scientific possibilities unquestionably exist, and recent legislation marks a distinct advance in the direction of scientific or professional banking in the stricter use of those terms. For the present, however, banking practices are still too largely empirical to square with the modern conception of professionalism. There are, of course, other defects. A prominent banker recently described himself as “a dealer in credits.” The motive of financial profit is thus too strongly stressed. It is true that in times of crisis the banking interests of the country have mobilized for the protection of the general public. But in those instances, trade interest and general interest so largely coincide that it is a question whether the motive can be regarded as an example of professional altruism; in any case, it is exceptional, due to common danger from the outside rather than to spiritual striving from within. For the present, therefore, banking is to be regarded as a trade with certain professional leanings.

Is pharmacy a profession? Is trained nursing a profession? The pharmacist compounds the physician’s prescriptions—for which he requires a considerable degree of expertness, a knowledge of certain sciences, especially chemistry, and a high degree of caution, since either the slightest error on his part, or inability to detect an error on the part of the physician, whether due to ignorance or carelessness, may have very serious consequences. Recurring to our criteria, I should say that pharmacy has definiteness of purpose, possesses a communicable technique, and derives at least part of its essential material from science. On the other hand, the activity is not predominantly intellectual in character and the responsibility is not original or primary. The physician thinks, decides and orders; the pharmacist obeys—obeys, of course, with discretion, intelligence and skill—but in the end, obeys and does not originate. Pharmacy therefore is an arm added to the medical profession, a special and distinctly higher form of handcraft, not a profession. Nor is this distinction merely a verbal quibble, for it has an important bearing on the solution of all educational questions pertaining to pharmacy.

I am conscious of endeavoring to pick up a live wire when I undertake to determine the status of the trained nurse. But if consideration of various activities serially arranged will throw any light upon the problem as related to the social worker, there are obvious advantages in discussing the
twilight cases. The trained nurse is making a praiseworthy and important effort to improve the status of her vocation. She urges, and with justice, that her position is one of great responsibility; that she must possess knowledge, skill and power of judgment; that the chances of securing these qualifications, all of them essentially intellectual, improve, as the occupation increases in dignity. It is to be observed, however, that the responsibility of the trained nurse is neither original nor final. She, too, may be described as another arm to the physician or surgeon. Her function is instrumental—though not, indeed, just mechanically instrumental. In certain relations she is perhaps almost a collaborator. Yet, when all is said, it is the physician who observes, reflects and decides. The trained nurse plays into his hands; carries out his orders; summons him as a sentinel in fresh emergencies; subordinates her intelligence to his theory, to his policy; and is effective in precise proportion to her ability thus to second his efforts. Can an activity of this secondary nature be deemed a profession? On the answer, an entire educational policy depends.

I have spoken of the trained nurse—the sick-room attendant—and I have raised—without endeavoring finally to dispose of—certain questions suggested by her relationship to the physician. Meanwhile, it is only fair to add, we are developing nursing along other lines; the public health nurse is a sanitary official, busy in the field largely on her own responsibility rather than in the sick-room under orders. Whether the term nurse is properly applicable to her, whether a differentiation in training and terminology is not likely to occur as public health work comes into its own, I need not undertake to decide.

With medicine, law, engineering, literature, painting, music, we emerge from all clouds of doubt into the unmistakable professions. Without exception, these involve personally responsible activity; they derive their material daintily from learning and science; possess an organized and educable communicative technique; they have definite status, social and professional, and they tend to become, more and more clearly, organs for the achievement of social ends. I need not establish the profession separately in reference to them. Let the case of medicine.

The physician’s function is overwhelmingly intellectual in quality and his responsibility absolutely personal. He utilizes instruments—physical and human: stethoscope, sphygmograph, ophthalmoscope, pharmacist, dietitian, nurse. But the commanding intelligence that these resources bear; his the reponsibility of decision as to the problem—how it is to be solved. There are, of course, physicians in abundance to whose cases the word intellectual can not be properly applied—routine men, to whom obvious signs indicate this or that; they, by a law of mechanical association, are already obsolete. Survival destined soon to pass away.

In the next place, medicine needs a material immediately from science, an imposing array of science has been developed, very largely out of problems encountered and needs felt in practice—anatomy, physiology, path bacteriology and pharmacology. The sciences have now achieved independent status, like chemistry and biology, they possess inherent interest and pable of development without proper reference to disease. They never furnish the data with which the ph
very largely operates, and his professional development may be determined by the degree to which he substitutes in his observation and thinking data thus derived for data empirical in character.

Medicine qualifies on other points equally well: it has the definite, practical end already noted—viz., the preservation and restoration of health; it lends itself admirably to an effective and orderly educational discipline, calculated to attain the definite object just stated; it has achieved a very definite status; finally, though neither the organization, as a whole, nor the members, as individuals, can claim to be exempt from selfish and mercenary motives, it must in fairness be said that the medical profession has shown a genuine regard for the public interest as against its own, that it is increasingly responsive to large social needs, and that there are not wanting signs of a development that will minimize personal profit somewhat as it is minimized in teaching.

I hope that these examples have made our criteria so clear that they can now be applied to social work. Is social work a profession in the technical and strict sense of the term? The Bulletin of the New York School of Philanthropy under the title "The Profession of Social Work" makes the following explanation:

The School of Philanthropy is primarily a professional training school, of graduate rank, for civic and social work. The word philanthropy is to be understood in the broadest and deepest sense as including every kind of social work, whether under public or private auspices. By social work is meant any form of persistent and deliberate effort to improve living or working conditions in the community, or to relieve, diminish, or prevent distress, whether due to weakness of character or to pressure of external circumstances. All such efforts may be conceived as falling under the heads of charity, education or justice, and the same action may sometimes appear as one or another according to the point of view.

The activities described in these words are obviously intellectual, not mechanical, not routine in character. The worker must possess fine powers of analysis and discrimination, breadth and flexibility of sympathy, sound judgment, skill in utilizing whatever resources are available, facility in devising new combinations. These operations are assuredly of intellectual quality.

I confess I am not clear, however, as to whether this responsibility is not rather that of a mediating than an original agency. Let me explain as concretely as I can. The engineer works out his problem and puts through its solution; so does the physician, the preacher, the teacher. The social worker takes hold of a case—that of a disintegrating family, a wrecked individual or an unsocialized industry. Having localized his problem, having decided on its particular nature, he is not usually driven to invoke the specialized agency, professional or other, best equipped to handle it. There is illness to be dealt with—the doctor is needed; ignorance requires the school; poverty calls for the legislator, organized charity and so on. To the extent that the social worker mediates the intervention of the particular agent or agency best fitted to deal with the specific emergency which he has encountered, is the social worker himself a professional or is he the intelligence that brings this or that profession or other activity into action? The responsibility for specific action thus rests upon the power he has invoked. The very variety of the situations he encounters compels him to be not a professional agent so much as the mediator invoking this or that professional agency.

In speaking of social work as mediating, I do not intend to say that other professions are mutually independent and act independently. Indeed, the collaboration
of different professions in the doing of specific tasks is a characteristic feature of latter-day organization. Architects, engineers, sanitarians, lawyers and educators cooperate in the building of a school or a tenement. But it is to be noted that this is a division of labor among equals—each party bearing, subject to general consent, primary responsibility for his particular function—the definiteness of that function and the completeness of the responsibility differing, I take it, from the function and responsibility of the social worker under similar conditions.

Consideration of the objects of social work leads to the same conclusion. I have made the point that all the established and recognized professions have definite and specific ends—medicine, law, architecture, engineering, etc. One can draw a clear line of demarcation about their respective fields. This is not true of social work. It appears not so much a definite field, as an aspect of work in many fields; an aspect of medicine belongs to social work, as do certain aspects of law, education, architecture, etc. Recruit for a moment to the scope of interest indicated in the extract above quoted from the prospectus of the New York School: the improvement of living and working conditions in the community, the relief or prevention of distress, whether individual or social in origin. The prospectus of the Boston School for Social Workers enumerates the various kinds of positions occupied by its graduates as follows: care of children, church and religious work, civic agencies, industrial betterment, institutional and medical social service, neighborhood work and recreation, organizing charity, probation and parole. The field of employment is indeed so vast that delimitation is impossible. We observe that professions need to be limited and definite in scope, in order that practitioners may themselves set; but the high degree of specific competency required for action and conception on limitation of area can not sibly go with the width of scope characteristic of social work. A certain superiority of attainment, a certain lack of prudence necessarily characterize such an endeavor. If, however, we regard the social worker, not so much an agent grappling with this or that situation but rather as controlling the keyboard which summons, cooperates with and coordinates various professional specialists, this breadth of attainment is very far from being a matter for reproach. It imposes upon the social worker the necessity of extreme specialization, of considerable modesty, because these days a considerable measure of intensity is possible to any one person within a restricted field. Would it not at least suggestive therefore to view social work as in touch with many profes rather than as a profession in and by itself? Perhaps the same idea can be brought in other ways. A good deal of what is called social work might perhaps be counted for on the ground that the recognized professions have developed too far on the social side. Suppose medicine, fully specialized; would not medical institutions and medical organizations look after certain interests that social worker must care for just because medical practice now falls short? Shortcomings of law create a similar situation in another direction. Thus viewed, social work is, in part at least, not so much a separate profession, as an endeavor to supplement certain existing professions pen their completed development. It pout existing professions; breathes a spirit into them, and binds them together in the endeavor to deal with a given sit from a new point of view. Lack of specificity in aim affects...
ously the problem of training social workers. Professions that are able to define their objects precisely can work out educational procedures capable of accomplishing a desired result. But the occupations of social workers are so numerous and diverse that no compact, purposefully organized educational discipline is feasible. Well-informed, well-balanced, tasteful, judicious, sympathetic, resourceful people are needed, rather than any definite kind or kinds of technical skill. In so far as education can produce this type, the education is not technically professional so much as broadly cultural in a variety of realms of civic and social interest. The vagueness of the enterprise in which they are engaged must have troubled the instructors themselves, if I may judge from a remark once made to me by one of them: "We don't know just what to teach them." In this connection it is worth noting that the heads of schools for social workers are trained men with subsequent experience, but not trained social workers. Dr. Graham Taylor is a theologian by training, Dr. Brackett and Dr. Devine are economists. In addition to knowing a specialty well, they are all well-informed in many other directions; this breadth of interest and attainment reinforced by practical experience makes them competent heads of schools for social workers—this, rather than any particular training aimed at the particular job.

Let me add, however, that what I have just said does not imply that schools of philanthropy are superfluous. Looking at them as educational ventures, I suspect that they are as yet feeling about for their proper place and function. There is an obvious convenience, however, in having an institution which focuses as far as possible the main lines of social activity; an obvious advantage in having an institution that emphasizes the practical side of what might otherwise be more or less academic instruction in many branches. But instruction of this kind is not exactly professional in character; it supplements and brings to bear what good students might well acquire in the course of their previous higher education.

If social work fails to conform to some professional criteria, it very readily satisfies others. No question can be raised as to the source from which the social worker derives his material—it comes obviously from science and learning—from economics, ethics, religion, and medicine; nor is there any doubt on the score of the rapid evolution of a professional self-consciousness, as these annual conferences abundantly testify. Finally, in the one respect in which most professions still fall short, social work is fairly on the same level as education—for the rewards of the social worker are in his own conscience and in heaven. His life is marked by devotion to impersonal ends and his own satisfaction is largely through the satisfactions procured by his efforts for others.

There is, however, another side even to this aspect of professional activity. Professions may not be cultivated for mere profit. Neither, let me add, can they develop on the basis of volunteer or underpaid service. Most men and women are fortunately so placed that the career they adopt must afford them the income necessary to their existence and development. Well-trained men and women can not, as a rule, be attracted to a vocation that does not promise a living wage in return for competent service. Am I mistaken in thinking that not infrequently the inner joy attached to philanthropic endeavor has seemed to those in control a more complete satisfaction of the worker’s legitimate desire than it has seemed, for example, to the
worker herself. Here again, I am raising a question, not making a criticism.

Now that we have run through the marks of the professions and have found that on the whole at this stage of social work is hardly eligible, it is fair to ask whether we have not been simply engaged in verbal quibbling. Has an analysis of this kind any practical significance?

It seems to me that it has. For example: the social worker is at times perhaps somewhat too self-confident; social work has suffered to some extent from one of the vices associated with journalism—excessive facility in speech and in action. Let us suppose for a moment that our reflection on the differences between the accepted professions and social work reminds the social worker at crucial moments that he is, as social worker, not so much an expert himself as the mediator whose concern it is to summon the experts—will not the observation be calmer, his utterance more restrained, be the difficulty he encounters economic, educational or sanitary? He will, I mean, be conscious of his dependence, and this consciousness will tend to induce caution, thoroughness and moderation.

For if social work is not definite enough to be called a profession, the social worker will at least be less cocksure than the professional man, whom he calls in. Is it not possible that part of the vast array of reaction is made up of those needlessly terrified by the occasionally reckless—and perhaps somewhat baseless—confidence of the reformer? If so, failure to realize the limitations of social work from the professional point of view is not without practical consequences.

Matthew Arnold somewhere quotes Goethe as saying: "To do is easy; to think is hard." There is a sense in which the remark is true. If we mean routine doing and fundamental thinking, then truly to do is easy, to think is hard. But there seems in which the remark is false. For we mean by doing, effective doing, an understanding the facile movement of success then to think is easy, to do is hard. An easy impatient sweep of progressive reformation, characteristic of even the imperialistic journalism, is one thing; working out of a practical problem is another. I know of nothing more difficult than to take hold of a definite situation and education and to make it better. Nor is it only in some cases the iniquity and perversity of that are at fault; our impatience may occasionally be unjust. if it is due to any view. The problems are in themselves large; our resources are inadequate; above all, dealing with oil are relatively slight and work slowly. the sense in which we are now speak Goethe's saying may be reversed—to it is easy, to do is hard.

I have no desire to discourage social workers; still less do I want to bring discomfort to the enemy. I do not want to diminish the vigor of any attack that be made upon poverty, ignorance, discrimination; but for the moment I am urging all else, looking at the method of social work from the merely professional standpoint. Now when social work becomes thoroughly professional in character—scientific in method, it will be perceived that vigor is not synonymous with intelligence. Moreover, vigor can not act without intelligence. The battles that social work wages will not be won by phrasing which too often serve as substitutes for knowledge, but by the warfare carried on by men and women who have learned every inch of the ground over which they must fight.

I spoke a moment ago of journalism would not be understood as discredit
effective and able journalistic work. Its limitations are, however, obvious and by none are they more acutely felt than by some of those who are compelled by the necessities of the case to labor within them. What I mean to point out here is this: that a profession needs in these days a form of expression and record that is scientific rather than journalistic in character. The newspapers, the weekly and monthly periodicals, more or less serve social work as far as journalistic publicity is concerned. Now while it is doubtless still advisable to concentrate this material in journals expressly devoted to social work for news propaganda and agitation, it is important to remember that we do not thus rise above the journalistic to the scientific or professional level. A profession must find a dignified and critical means of expressing itself in the form of a periodical which shall describe in careful terms whatever work is in progress; and it must from time to time register its more impressive performances in a literature of growing solidity and variety. To some extent the evolution of social work towards the professional status can be measured by the quality of publication put forth in its name. I can not pretend to such familiarity with the literature of social work as to warrant me in passing an opinion as to how far its periodical or its book literature is impressive, scientific or professional in quality; but I believe the point is one which might be profitably considered by those who wish social work to be taken as seriously as medicine or engineering.

At the moment, therefore, it may be—observe that I am not endeavoring to be very positive—it may be that social work will gain if for the time being it becomes uncomfortably conscious that it is not a profession in the same in which medicine and engineering are professions; that if medicine and engineering have cause to proceed with critical care, social work has even more. The father of the late President Gilman was once asked whether his son Daniel had "chosen his profession." "I don't know," he replied, "Daniel is always working rather than professing."

But after all, what matters most is professional spirit. All activities may be prosecuted in the genuine professional spirit. In so far as accepted professions are prosecuted at a mercenary or selfish level, law and medicine are ethically no better than trades. In so far as trades are honestly carried on, they tend to rise towards the professional level. Social work appeals strongly to the humanitarian and spiritual element. It holds out no inducement to the worldly—neither comfort, glory nor money. The selfless devotion of those who have chosen to give themselves to making the world a fitter place to live in can fill social work with the professional spirit and thus to some extent lift it above all the distinctions which I have been at such pains to make. In the long run, the first, main and indispensable criterion of a profession will be the possession of professional spirit and not that social work may, if it will, fully satisfy."

"A. B. PLEASNER"

NEW YORK CITY

FUNCTIONS AND LIMITATIONS OF THE PUBLIC SCHOOL

There is much discussion, to-day, of the public school and its responsibility. Is it not time for the American people to consider the danger of expecting too much from mental training alone? Somehow, the idea has been accepted that every youthful shortcoming and every public evil can be eliminated by more education. The schools are expected to achieve results far beyond those secured in business or in any
PROFESSIONS IN PROCESS

RUE BUCHER AND ANSELM STRAUSS

ABSTRACT

A process approach to professions focuses upon diversity and conflict of interest within a profession and their implications for change. The model posits the existence of a number of segments, within a profession, which tend to take on the character of social movements. Segments develop distinctive identities and a sense of the past and goals for the future, and they organize activities which will secure an institutional position and implement their distinctive missions. In the competition an conflict of segments in movement the organization of the profession shifts.

The "process" or "emergent" approach to the study of professions developed in the following pages bears considerable resemblance to a common-sense point of view. It utilizes common language to order the kinds of events that professionals informally discuss among themselves—frequently with great animation. It is even used by sociologists in their less professional moments when they are personally challenged by their own colleagues or by persons from other fields. What is different here is that we shall take the first steps toward developing an explicit scheme of analysis out of these commonplace materials. In addition, it will become apparent that this approach differs from the prevailing "functionalism" because it focuses more pointedly upon conflicting interests and upon change.

Functionalism sees a profession largely as a relatively homogeneous community whose members share identity, values, definition of role, and interests. There is room in the conception for some variation, some differentiation, some out-of-line members, even some conflict; but, by and large, there is a steadfast core which defines the profession, deviations from which are but temporary dislocations. Socialization of recruitment consists of induction into the common core. There are norms, codes, which govern the behavior of the professional to insiders and outsiders. In short, the sociology of professions has largely been focused upon the mechanics of cohesiveness and upon detailing the social structure (and/or social organization) of given professions. Those tasks a structural-functional sociology is prepared to do, and do relatively well.

But this kind of focus and theory tend to lead one to overlook many significant aspects of professions and professional life. Particularly does it bias the observer against appreciating the conflict—or at least difference—of interests within the profession; this leads him to overlook certain of the more subtle features of the profession's "organization" as well as to fail to appreciate how consequential for changes in the profession and its practitioners differential interests may be.

In actuality, the assumption of relative

homogeneity within the profession is not entirely useful: there are many identities, many values, and many interests. These amount not merely to differentiation or simple variation. They tend to become patterned and shared; coalitions develop and flourish—and in opposition to some others. We shall call these groupings which emerge within a profession “segments.” (Specialties might be thought of as major segments, except that a close look at a specialty betrays its claim to unity, revealing that specialties, too, usually contain segments, and, if they ever did have common definitions along all lines of professional identity, it was probably at a very special, and early, period in their development.) We shall develop the idea of professions as loose amalgamations of segments pursuing different objectives in different manners and more or less delicately held together under a common name at a particular period in history.

Our aim in this paper, then, is to present some initial steps in formulating a “process” model for studying professions. The model can be considered either as a supplement of, or an alternative to, the prevailing functional model. Some readers undoubtedly will prefer to consider the process model as supplementary. If so, then there will be a need for a further step, that is, for a transcending model. But we ourselves are concerned here only with sketching the outlines of a process approach, suggesting a few potentially useful concepts, and pointing to certain research problems that flow from our framework and concepts.

"Organized Medicine"

Medicine is usually considered the prototype of the professions, the one upon which current sociological conceptions of professions tend to be based; hence, our illustrative points in this paper will be taken from medicine, but they could just as pertinently have come from some other profession. Of the medical profession as a whole, a great deal could be, and has been, said: its institutions (hospitals, schools, clinics); its personnel (physicians and paramedical personnel); its organizations (the American Medical Association, the state and county societies); its recruitment policies; its standards and codes; its political activities; its relations with the public; not to mention the professions’ informal mechanisms of sociability and control. All this minimal “structure” certainly exists.

But we should also recognize the great divergence of enterprise and endeavor that mark the profession; the cleavages that exist along with the division of labor; and the intellectual and specialist movements that occur within the broad rubric called “organized medicine.” It might seem as if the physicians certainly share common ends, if ever any profession did. When backed to the wall, any physician would probably agree that his long-run objective is better care of the patient. But this is a misrepresentation of the actual values and organization of activity as undertaken by various segments of the profession. Not all the ends shared by all physicians are distinctive to the medical profession or intimately related to what many physicians do, as their work. What is distinctive of medicine belongs to certain segments of it—groupings not necessarily even specialties—and may not actually be shared with other physicians. We turn now to a consideration of some of those values which these segments do not share and about which they may actually be in conflict.

"The sense of mission."—It is characteristic of the growth of specialties that early in their development they carve out for themselves and proclaim unique missions. They issue a statement of the contribution that the specialty, and it alone, can make in a total scheme of values and, frequently, with it an argument to show why it is peculiarly fitted for this task. The statement of mission tends to take a rhetorical form, probably because it arises in the context of a battle for recognition and institutional status. Thus, when surgical specialties, such as urology and proctology, were struggling to attain identity independent of general surgery, they developed the argument that the par-
PROFESSIONS IN PROCESS

ticular anatomical areas in which they were interested required special attention and that only physicians with their particular background were competent to give it. Anesthesiologists developed a similar argument. This kind of claim separates a given area out of the general stream of medicine, gives it special emphasis and a new dignity, and, more important for our purposes, separates the specialty group from other physicians. Insofar as they claim an area for themselves, they aim to exclude others from it. It is theirs alone.

While specialties organize around unique missions, as time goes on segmental missions may develop within the fold. In radiology, for example, there are groups of physicians whose work is organized almost completely around diagnosis. But there is a recently burgeoning group of radiologists whose mission is to develop applications of radiation for therapeutic purposes. This difference of mission is so fundamental that it has given rise to demands for quite different residency training programs and to some talk of splitting off from the parent specialty. In pathology—one of the oldest medical specialties, whose traditional mission has been to serve as the basic science of medicine with relatively little emphasis upon clinical applications—lately a whole new breed of pathologists has come to the fore, dedicated to developing pathology as a specialized service to clinical practitioners and threatening those who cling to the traditional mission.

The split between research missions and clinical practice runs clear through medicine and all its specialties. Pediatrics has one of the most rapidly growing fields of practice, but it has also attracted a number of young people, particularly at some centers in the Northeast, specifically for research. They are people who have no conceptions of themselves as family pediatricians at all; they are in this field because of what they can do in the way of research. In the two oldest specialties, surgery and internal medicine, one finds throughout the literature considerable evidence of this kind of split. One finds an old surgeon complaining that the young men are too much interested in research and in internal medicine there are exhortations that they should be doctors, not scientists. This latter lament is particularly interesting in view of the traditional mission of the internist to exemplify the finest in the "art of medicine": it is a real betrayal when one of them shows too much interest in controlled research.

Work activities.—There is great diversity in the tasks performed in the name of the profession. Different definitions may be found between segments of the profession concerning what kinds of work the professional should be doing, how work should be organized, and which tasks have precedence. If, for example, the model physician is taken as one who sees patients and carries out the diagnosis and treatment of illness, then an amazing variety of physicians do not fit this model. This diversity is not wholly congruent with the organization of practice by medical specialties, although there are certain specialties—like pathology, radiology, anesthesiology, and public health—whose practitioners for the most part do not approach the model. Within a core specialty like internal medicine there are many different kinds of practice, ranging from that of a "family doctor" to highly specialized consultation, a service to other doctors. These differences in the weights assigned to elements of practice do not begin to take into account the further diversity introduced when professionals assign different weights to such activities as research, teaching, and public service.

This point can be made more clearly by considering some of the different organizations of work activities that can be found within single specialties. The people who organize their work life as follows all call themselves "pathologists": (a) time nearly equally divided between research and teaching, with little or no contact with patient care; (b) time divided (ideally) equally between research, teaching, and diagnostic services to other doctors; (c) administration of a hospital service, diagnostic services and consultations with other physi-
cians, and educational activities. (The objects of educational activities are not only medical students and residents but other practitioners of the hospital. These pathologists may also actually examine patients face-to-face and consult on a course of treatment.)

Again, consider the radiologist. There is considerable range in the scope and kind of practice subsumed under radiology. The "country radiologist" tends to function as an all-round diagnostic consultant, evaluating and interpreting findings concerning a broad spectrum of medical conditions. In the large medical center the diagnostic radiologist either does limited consultation concerning findings or else specializes in one area, such as neurological radiology or pediatric radiology. Then there is the radiologist whose work is not primarily diagnostic at all but involves the application of radiation for therapeutic purposes. This man may have his own patients in course of treatment, much like an internist or urologist.

These illustrations suggest that members of a profession not only weigh auxiliary activities differently but have different conceptions of what constitutes the core—the most characteristic professional act—of their professional lives. For some pathologists it is attacking tumors with radiation; for others it is interpreting X-ray pictures. For many pathologists it is looking down the barrel of a microscope; for others it is experimental research. A dramatic example of the difference in characteristic professional acts is to be found in psychiatry, which for many of its practitioners means psychotherapy, an intricate set of interactions with a single patient. This is what a psychiatrist does. Yet many practitioners of psychiatry have as little face-to-face interaction with a patient as possible and concentrate upon physical therapies. Still others may spend a good deal of their time administering or directing the activities of other people who actually carry out various therapies.

Not all segments of professions can be said to have this kind of core—a most characteristic activity; many are not so highly identified with a single work activity. But, to the extent that segments develop divergent core activities, they also tend to develop characteristic associated and auxiliary activities, which may introduce further diversity in commitment to major areas, like practice, research, or public health.

Methodology and techniques.—One of the most profound divisions among members of a profession is in their methodology and technique. This, again, is not just a division between specialties within a profession. Specialties frequently arise around the exploitation of a new method or technique, like radiology in medicine, but as time goes by they may segmentalize further along methodological perspectives. Methodological differences can cut across specialty—and even professional—lines with specialists sharing techniques with members of other specialties which they do not share with their fellows.

Insofar as these methodological differences reflect bitter disagreements over the reality that the profession is concerned with, the divisions are deep indeed, and communication between the factions is at a minimum. In psychiatry the conflict over the biological versus the psychological basis of mental illness continues to produce men who speak almost totally different languages. In recent years the situation has been further complicated by the rise of social science's perspectives on mental illness. Focusing upon different aspects of reality, psychiatrists of these various persuasions do different kinds of research and carry out various kinds of therapy. They read a variety of journals; too often the journals a man reads, in any branch of medicine, tend to reflect his methodological as well as his substantive interests.

Social scientists must not suppose that, since psychiatry is closer in subject matter to the social sciences, it is the only branch of medicine marred by bitter methodological disputes (we do not mean to imply that such disputes ought to be avoided). Pathologists are currently grappling with methodological
issues which raged in some of the biological sciences, particularly anatomy, some years ago. The central issue has to do with the value of morphology, a more traditional approach which uses microscopic techniques to describe the structure of tissues, as against experimental approaches based upon more dynamic biochemical techniques. While the proponents of the two methodologies appear to understand each other somewhat better than do the psychiatrists, they still do not wholly appreciate each other: the morphologists are disposed to be highly defensive, and the experimentalists a little embarrassed by the continued presence of those purely morphologically inclined. Then, in the primarily clinical specialties, those combining medical and surgical techniques offer their own peculiar possibilities for dispute. Men can differ as to how highly they value and emphasize the medical or surgical approach to treatment; for example, an older urologist complained in a journal article that the younger men in the field are “knife-happy.” An analogous refrain can be heard among clinicians who frown upon too great a dependence upon laboratory techniques for diagnosis and accuse many of their colleagues of being unable to carry out a complex physical examination in the grand clinical manner.

Clients.—Characteristically, members of professions become involved in sets of relationships that are distinctive to their own segment. Wholly new classes of people may be involved in their work drama whom other segments do not have to take into account. We shall confine ourselves for the moment to considering relationships with clients.

We suspect that sociologists may too easily accept statements glorifying “the doctor-patient relationship” made by segments of the medical profession who have an interest in maintaining a particular relationship to patients. In actuality, the relationships between physicians and patients are highly varied. It does appear that an image of a doctor-patient relationship pervades the entire medical profession, but it is an image which, if it fits any group of physicians in its totality, comes closest to being the model for the general practitioner or his more modern counterpart, the family-practice internist. It seems to set an ideal for other physicians, who may incorporate whatever aspects of it are closest to their own working conditions into an image of the doctor-patient relationship peculiar to their own segment.

Specialties, or segments of specialties, develop images of relationships with patients which distinguish them from other medical groupings. Their own sense of mission and their specialized jobs throw them into new relationships with patients which they eventually formulate and refer to in idealized ways. Moreover, they do not simply define the relationship, but may highly elaborate a relation which this particular kind of doctor, and this kind alone, can have with patients. The pediatricians, for example, have created an image of family practitioner to whom not only the child but the parents and the whole family group surrounding the sick child are patients. According to a spokesman of the pediatricians, the peculiar involvement of parents in the illness of the child creates the conditions under which the pediatrician can evolve his relationship to the family unit. Something similar exists in psychiatry, where it is not the mentally ill patient who may be regarded as the sole or even main client but the family. It is probably in psychiatry, too, that the most highly elaborated doctor-patient relationships exist, since the psychotherapeutic practitioner uses his relationship to patients as a conscious and complex therapeutic tool.

The most significant point here is that the young psychiatrist, learning the art of psychotherapy, has to unlearn approaches to the patient that he acquired in medical school.

In addition, there are the physicians who only in a special sense can be said to have patients at all. We are likely to think of pathologists, anesthesiologists, and radiologists as doctors without patients: they may have little or no contact with patients, but they do have a relationship to them. The
pathologist practicing in a hospital has a well-developed set of obligations to the patient whom he may never confront, and interest groups among the pathologists are concerned with making the lay public aware of the functions of the pathologist behind the scenes. Practitioners in all three of these specialties appear to be concerned with defining their own relationship to patients.

Collegeship.—Collegeship may be one of the most sensitive indicators of segmentation within a profession. Whom a man considers to be his colleagues is ultimately linked with his own place within his profession. There is considerable ambiguity among sociologists over the meaning of the term “colleague.” Occasionally the word is used to refer to co-workers, and other times simply to indicate formal membership in an occupation—possession of the social signs. Thus, all members of the occupation are colleagues. But sociological theory is also likely to stress collegeship as a brotherhood. Grosz, for example, writes about the colleague group characterized by esprit de corps and a sense of “being in the same boat.” This deeper colleague relationship, he says, is fostered by such things as control of entry to the occupation, development of a unique mission, shared attitudes toward clients and society, and the formation of informal and formal associations.

This conception of collegeship stresses occupational unity. Once entry to the occupation is controlled, it is assumed that all members of the occupation can be colleagues; they can rally around common symbols. However, the difficulty is that the very aspects of occupational life which Grosz writes about as unifying the profession also break it into segments. What ties a man more closely to one member of his profession may alienate him from another: when his group develops a unique mission, he may no longer share a mission with others in the same profession.

Insofar as collegeship refers to a relationship characterized by a high degree of shared interests and common symbols, it is probably rare that all members of a profession are even potentially colleagues. It is more feasible, instead, to work with a notion of circles of collegeship. In the past, sociologists have recognized such circles of collegeship, but from the viewpoint of the selective influence of such social circumstances as class and ethnicity. The professional identity shared by colleagues, though, contains far more than the kinds of people they desire as fellows. More fundamentally, they hold in common notions concerning the ends served by their work and attitudes and problems centering on it. The existence of what we have called segments thus limits and directs collegeship.

Identification with segments not only directs relationships within a profession but has a great deal to do with relations with neighboring and allied occupations. We might use the term “alliances” to distinguish this phenomenon from collegeship within a profession. Alliances frequently dramatize the fact that one branch of a profession may have more in common with elements of a neighboring occupation than with their own fellow professionals. For example, experimentally minded pathologists consult and collaborate with biochemists and other basic scientists, while pathologists oriented toward practice make common cause with clinicians of various specialties.

Interests and associations—to what extent, and under what conditions, can we speak of professionals as having interests in common? (Here we mean “interests” in the sense of fate, not merely that they are “interested in” different matters.) Sociologists have been overlooking a very rich area for research because they have been too readily assuming unity of interest among professionals. That interests do diverge within a profession is clear enough when the observer looks for it; not only may interests run along different lines, but they may be, and frequently are, in direct conflict.

Pathologists present a particularly striking illustration of conflict of fateful interest between segments of a specialty. The prac-
PROFESSIONS IN PROCESS

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Groups that control the associations can wield various sanctions so as to bring about compliance of the general membership with codes which they have succeeded in enacting. The association concerned with the practice of pathology, for example, has recently stipulated specific contractual relations which the pathologist should enter into with his hospital and is moving toward denying critical services of the association to non-complying members—despite the fact that a goodly proportion of practicing pathologists neither have such contractual relations nor even consider them desirable. But more or less organized opposition to the code-writing of entrenched groups can lead to revision of codes from time to time. Changes occur as the composition of critical committees is altered. Thus, since the clinically oriented pathologists have gained power, they have succeeded in making certification examinations more and more exacting along applied lines, making it steadily more difficult for young pathologists trained for research to achieve certification. Certification procedures thus shift with the relative power of segments, putting a premium on some kinds of training and discriminating against others.

Those who control the professional associations also control the organs of public relations. They take on the role of spokesmen to the public, interpreting the position of the profession, as they see it. They also negotiate with relevant special publics. The outsider coming into contact with the profession tends to encounter the results of the inner group's efforts; he does not necessarily become aware of the inner circle or the power struggles behind the unified front. Thus, in considering the activities of professional associations the observer must continually ask such questions as: Who handles the public and what do they represent? Whose codes of ethics are these? What does the certification stand for? We should also ask, wherever a profession seems to the general public to be relatively unified, why it seems so—for this, too, is a pertinent problem.

Our mode of presentation might lead the reader to think of segments as simple differentiation along many rubrics. On the contrary, the notion of segments refers to organized identities. A position taken on one of the issues of professional identity discussed above entails taking corresponding positions along other dimensions of identity. Segments also involve shared identities, manifested through circles of colleagueship. This allows one to speak of types of pathologist or types of pediatrician—groups of people who organize their professional activity in ways which distinguish them from other members of their profession.

Segments are not fixed, perpetually defined parts of the body professional. They tend to be more or less continually undergoing change. They take form and develop, they are modified, and they disappear. Movement is forced upon them by changes in their conceptual and technical apparatus, in the institutional conditions of work, and in their relationship to other segments and occupations. Each generation engages in spelling out, again, what it is about and where it is going. In this process, boundaries become diffuse as generations overlap, and different loci of professional activity articulate somewhat different definitions of the work situation. Out of this fluidity new groupings may emerge.

If this picture of diversity and movement is a realistic description of what goes on within professions, how can it be analyzed? As a beginning, the movement of segments can fruitfully be analyzed as analogous to social movements. Heretofore, the analysis of social movements has been confined to religious, political, and reform movements, to such problems as the conditions of their origin, recruitment, leadership, the development of organizational apparatus, ideologies, and tactics. The same questions can be asked of movements occurring within professions. Professional identity may be thought of as analogous to the ideology of a political movement; in this sense, segments have ideology. We have seen that they have missions. They also tend to develop a broth-
PROFESSIONS IN PROCESS

erhood of colleagues, leadership, organizational forms and vehicles, and tactics for implementing their position.

At any one time the segments within a profession are likely to be in different phases of development and engaging in tactics appropriate to their position. In pathology, for example, the clinically oriented segment, which one of its antagonists termed "evangelistic" and which is still expanding, has already created strong organizations, captured many academic departments, promulgated codes of ethics, and is closing in on the battle to secure desirable status for pathologists in hospitals. The more scientifically oriented segment, on the other hand, finds itself in a somewhat defensive position, forced to reaffirm some aspects of its identity and modify others and to engage in tactics to hold its institutional supports. Possibly the acme for some expanding segments is the recognized status of specialty or subspecialty. Certainly, this is the way specialties seem to develop. But the conditions under which segments will become formal specialties is in itself a fascinating research problem. (So also is the whole question of relative development, degree of change, influence, and power—matters expressively alluded to when professionals speak of "hot" areas and dead ones.)

We have said that professions consist of a loose amalgamation of segments which are in movement. Further, professions involve a number of social movements in various kinds of relationships to each other. Although the method of analysis developed for studying political and reform movements provides a viewpoint on phenomena of professional life neglected in contemporary research, some differences must be noted between professional movements and the traditional subject matter of analysis. First of all, professional movements occur within institutional arrangements, and a large part of the activity of segments is a power struggle for the possession of them or of some kind of place within them. Second, the fates of segments are closely intertwined: they are possibly more interdependent and responsive to one another than are other kinds of movements. It is probably impossible to study one segment in movement adequately without taking into account what is happening to others. Third, the leaders are men who recognize status within the field, operate from positions of relative institutional power, and command the sources of institutionalized recruitment. Finally, it must be pointed out that not all segments display the character of a social movement. Some lack organized activities, while others are still so inchoate that they appear more as a kind of backwash of the profession than as true segments.

In any case, the existence of segments, and the emergence of new segments, takes on new significance when viewed from the perspective of social movements within a profession. Pockets of resistance and embattled minorities may turn out to be the heirs of former generations, digging in along new battle lines. They may spearhead new movements which sweep back into power. What looks like backwash, or just plain deviancy, may be the beginnings of a new segment which will acquire an institutional place and considerable prestige and power. A case in point is that of the progenitors of the clinical pathologists, who today are a threat to the institutional position of research-oriented pathologists but who were considered the failures, or poor cousins, of the specialty thirty years ago.

We have indicated what new kinds of research might originate from the conception of professions that we have presented. However, this perspective has implications for several quite traditional areas of research.

1. Work situation and institution as arenas.—The work situation and the institution itself are not simply places where people of various occupations and professions come together and enact standard occupational roles, either complimentary or conflicting. These locales constitute the arenas wherein such roles are forged and developed. Work situation and institution must be regarded in the light of the particular professional segments represented there: where the segments are moving and what effect these
arenas have on their further development. Since professions are in movement, work situations and institutions inevitably throw people into new relationships.

2. Careers.—The kinds of stages and the locales through which a man's career moves must be considered in terms of the segment to which he "belongs." Further, the investigator must be prepared to see changes not only in stages of career but in the ladder itself. The system that the career is moving through can change along the way and take on entirely new directions. The fate of individual careers is closely tied up with the fate of segments, and careers that were possible for one generation rarely are repeatable for the next generation.

3. Socialisation.—An investigator should not focus solely upon how conceptions and techniques are imparted in the study of socialization; he should be equally interested in the clash of opinions among the socializers, where students are among the prizes. Segments are in competition for the allegiance of students: entire schools as well as single departments can be the arena of, and weapons in, this conflict. During their professional training, students pick their way through a maze of conflicting models and make momentous commitments thereby.

4. Recruitment.—The basic program of recruitment probably tends to be laid down by powerful segments of the profession. Yet different segments require different kinds of raw material to work upon, and their survival depends upon an influx of candidates who are potential successors. Thus, recruitment can be another critical battleground upon which segments choose candidates in their own image or attempt to gain sufficient control over recruitment procedures to do so. Defection by the recruited and recruiters, by the sponsored and the sponsors, is also well worth studying, being one way that new careers take form.

5. Public Images.—We have seen that images beamed to the public tend to be controlled by particular segments of the profession. However, sometimes segments reject these public images as inappropriate—either to themselves, specifically, or to the profession at large. If only the former, then they may require that the public acquire specialized images for themselves. In any case, segments from time to time must engage in tactics to project their own images to the public. The situation is more complicated when the whole profession is considered as a public for particular specialties or for segments of specialties. Segments may be at pains to counteract the images which other people in the profession have of them, and attempt to create alternative images.

6. Relations with other professions.—Different segments of the profession come into contact with different occupations and professions. They might have quite special problems with other occupations which they do not share with other members of their profession. In considering the handling of relations with other professions, it is thus necessary to ask such questions as: Who in the profession is concerned with this problem and what difference does it make to them? Who does the negotiating and in what ways?

7. Leadership.—Most leadership is associated less with the entire profession than with restricted portions of it. Certainly, it is linked with intellectual movements, and with the fates and fortunes of certain segments. Leadership, strategies, and the fates of segments deserve full focus in our studies of professionalization.

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THE RISE OF PROFESSIONALISM

A Sociological Analysis

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Chapter 2

THE CONSTITUTION
OF PROFESSIONAL MARKETS

The emergence of professional markets in the competitive phase of capitalism was an accessory development in a much more formidable transformation. In structure and ideology, the emerging modern professions foreshadowed much that could be realized in practice only in our century, when capitalism entered its corporate phase. In the first half of the nineteenth century, however, when professions began to organize and reform themselves, they were part of a world that was being subverted and reshaped by "the utopian endeavor of economic liberalism to set up a self-regulating market system." These words, as well as the very expression "great transformation," are Karl Polanyi's; the general thrust of his brilliant interpretation is well known:

For a century, the dynamics of modern society was governed by a double movement: the market expanded continuously but this movement was met by a countermovement checking the expansion in definite directions. Vital though such a countermovement was for the protection of society, in the last analysis, it was incompatible with the self-regulation of the market, and thus with the market system itself.¹

Now it is customary to say that professions are "those occupations in which curex empitor cannot be allowed to prevail and which, while they are not pursued for gain, must bring to their practitioners income of such a level that they will be respected and such a manner of living that they may pursue the life of the mind."² It would be tempting, then, to consider the professions as expressions of Polanyi's "countermovement" and thus account for their paradoxical position: for they are, in fact, one of the distinctive features of industrial capitalism, even though they claim to re-nounce the profit motive and appear to some as "a mere survival of the medieval guild."³ But such an account would not only be too simple; it would also incorporate uncritically much of the professions' appearances and ideological self-conceptions.

A first step to render modern professions sociologically intelligible is to reflect on their historical origins: professions were and are means of earning an income on the basis of transacted services; in a society that was being reorganized around the centrality of the market, the professions could hardly escape the effects of this re-organization. The modern model of profession emerges as a consequence of the necessary response of professional producers to new opportunities for earning an
Community-oriented and market-oriented society

In the United States and England, as in most other European societies, the profes-

Constitution of Professional Markets

Constitution of Professional Markets

Constitution of Professional Markets

guarantee credit and credibility. The ideal-typical passage from community-oriented

to market-oriented society gives similar contours to the task faced by professional

reformers. Concrete historical contexts in turn, determine what resources are avail-
able for such an effort, sharpening the contours of the general model and marking

the limits of its usefulness.

In late eighteenth-century England, economic and social transformations had

only begun to encroach upon the well-guarded bastions of the traditional profes-
sional elites. Yet the existence of a national market and the success of the English

Revolution of 1688 had signaled the definitive dissolution of the feudal order since

the seventeenth century. The advance of bourgeois society in the wake of the struc-
tural transformations of the economy could not have left unaffected the conditions

of professional practice.

The official professional elites of the Royal College of Physicians or the Inns of

Court, centered in London, had monopolized since ancient times the right to

license medical practitioners or to call lawyers to the bar. The rise of the "middle

order," however, had multiplied the numbers of practitioners who were in the

lower branches, and thus excluded from the institutionalized sanctions of profes-
sional status. Medical practitioners of lower standing practiced chiefly in the

provinces, outside the jurisdiction of the traditional corporations, and they worked

in expanding though bitterly competitive markets. From the sixteenth century on,

there is evidence, both in England and abroad, of a growing number of medical men.

By the seventeenth century, extensive practices were bringing substantial wealth

to an elite of London physicians, while lower down in the social hierarchy apoth-
carcies were practicing medicine and setting themselves apart from shopkeeping

druggists. In the eighteenth century, the apothecary's standing as bona fide med-

cial practitioners was recognized, even though their clientele as well as their status

were quite modest, compared to those of the Royal College fellows, or the licentiates,
or the increasingly prestigious surgeons.

In the law, attorneys and solicitors—an amalgamated class, for all practical pur-
poses—were reaching in this century the position they occupy at present in the

English legal system. The Inns of Court discouraged their membership and excluded
them from the bar, unless they abandoned their practice in the lower branch for a
least two years before being called. However, the already expanding business of
representing and counselling the government's various departments fell entirely
into the hands of attorneys and solicitors. Strengthened by their new respectability,
they had begun to organize in voluntary societies since the first decades of the eigh-
teenth century. "Complaints were made," we are told, "of the number of attorneys
and the difficulty of applying any measure of discipline was increased by the exist-
ence of 'vagabond attorneys', that is, attorneys with no fixed address." To this
Parliament responded with the regulatory act of 1729. Formed in the 1730s, the
Society of Gentlemen Practisers in the Courts of Law and Equity, in turn, took
supervision and enforcement of the act's provisions against unworthy attorneys
as one of its main tasks.
Constitution of Professional Markets

came from outside the small worlds of the traditional professional corporations. With the decline of amateur and clerical practitioners, professional callings had become full-time specialized vocations. Urbanization and improved communications were breaking the isolation of the large numbers of provincial practitioners.14 Exaggerating the general movement of the bourgeoisie for national reform, the organizational efforts of the new professional societies were centrally concerned with regulating competition, and therefore with the terms of access to the marks of professional fitness. As demands for entry or recognition increased, the traditional professional bodies tended to respond by making membership more exclusive. Both the halls of Court and the Royal College of Physicians reasserted the privileges of Oxford and Cambridge graduates, even though the two ancient universities could hardly be commended for their standards of legal or medical education.15 Passage through the hallowed English universities—from which Catholics, Dissenters and all but a few poor commoners were excluded, either de jure or de facto—was, if nothing else, a test of social fitness. In fact, the elite professionals of the traditional corporations tended to reserve entry into their ranks to those whom they considered social peers.

Thus, despite the existence of a minority of very successful middle class practitioners, the "first-class" marks of professional distinction were practically monopolized by aristocratic or quasi-aristocratic elites. That these marks were significant for the successful practitioners in the "lower branches" of medicine and law is shown by the leading role they took in the efforts to democratize the government of the traditional corporations. The bulk of the rising professional middle class was even more seriously damaged by the traditional monopolies over professional titles. Beyond the local spheres in which reputations were established, there were few recognized guarantees of competence and probity. Without these visible signs, respectable common practitioners found themselves helpless against the competition of the unscrupulous and the inept, who proliferated in unregulated markets. Their problems were sometimes acknowledged by the traditional corporations but seldom acted upon with determination. The position of the professional middle class was improved almost solely by the organizational efforts of their own leaders and of their own voluntary associations, which moved both against traditional monopolies over titles and licenses to practice, and against the competition of disputable "collegiates." Such pressure to break the closed ranks of a professional caste did not arise in America until much later. There had been great progress in higher education and the importation of British professional models in the eighteenth century, but the colonies remained poor, provincial, and sparsely populated. In a decentralizing setting, the nine American colleges that existed before the Revolution could not hold the same consecrating power that Oxford and Cambridge held, despite their intellectual and political liveliness. These colleges gave a gentlemanly seal to the training of those graduates who did not enter the professions; the more numerous graduates who entered the ministry, medicine, or law, or lastly medicine, constituted an elite among professionals. In the two secular callings, these practitioners who had studied abroad were an elite of the elite.15 The bar in particular had since 1895

great power and prestige during the eighteenth century from being an occupation of "mostly pettifoggers and minor court officers...who stirred up litigation for the sake of the petty court fees." It had become in urban centers a social and political elite which matched the clergy in importance and tended toward closure.14 The Revolution purged the bar of its best practitioners, democratizing it, on the whole, but also setting back the general standards of a profession based on apprenticeship and creating a wide gap between the urban legal elites, who shaped the new republic's institutions, and the mass of a growing profession.16 But the existence of urban and Eastern professional elites did not mean that they constituted the apex of a recognized professional hierarchy. The difference between elites that looked to Europe and hinterland communities created almost unbridgeable chasms in all professions and trades. In remote frontier areas, geographic isolation ensured a de facto monopoly to the lone attorney or physician; it must, however, have been a short-lived advantage, since isolation and decentralization also made self-appointment easy and thus made competition keener. Moreover, professional practice in eighteenth-century America most often was a part-time avocation, except for clergymen, one of whom each township was legally required to support in the old settlements, and who often doubled as part-time lawyers or healers. But even the clergy, which enjoyed in smaller towns the undivided position of an intellectual elite, was prevented by denominationalism and decentralization from forming a united hierarchy. The clergy, besides, was unable to maintain its lifetime tenure and traditional social standing, as economic development and its sequel of regional depressions shook the foundations of stable community life.14

Thus even if decentralization, social mobility, and religious tolerance kept the American professional hierarchy much more open and fluid than in England, the differential sanction of different communities who distinguished in the United States the established urban professionals from the upstarts, the "learned" from the empirics, the gentle from the coarse, and soon, the native sons from the thriving immigrants as well. Yet in an expanding social context, restricted professional monopolies could not hold for long. Whether it was the challenge against corporate privileges characteristic of professional modernization in England, or the decline of community warrants which affected both England and the United States, the breakdown of parochial legitimations demanded the organization or the reconstruction of the competitive professional markets that were emerging in urban centers. In all walks of life, the Industrial revolution was separating work and training from the household and from the community. Professional work was becoming a full-time means of earning a livelihood, subject to the dictates of capitalist competition for income and profit. To insure their livelihood, the rising professionals had to unify the corresponding areas of the social division of labor around homogeneous guarantees of competence. The unifying principles could be homogeneous only to the extent that they were universalistic—that is, autonomously defined by the professionals and independent, at least in appearance, from the traditional and external guarantees of state rationalization. Thus, the modern reorganization of professional work and professional markets tended to found credibility on a different, and much enlarged, autonomous basis, the claim to sole control of necessary expertise.
THE ORGANIZATIONAL TASK

The "great transformation" presented the professional "entrepreneurs" with expanding and "free" markets despite the profound differences in social structure among the national societies that underwent the transformation, the general task of professional organization had similar structural requirements. It was substantially different, however, from the task that industrial entrepreneurs had confronted.

First, for a professional market to exist in a modern sense, a distinctive "commodity" had to be produced. Now professional work, like any other form of labor, is only a fictional commodity; it "cannot be detached from the rest of life, be stored or mobilized," and it is not produced for sale. Unlike craft or industrial labor, however, most professions produce intangible goods: their product, in other words, is only formally alienable and is intrinsically bound to the person and the personality of the producer. It follows, therefore, that the producers themselves have to be produced if their products or commodities are to be given a distinctive form. In other words, the professionals must be adequately trained and socialized so as to provide recognizably distinct services for exchange in the professional market.

Second, in the formative period, most of the markets for professional services had to be created, for the existing markets were unavailable and far from unified; common standards of what was a unique commodity—intangible services—n sat, and even of what services were wanting, were lacking. For a secure market to arise, the specificity of one kind of services had to be clearly established with regard to competing "products." The various professional services, therefore, had to be standardized in order to clearly differentiate their identity and connect them in the minds of consumers, with stable criteria of evaluation. A tendency to monopoly by elimination of competing "products" was inherent in this process of standardization; for if other standards of evaluation were allowed to prevail, the preferences of the public could not easily be reclaimed from other "consumer loyalties." Professional entrepreneurs, not unlike their counterparts in industry, were therefore bound to solicit state protection and state-enforced penalties against unlicensed competitors—that is to say, those producers of services whose training and entry into the market they had not controlled. However, no amount of coercion could force a clientele to switch allegiances and seek professional services which it did not even know it needed—at least not in the form that the leaders of professional reform were giving to those professional services. In consequence, the road that the professional reformers had mapped in the liberal phase of capitalism could not be traveled to the end with the "social technology" they had available.

Third, because the standardization of professional services is bound to the con-

 reddit to accept the economic and social sacrifices of training. Hence, at least a moderate guarantee that the recruits' educational investment would be protected had to be sought from the beginning. In a market situation, the guarantees against risks incurred could take the form of monopoly, or at least of special protection by the public authorities. In this case, the nature of the products and the state of their markets were such that only the state, as the supreme legitimizing and enforcing institution, could sanction the modern professions' monopolistic claims of superiority in their "commodities." The attitude of the state toward education and toward monopolies of competence is thus a crucial variable in the development of the professional project.

In sum, creating professional markets required, as in every other case, establishing social credit or, to paraphrase Durkheim, creating non-contractual bases of contract. Because of the pre-existing competition, this task demanded strong and quasi-monopolistic protective devices. Because of the unique nature of the products to be marketed, and because their use value to the large public was as uncertain as it was, control had to be established first at the point of production: the providers of services had to be controlled in order to standardize and thus identify the "commodity" they provided. For this, a cognitive basis was crucial. The kind of knowledge that each profession could claim as distinctively its own was therefore a strategic factor of variation in their organizational effort. However, a cognitive basis of any kind had to be at least approximately defined before the rising modern professions could negotiate cognitive exclusiveness—that is, before they could constructively establish a teaching monopoly on their specific tools and techniques, while claiming absolute superiority for them. The proved institutional mechanisms for this negotiation were the license, the qualifying examination, the diploma, and formal training in a common curriculum. The typical institutions that administered these services were, first, the guild-like professional association, and later the professional schools, which superseded the association in effectiveness.

Obviously, none of this was in itself an organizational invention. The guilds of merchants that sprang up in eleventh-century Europe were also voluntary associations tending toward the monopolistic control of a new form of trade. The craft guilds, which were organized everywhere by the thirteenth century, were also devices for establishing social credit in a phase of rapid development of small commodity production. In that historical situation, the merchant guilds moved from de facto monopoly to a right acknowledged by lords and cities. The assembling of producers along craft lines was encouraged by the public authorities as a means of regulating the new urban markets. That the craft guilds later strove to emancipate themselves from the municipal tutelage probably had more to do with the politics of the medieval cities than with the dynamics of professionalism. Nevertheless, the survival of the guild form in the midst of the industrial revolution no longer appears paradoxical; it suggests that associations of "free" producers backed by public authorities and founded toward monopoly are a general feature in the constitution of new markets based on free skilled labor.

What was genuinely new in the strategy adopted by professional reformers fo
Constitution of Professional Markets

The establishment of national systems of public and compulsory education was in some cases led “from above” by “enlightened” autocratic states; in others it was the piecemeal outcome of diverse ideological and political struggles. In the latter instance, it coincided with the bourgeoisie’s conquest of social hegemony. In England, the first industrial society, it was the middling professional men who led the public negotiations of cognitive exclusiveness, in their effort to unseat the traditional professional elites and to separate themselves from the trades. Their progress involved nothing less than the creation of a graded system of comprehensive education and the reorientation of its higher-level institutions. It was hindered by the peculiarities of England’s stratification system and by the persistent ideological influence of its aristocracy.

The formidable task of setting up the educational apparatus of bourgeois hegemony involved the whole structure of each society and was shaped by each society’s historical development. It necessarily concerned more numerous and diverse social categories than the narrow professional sector of the middle class. What varied nationally and historically were the particular balances achieved between the upper classes, the clergy, sectors of the industrial bourgeoisie, enclaves of regime intellectuals, and the “organic” intellectuals of the capitalist class, including the professional reformers and organizers. However, the structures that emerged were analogous beneath the surface: insular as they were modern, all levels of the new educational systems were spawned by capitalist industrialization. Determined by the specific class structure of each capitalist society, they determined in turn, functioning as the characteristic instruments of legitimization of the mature capitalist order. The professions contributed their own specific amalgams of old and new ideological structures to the emerging systems of national education. They were obviously not the only ones to do so, but they led the way in asserting the crucial social function of credentialing systems.

To recapitulate and complete the steps of this analysis: the passage from restricted monopolies of practice to the organization and control of expanded and competitive markets was a necessary one for the professional sectors of the middle class, seeking to improve their position in the emergent stratification systems of capitalist society. Their task presupposed the abandonment—deliberate or involuntary—of the restrictive corporate warrants of professional credibility. It tended toward the reconstitution of monopoly on the universalistic principles of related fields.

Constitution of Professional Markets

enforced monopolies of practice. However, the actual effectiveness of such sanctions depends on the parallel construction of a “monopoly of credibility” within the larger public. The conquest of official privilege and public favor was, for the professions, a double external task of ideological persuasion, which had an internal precondition: the unification of the corresponding areas of the social division of labor under the direction of a leading group of professional reformers. The crucial means for this unification, and therefore the concrete core of the professionals’ organizational task, was systematic training—or, in my terms, the standardized and centralized production of professional producers.

Traditional professional elites had monopolized the marks of distinction confered by universities. But the actual content of their education, in relation to professional practice, was not that important: protected by traditional corporate privileges, the old professional elites did not need to submit their specific “commodities” to the test of market competition. Market competition, on the other hand, determined the necessary centrality of both training and the content of training in the structure of modern professions. The importance of cognitive exclusiveness in the control of expanded professional markets suggests some additional remarks.

The industrial revolution and the consolidation of capitalist social systems created new areas of practice and new occupational roles. The application of science to industry and to practically every other area of life gradually and constantly changed the cognitive bases of the social division of labor. It is logical to assume that their structural position in the division of labor gave an advantage to certain occupations: from the point of view of cognitive exclusiveness, those professions or professional sectors which had the opportunity of appropriating and standardizing new bodies of knowledge should have been favored in the creation of a distinctive “commodity” and in the attainment of a monopoly of competence. New techniques should be susceptible of monopolization by their inventors or first users: the novelty of a knowledge should therefore facilitate the task of erecting protective boundaries around it.

Professions, however, were not always in control of new knowledge relevant to their practice, for the good reason that much of it was produced by outsiders—researchers in related scientific fields, and also practical men in politics, in business, and in the arts. A profession’s cognitive base can evolve in complete independence from the profession itself and from its production of professional producers, until the production of knowledge and the production of producers are united into the same structure. Or, in other words: the link between research and training institutionalized by the modern model of university gives to university-based professions the means to control their cognitive bases. Once again, the emergence of modern systems of education—and here, in particular, the transformation of their higher branches into centers for the production of knowledge—appears as the central hinge of the professional project.

The monopolistic and standardized production of professional producers is a necessary step in the march toward market control. But it is by no means a sufficient
profession gains considerable social power. The structure of a particular professional market is determined by the broader social structure which shapes the social need for a given service and therefore defines the actual or potential publics of a given profession.

In conclusion, to view professional modernization as a project of market control underlines the central role of the state in the development of this project, most particularly its function of sponsoring monopolistic education systems. This point of view explains the crucial importance of two components: the professional project combines them into one complex structure, even though their character and evolution can be, until then, totally independent from each other. Those components are the potential market for a professional service, on the one hand, and on the other, the cognitive basis to which this service is or can be tied.

In the next chapter I will consider in some detail the characteristic market situation of medicine: everywhere, it was one of the first professions to strive for internal unification, although it could not become until much later the leading model of professional power and success. This analysis will lay the ground for a paradigmatic view of the constellation of elements which can increase a profession's chances of attaining market control. A comparison of medicine with engineering will then allow me to explore the interplay between market structure and the cognitive basis of a profession.
making sense of uncertainty, performing artistically, setting problems, and choosing among competing professional paradigms, when these processes seem mysterious in the light of the prevailing model of professional knowledge.

We are bound to an epistemology of practice which leaves us at a loss to explain, or even to describe, the competences to which we now give overriding importance.

From Technical Rationality to Reflection-in-Action

The Dominant Epistemology of Practice

According to the model of Technical Rationality—the view of professional knowledge which has most powerfully shaped both our thinking about the professions and the institutional relations of research, education, and practice—professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique. Although all occupations are concerned, on this view, with the instrumental adjustment of means to ends, only the professions prac-
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

The prototype of professional expertise in this sense are the “learned professions” of medicine and law and, close behind these, business and engineering. These are, in Nathan Glazer’s terms, the “major” or “near-major” professions. They are distinct from such “minor” professions as social work, librarianship, education, divinity, and town planning. In the essay from which these terms are drawn, Glazer argues that the schools of the minor professions are hopelessly nonrigorous, dependent on representatives of academic disciplines, such as economics or political science, who are superior in status to the professions themselves. But what is of greatest interest from our point of view, Glazer’s distinction between major and minor professions rests on a particularly well-articulated version of the model of Technical Rationality. The major professions are “disciplined by an unambiguous end—health, success in litigation, profit—which settles men’s minds,” and they operate in stable institutional contexts. Hence they are grounded in systematic, fundamental knowledge, of which scientific knowledge is the prototype, or else they have “a high component of strictly technological knowledge based on science in the education which they provide.” In contrast, the minor professions suffer from shifting, ambiguous ends and from unstable institutional contexts of practice, and are therefore unable to develop a base of systematic, scientific professional knowledge. For Glazer, the development of a scientific knowledge base depends on fixed, unambiguous ends because professional practice is an instrumental activity. If applied science consists in cumulative, empirical knowledge about the means best suited to chosen ends, how can a profession ground itself in science when its ends are confused or unstable?

The systematic knowledge base of a profession is thought to have four essential properties. It is specialized, firmly bounded, scientific, and standardized. This last point is particularly

From Technical Rationality to Reflection-in-Action

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important, because it bears on the paradigmatic relationship which holds, according to Technical Rationality, between a profession’s knowledge base and its practice. In Wilbert Moore’s words,

If every professional problem were in all respects unique, solutions would be at best accidental, and therefore have nothing to do with expert knowledge. What we are suggesting, on the contrary, is that there are sufficient uniformities in problems and in devices for solving them to qualify the solvers as professionals... professionals apply very general principles, standardized knowledge, to concrete problems...  

This concept of “application” leads to a view of professional knowledge as a hierarchy in which “general principles” occupy the highest level and “concrete problem solving” the lowest. As Edgar Schein has put it, there are three components to professional knowledge:

1. An underlying discipline or basic science component upon which the practice rests or from which it is developed.
2. An applied science or “engineering” component from which many of the day-to-day diagnostic procedures and problem-solutions are derived.
3. A skills and attitudinal component that concerns the actual performance of services to the client, using the underlying basic and applied knowledge.

The application of basic science yields applied science. Applied science yields diagnostic and problem-solving techniques which are applied in turn to the actual delivery of services. The order of application is also an order of derivation and dependence. Applied science is said to “rest on” the foundation of basic science. And the more basic and general the knowledge, the higher the status of its producer.

When the representatives of aspiring professions consider

From Technical Rationality to Reflection-in-Action

the problem of rising to full professional status, they often ask whether their knowledge base has the requisite properties and whether it is regularly applied to the everyday problems of practice. Thus, in an article entitled “The Librarian: From Occupation to Profession,” the author states that

the central gap is of course the failure to develop a general body of scientific knowledge bearing precisely on this problem, in the way that the medical profession with its auxiliary scientific fields has developed an immense body of knowledge with which to cure human diseases.

The sciences in which he proposes to ground his profession are communications theory, the sociology or psychology of mass communications, or the psychology of learning as it applies to reading.” Unfortunately, however, he finds that

most day-to-day professional work utilizes rather concrete rule-of-thumb local regulations and rules and major catalog systems... The problems of selection and organization are dealt with on a highly empirical basis, concretely, with little reference to general scientific principles.

And a social worker, considering the same sort of question, concludes that “social work is already a profession” because it has a basis in

theory construction via systematic research. To generate valid theory that will provide a solid base for professional techniques requires the application of the scientific method to the service-related problems of the profession. Continued employment of the scientific method is nurtured by and in turn reinforces the element of rationality... It is by progressing along this route that social work seeks to “rise within the professional hierarchy so that it, too, might
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

enjoy maximum prestige, authority, and monopoly which presently belong to a few top professions.17

If the model of Technical Rationality appeared only in such statements of intent, or in programmatic descriptions of professional knowledge, we might have some doubts about its dominance. But the model is also embedded in the institutional context of professional life. It is implicit in the institutionalized relations of research and practice, and in the normative curricula of professional education. Even when practitioners, educators, and researchers question the model of technical rationality, they are party to institutions that perpetuate it.

As one would expect from the hierarchical model of professional knowledge, research is institutionally separate from practice, connected to it by carefully defined relationships of exchange. Researchers are supposed to provide the basic and applied science from which to derive techniques for diagnosing and solving the problems of practice. Practitioners are supposed to furnish researchers with problems for study and with tests of the utility of research results. The researcher’s role is distinct from, and usually considered superior to, the role of the practitioner.

In the evolution of every profession there emerges the researcher-theoretician whose role is that of scientific investigation and theoretical systematization. In technological professions, a division of labor thereby evolves between the theory-oriented and the practice-oriented person. Witness the physician who prefers to attach himself to a medical research center rather than to enter private practice . . . . 18

In a similar vein, Nathan Glazer speaks of the sociologist, political scientist, or economist who, when he is invited to bring his discipline to the school of a minor profession, manifests a level

From Technical Rationality to Reflection-in-Action

of status disturbingly superior to that of the resident practitioners. And in schools of engineering, which have been transformed into schools of engineering science, the engineering scientist tends to place his superior status in the service of values different from those of the engineering profession.19

The hierarchical separation of research and practice is also reflected in the normative curriculum of the professional school. Here the order of the curriculum parallels the order in which the components of professional knowledge are “applied.” The rule is: first, the relevant basic and applied science; then, the skills of application to real-world problems of practice. Edgar Schein’s study of professional education led him to describe the dominant curricular pattern as follows:

Most professional school curricula can be analyzed in terms of the form and timing of these three elements [of professional knowledge]. Usually the professional curriculum starts with a common science core followed by the applied science elements. The attitudinal and skill components are usually labelled “practicum” or “clinical work” and may be provided simultaneously with the applied science components or they may occur even later in the professional education, depending upon the availability of clients or the ease of simulating the realities that the professional will have to face.20

Schein’s use of the term “skill” is of more than passing interest. From the point of view of the model of Technical Rationality institutionalized in the professional curriculum, real knowledge lies in the theories and techniques of basic and applied science. Hence, these disciplines should come first. “Skills” in the use of theory and technique to solve concrete problems should come later on, when the student has learned the relevant science—first, because he cannot learn skills of application until
he has learned applicable knowledge; and secondly, because skills are an ambiguous, secondary kind of knowledge. There is something disturbing about calling them "knowledge" at all.

Again, medicine is the prototypical example. Ever since the Flexner Report, which revolutionized medical education in the early decades of this century, medical schools have devoted the first two years of study to the basic sciences—chemistry, physiology, pathology—as "the appropriate foundation for later clinical training." Even the physical arrangement of the curriculum reflects the basic division among the elements of professional knowledge:

The separation of the medical school curriculum into two disjointive stages, the preclinical and the clinical, reflects the division between theory and practice. The division also appears in the location of training and in medical school facilities. The sciences of biochemistry, physiology, pathology and pharmacology are learned from classrooms and laboratories, that is, in formal academic settings. More practical training, in clinical arts such as internal medicine, obstetrics and pediatrics, takes place in hospital clinics, within actual institutions of delivery.

And teaching roles tend to reflect the same division:

Medical school faculties tend to be divided between the PhD's and MD's, between teachers of basic science and those in clinical programs.

Even though the law might be thought to have a dubious basis in science, the introduction of the still-dominant pattern of legal education—by Christopher Columbus Langdell at Harvard University in the 1880s and 1890s—followed the normative curricular model. In his address before the Harvard Law School in 1886, Langdell argued that "first, law is a science, and secondly . . . all available materials of that science are con-

From Technical Rationality to Reflection-in-Action

tained in printed books." Langdell claimed that legal education is better conducted in a law school than in a lawyer's office because legal study is based upon broad, scientifically determined principles which cut across state lines.

For Langdell claimed law was a science . . . this meant that its principles could be developed from analysis of prior court decisions and could be used to predict subsequent ones. Just as Charles William Eliot was introducing the experimental laboratory into the study of natural sciences at Harvard, so it was Langdell's claim, with the study of previously decided cases.

Even the famous "case method" was originally grounded in the belief that the teaching of scientific principles should precede the development of skills in their application.

In his recent review of the Harvard School of Business Administration, the school which first adapted Langdell's method to management education, Derek Bok, the current president of Harvard University, argues against case method. His argument reveals both his implicit belief in the normative curriculum of professional education and his adherence to the model of technical rationality.

Bok begins by noting that case teaching has certainly helped to keep professors "closely involved with the activities of real corporations" and has "forced them to work continuously at their teaching." But he worries that although the case is an excellent device for teaching students to apply theory and technique, it does not provide an ideal way of communicating concepts and analytic methods in the first instance.

Exclusive concentration on cases leaves students little time to "master analytic technique and conceptual material"—a limitation that has become more critical as "the corporate world
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

grows more complex—and it prevents faculty from engaging in "intensive work to develop better generalizations, theories and methods that can eventually be used to attack corporate problems in more effective ways." What is especially interesting in this argument is its misreading of what many business case teachers would consider the heart of their teaching: carefully guided analysis of innumerable cases drawn from real-world business contexts in order to help students develop the generic problem-solving skills essential to effective management. Although some of the strongest advocates of case teaching admit that they cannot define these skills or relate them to general theory, they believe that the case method stands on its own unique merits. President Bok has made a contrary assumption. He assumes that the business school faculty accepts both the mission to develop "better generalizations, theories and methods" and the normative idea of a curriculum which places general principles and methods before the skills of application. To faculty members who think they are engaged in a very different sort of educational enterprise, he argues from an unquestioned belief in a normative curriculum which derives from the model of Technical Rationality.

The Origins of Technical Rationality

It is striking that the dominant model of professional knowledge seems to its proponents to require very little justification. How comes it that in the second half of the twentieth century we find in our universities, embedded not only in men's minds but in the institutions themselves, a dominant view of professional knowledge as the application of scientific theory and technical skill to environmental problems of practice?

From Technical Rationality to Reflection-in-Action

The answer to this question lies in the last three hundred years of the history of Western ideas and institutions. Technical Rationality is the heritage of Positivism, the powerful philosophical doctrine that grew up in the nineteenth century as an account of the rise of science and technology and as a social movement aimed at applying the achievements of science and technology to the well-being of mankind. Technical Rationality is the Positivist epistemology of practice. It became institutionalized in the modern university, founded in the late nineteenth century when Positivism was at its height, and in the professional schools which secured their place in the university in the early decades of the twentieth century.

Because excellent accounts of this story exist elsewhere, I shall only touch on its main points here.

Since the Reformation, the history of the West has been shaped by the rise of science and technology and by the industrial movement which was both cause and consequence of the increasingly powerful scientific world-view. As the scientific world-view gained dominance, so did the idea that human progress would be achieved by harnessing science to create technology for the achievement of human ends. This Technological Program, which was first vividly expressed in the writings of Bacon and Hobbes, became a major theme for the philosophers of the Enlightenment in the eighteenth century, and by the late nineteenth century had been firmly established as a pillar of conventional wisdom. By this time, too, the professions had come to be seen as vehicles for the application of the new sciences to the achievement of human progress. The engineers, closely tied to the development of industrial technology, became a model of technical practice for the other professions. Medicine, a learned profession with origins in the medieval universities, was relaunched in the new image of a science-based technique for the preservation of health. And
statecraft came to be seen as a kind of social engineering. As
the professions evolved and proliferated, they became, increas-
ingly, the principal agents of the Technological Program.

As the scientific movement, industrialism, and the Techno-
logical Program became dominant in Western society, a philo-
sophy emerged which sought both to give an account of the
triumphs of science and technology and to purge mankind of
the residues of religion, mysticism, and metaphysics which still
prevented scientific thought and technological practice from
wholly ruling over the affairs of men. It was in this spirit that,
in the first half of the nineteenth century, Auguste Comte first
expressed the three principal doctrines of Positivism. First,
there was the conviction that empirical science was not just
a form of knowledge but the only source of positive knowledge
of the world. Second, there was the intention to cleanse men’s
minds of mysticism, superstition, and other forms of pseudo-
knowledge. And finally, there was the program of extending
scientific knowledge and technical control to human society,
to make technology, as Comte said, “no longer exclusively geo-
metrical, mechanical or chemical, but also and primarily politi-
cal and moral.”32

By late nineteenth century, Positivism had become a domi-
nant philosophy. And in the early twentieth century, in the
theories of the Vienna Circle, its epistemological program took
on a beguiling clarity. Meaningful propositions were held to
be of two kinds, either the analytic and essentially tautological
propositions of logic and mathematics, or the empirical propos-
itions which express knowledge of the world. The truth of the
former was to be grounded in the fact that their negation im-
plies a self-contradiction; the truth of the latter, in some rele-
vant empirical observation. The only significant statements
about the world were those based on empirical observation, and
all disagreements about the world could be resolved, in prin-
From Technical Rationality to Reflection-in-Action
ciple, by reference to observable facts. Propositions which were
neither analytically nor empirically testable were held to have
no meaning at all. They were dismissed as emotive utterance,
poetry, or mere nonsense.

As Positivists became increasingly sophisticated in their ef-
forts to explain and justify the exclusivity of scientific knowl-
edge, they recognized to what extent observational statements
were theory-laden, and found it necessary to ground empirical
knowledge in irreducible elements of sensory experience. They
began to see laws of nature not as facts inherent in nature but
as constructs created to explain observed phenomena, and sci-
ence became for them a hypothetico-deductive system. In
order to account for his observations, the scientist constructed
hypotheses, abstract models of an unseen world which could be
tested only indirectly through deductions susceptible to con-
firmation or disconfirmation by experiment. The heart of sci-
enic inquiry consisted in the use of crucial experiments to
choose among competing theories of explanation.

In the light of such Positivist doctrines as these, practice ap-
peared as a puzzling anomaly. Practical knowledge exists, but
it does not fit neatly into Positivist categories. We cannot read-
ily treat it as a form of descriptive knowledge of the world, nor
can we reduce it to the analytic categories of logic and mathe-
matics. Positivism solved the puzzle of practical knowledge in
a way that had been foreshadowed by the Technological Pro-
gram and by Comte’s program for applying science to morality
and politics. Practical knowledge was to be construed as knowl-
edge of the relationship of means to ends. Given agreement
about ends,33 the question, “How ought I to act?” could be
reduced to a merely instrumental question about the means
best suited to achieve one’s ends. Disagreement about means
could be resolved by reference to facts concerning the possible
means, their relevant consequences, and the methods for com-
Professional Knowledge and Reflection-in-Action

paring them with respect to the chosen ends of action. Ultimately, the instrumental question could be resolved by recourse to experiment. And as men built up scientific understandings of cause and effect, causal relationships could be mapped onto instrumental ones. It would be possible to select the means appropriate to one's ends by applying the relevant scientific theory. The question, "How ought I to act?" could become a scientific one, and the best means could be selected by the use of science-based technique.

In the late nineteenth and early twentieth centuries, the professions of engineering and medicine achieved dramatic successes in reliably adjusting means to ends and became models of instrumental practice. The engineer's design and analysis of materials and artifacts, the physician's diagnosis and treatment of disease, became prototypes of the science-based, technical practice which was destined to supplant craft and artistry. For according to the Positivist epistemology of practice, craft and artistry had no lasting place in rigorous practical knowledge.

Universities came of age in the United States, assumed their now familiar structure and styles of operation, in the late nineteenth and early twentieth centuries when science and technology were on the rise and the intellectual hegemony of Positivism was beginning to be established. Although other traditions of thought were never wholly extinguished in American universities—indeed, in some places managed to preserve a kind of local dominance—nevertheless, in the United States more than in any other nation except Germany, the very heart of the university was given over to the scientific enterprise, to the ethos of the Technological Program, and to Positivism.

Indeed, it was from the Germanic tradition, carried to the United States after the Civil War by young American graduates of the German universities, that the new concept of the university as a multidisciplinary research institution took root in the United States, first in Johns Hopkins University, the founding of which was "perhaps the most decisive single event in the history of learning in the Western hemisphere." And it was from the model of Johns Hopkins that other universities began to mold themselves around the German ideal and to manifest, as Edward Shils has written,

a drift of opinion (toward)... the appreciation of knowledge, particularly knowledge of a scientific character. There was general agreement that knowledge could be accepted as knowledge only if it rested on empirical evidence, rigorously criticized and rationally analyzed... The knowledge which was appreciated was secular knowledge which continued the mission of sacred knowledge; complemented it, led to it, or replaced it; fundamental, systematically acquired knowledge was thought in some way to be a step toward redemption. This kind of knowledge held out the prospect of the transfiguration of life by improving man's control over the resources of nature and over the powers that weaken his body; it offered the prospect of better understanding of society which it was thought would lead to the improvement of society.

With the coming of the new model of the university, the Positivist epistemology found expression in normative ideas about the proper division of labor between the university and the professions. As Thorsten Veblen argued in The Higher Learning in America, "The difference between the modern university and the lower and professional schools is broad and simple; not so much a difference of degree as of kind." The universities have a higher mission to "fit men for a life of science and scholarship; and [they are] accordingly concerned with such discipline only as they will give efficiency in the pursuit of knowledge", whereas the lower schools are occupied with "instilling such knowledge and habits as will make their pupils fit citizens of the world in whatever position in the fabric of workday life.
they may fall."37 The proper relation between the higher and lower schools is one of separation and exchange. Quite simply, the professions are to give their practical problems to the university, and the university, the unique source of research, is to give back to the professions the new scientific knowledge which it will be their business to apply and test. Under no conditions are the technical men of the lower schools to be allowed into the university, for this would put them in a false position which unavoidably leads them to court a spurious appearance of scholarship and so to invest their technological discipline with a degree of pedantry and sophistication; whereby it is hoped to give these schools and their work some scientific and scholarly prestige.38

Veblen's battle was, of course, quixotic. The evils against which he railed at the University of Chicago in 1916 were harbingers of a general trend. The survival-oriented interests of the professions reinforced the interest of university boards of governors in appropriating schools of useful knowledge. The professions did enter the new universities, in increasing numbers, until by 1963 Bernard Barber could write in *Daedalus* that "nearly all the well-established professions are located in the universities."39

But for this, the professionalizing occupations paid a price. They had to accept the Positivist epistemology of practice which was now built into the very tissue of the universities. And they had also to accept the fundamental division of labor on which Veblen had placed so great an emphasis. It was to be the business of university-based scientists and scholars to create the fundamental theory which professionals and technicians would apply to practice. The function of the professional school would be

From Technical Rationality to Reflection-in-Action

the transmission to its students of the generalized and systematic knowledge that is the basis of professional performance.40

But this division of labor reflected a hierarchy of kinds of knowledge which was also a ladder of status. Those who create new theory were thought to be higher in status than those who apply it, and the schools of "higher learning" were thought to be superior to the "lower."

Thus were planted the seeds of the Positivist curriculum, typical of professional schools in American universities, and the roots of the now-familiar split between research and practice.

Emerging Awareness of the Limits of Technical Rationality

Although it was in the early decades of the twentieth century that occupations professionalized and professional schools sought their places in the universities, it was World War II that gave a major new impetus both to the Technological Program and to the Positivist epistemology of practice.

In World War II, technologists drew upon scientific research as never before. Vannevar Bush created the first large-scale national research and development institute, the National Research and Development Corporation. The new discipline of operations research grew out of the American and British efforts to use applied mathematics for bomb tracking and submarine search. And the Manhattan project became the very symbol of the successful use of science-based technology for national ends. Its lesson seemed to be this: If a great social objective could be clearly defined, if a national commitment to
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

it could be mustered, if unlimited resources could be poured into the necessary research and development, then any such objective could be achieved. The greatest beneficiary of this lesson was the institution of research and development itself. But as a side effect, there was also a reinforcement of the idea of scientific research as a basis for professional practice.

Following World War II, the United States government began an unparalleled increase in the rate of spending for research. As government spending for research increased, research institutions proliferated. Some were associated with the universities, others stood outside them. All were organized around the production of new scientific knowledge and were largely promoted on the basis of the proposition that the production of new scientific knowledge could be used to create wealth, achieve national goals, improve human life, and solve social problems. Nowhere was the rate of increase in research spending more dramatic, and nowhere were the results of that spending more visible, than in the field of medicine. The great centers of medical research and teaching were expanded, and new ones were created. The medical research center, with its medical school and its teaching hospital, became the institutional model to which other professions aspired. Here was a solid base of fundamental science, an equally solid body of applied clinical science, and a profession which had geared itself to implement the ever-changing products of research. Other professions, hoping to achieve some of medicine’s effectiveness and prestige, sought to emulate its linkage of research and teaching institutions, its hierarchy of research and clinical roles, and its system for connecting basic and applied research to practice.

The prestige and apparent success of the medical and engineering models exerted a great attraction for the social sciences. In such fields as education, social work, planning, and policy making, social scientists attempted to do research, to apply it, and to educate practitioners, all according to their perceptions of the models of medicine and engineering. Indeed, the very language of social scientists, rich in references to measurement, controlled experiment, applied science, laboratories, and clinics, was striking in its reverence for these models.

In the mid-1950s, the Soviet launching of Sputnik gave a further impetus to national investment in science and technology. Sputnik shocked America into increased support for science, especially basic science, and created a new sense of urgency about the building of a society based on science. Suddenly we became acutely aware of a national shortage of professionals—scientists and engineers, but also physicians and teachers—who were seen as necessary to the development and application of scientific knowledge. It was the cumulative impact of these national responses to World War II and Sputnik which set the stage for the triumph of professionalism, the triumph celebrated in the Daedalus issue of 1963.

Between 1953 and 1962, however, both the general public and the professionals have become increasingly aware of the flaws and limitations of the professions. As I have pointed out in chapter 1, the professions have suffered a crisis of legitimacy rooted both in their perceived failure to live up to their own norms and in their perceived incapacity to help society achieve its objectives and solve its problems. Increasingly we have become aware of the importance to actual practice of phenomena—complexity, uncertainty, instability, uniqueness, and value-conflict—which do not fit the model of Technical Rationality. Now, in the light of the Positivist origins of Technical Rationality, we can more readily see why these phenomena are so troublesome.

From the perspective of Technical Rationality, professional practice is a process of problem solving. Problems of choice
or decision are solved through the selection, from available means, of the one best suited to established ends. But with this emphasis on problem solving, we ignore problem setting, the process by which we define the decision to be made, the ends to be achieved, the means which may be chosen. In real-world practice, problems do not present themselves to the practitioner as given. They must be constructed from the materials of problematic situations which are puzzling, troubling, and uncertain. In order to convert a problematic situation to a problem, a practitioner must do a certain kind of work. He must make sense of an uncertain situation that initially makes no sense. When professionals consider what road to build, for example, they deal usually with a complex and ill-defined situation in which geographic, topological, financial, economic, and political issues are all mixed up together. Once they have somehow decided what road to build and go on to consider how best to build it, they may have a problem they can solve by the application of available techniques; but when the road they have built leads unexpectedly to the destruction of a neighborhood, they may find themselves again in a situation of uncertainty.

It is this sort of situation that professionals are coming increasingly to see as central to their practice. They are coming to recognize that although problem setting is a necessary condition for technical problem solving, it is not itself a technical problem. When we set the problem, we select what we will treat as the “things” of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to state what is wrong and in what directions the situation needs to be changed. Problem setting is a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them.

From Technical Rationality to Reflection-in-Action

Even when a problem has been constructed, it may escape the categories of applied science because it presents itself as unique or unstable. In order to solve a problem by the application of existing theory or technique, a practitioner must be able to map those categories onto features of the practice situation. When a nutritionist finds a diet deficient in lysine, for example, dietary supplements known to contain lysine can be recommended. A physician who recognizes a case of measles can map it onto a system of techniques for diagnosis, treatment, and prognosis. But a unique case falls outside the categories of applied theory; an unstable situation slips out from under them. A physician cannot apply standard techniques to a case that is not in the books. And a nutritionist attempting a planned nutritional intervention in a rural Central American community may discover that the intervention fails because the situation has become something other than the one planned for.

Technical Rationality depends on agreement about ends. When ends are fixed and clear, then the decision to act can present itself as an instrumental problem. But when ends are confused and conflicting, there is as yet no “problem” to solve. A conflict of ends cannot be resolved by the use of techniques derived from applied research. It is rather through the non-technical process of framing the problematic situation that we may organize and clarify both the ends to be achieved and the possible means of achieving them.

Similarly, when there are conflicting paradigms of professional practice, such as we find in the pluralism of psychiatry, social work, or town planning, there is no clearly established context for the use of technique. There is contention over multiple ways of framing the practice role, each of which entrains a distinctive approach to problem setting and solving. And when practitioners do resolve conflicting role frames, it is through a kind of inquiry which falls outside the model...
Technical Rationality. Again, it is the work of naming and framing that creates the conditions necessary to the exercise of technical expertise.

We can readily understand, therefore, not only why uncertainty, uniqueness, instability, and value conflict are so troublesome to the positivist epistemology of practice, but also why practitioners bound by this epistemology find themselves caught in a dilemma. Their definition of rigorous professional knowledge excludes phenomena they have learned to see as central to their practice. And artistic ways of coping with these phenomena do not qualify, for them, as rigorous professional knowledge.

This dilemma of “rigor or relevance” arises more acutely in some areas of practice than in others. In the varied topography of professional practice, there is a high, hard ground where practitioners can make effective use of research-based theory and technique, and there is a swampy lowland where situations are confusing “messes” incapable of technical solution. The difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of greatest human concern. Shall the practitioner stay on the high, hard ground where he can practice rigorously, as he understands rigor, but where he is constrained to deal with problems of relatively little social importance? Or shall he descend to the swamp where he can engage the most important and challenging problems if he is willing to forsake technical rigor?

In such “major” professions as medicine, engineering, or agronomy there are zones where practitioners can function as technical experts. But there are also zones where the major professions resemble the minor ones. Medical technologies such as kidney dialysis generate demands in excess of the na-

From Technical Rationality to Reflection-in-Action

tion’s willingness to invest in medical care. Engineering that seems powerful and elegant when judged from a narrowly technical perspective may also carry unacceptable risks to environmental quality or human safety. Large-scale, industrialized agriculture destroys the peasant economies of the developing worlds. How should professionals take account of such issues as these?

There are those who choose the swampy lowlands. They deliberately involve themselves in messy but crucially important problems and, when asked to describe their methods of inquiry, they speak of experience, trial and error, intuition, and muddling through.

Other professionals opt for the high ground. Hungry for technical rigor, devoted to an image of solid professional competence, or fearful of entering a world in which they feel they do not know what they are doing, they choose to confine themselves to a narrowly technical practice.

The field of “formal modelling” offers an interesting context in which to observe the two responses.

During World War II, operations research grew out of the successful use of applied mathematics in submarine search and bomb tracking. After World War II, the development of the digital computer sparked widespread interest in formal, quantitative, computerized models which seemed to offer a new technique for converting “soft” problems into “hard” ones. A new breed of technical practitioner came into being. Systems analysts, management scientists, policy analysts, began to use formal modelling techniques on problems of inventory control, business policy, information retrieval, transportation planning, urban land use, the delivery of medical care, the criminal justice system, and the control of the economy. By the late 1960s, there was scarcely a described problem for which someone had not constructed a computerized model. But in recent years
there has been a widening consensus, even among formal modellers, that the early hopes were greatly inflated. Formal models have been usefully employed to solve problems in such relatively undemanding areas as inventory control and logistics. They have generally failed to yield effective results in the more complex, less clearly defined problems of business management, housing policy, or criminal justice.

Formal modellers have responded to this unpleasant discovery in several different ways. Some have continued to ply their trade in the less demanding areas of the field. Some have abandoned their original training in order to address themselves to real-world problems. Others have decided to treat formal models as "probes" or "metaphors" useful only as sources of new perspectives on complex situations. But for the most part, the use of formal models has proceeded as though it had a life of its own. Driven by the evolving questions of theory and technique, formal modelling has become increasingly divergent from the real-world problems of practice. And practitioners who choose to remain on the high ground have continued to use formal models for complex problems, quite oblivious to the troubles incurred whenever a serious attempt is made to implement them.

Many practitioners have adopted this response to the dilemma of rigor or relevance, cutting the practice situation to fit professional knowledge. This they do in several ways. They may become selectively inattentive to data that fall outside their categories. Designers of management information systems may simply avoid noticing, for example, how their systems trigger games of control and evasion. They may use "junk categories" to explain away discrepant data, as technical analysts sometimes attribute the failure of their recommendations to "personality" or to "politics." Or they may try to force the situation into a mold which lends itself to the use of available techniques. Thus an industrial engineer may simplify the actual arrangement of a manufacturing system in order to make it easier to analyze; or, more ominously, members of the helping professions may get rid of clients who resist professional help, relegating them to such categories as "problem tenant" or "rebellious child." All such strategies carry a danger of misreading situations, or manipulating them, to serve the practitioner's interest in maintaining his confidence in his standard models and techniques. When people are involved in the situation, the practitioner may preserve his sense of expertise at his clients' expense.

Some students of the professions have tried to take account of the limitations of technical expertise and have proposed new approaches to the predicament of professional knowledge. Among these are Edgar Schein and Nathan Glazer, whom I have already mentioned, and Herbert Simon, whose The Sciences of the Artificial has aroused a great deal of interest in professional circles. Each of these writers has identified a gap between professional knowledge and the demands of real-world practice. Their formulations of the gap are intriguingly different, yet they reveal an important underlying similarity.

To Schein, the gap lies in the fact that basic and applied sciences are "convergent," whereas practice is "divergent." He believes that some professions have already achieved, and that others will eventually achieve, "a high degree of consensus on the paradigms to be used in the analysis of phenomena and . . . what constitutes the relevant knowledge base for practice."43 Nevertheless, Schein also believes that the problems of professional practice continue to have unique and unpredictable elements. One of the hallmarks of the professional, therefore, is his ability to "take a convergent knowledge base and convert it into professional services that are tailored to the unique requirements of the client system," a process
which demands "divergent thinking skills." About these, however, Schein has very little to say, and for good reason. If divergent skills could be described in terms of theory or technique, they would belong to one or another of the components of the hierarchy of professional knowledge. But if they are neither theory nor technique, and are still a kind of knowledge, how are they to be described? They must remain a mysterious, residual category.

For Glazer, the critical distinction is between kinds of professions. To professions like medicine and law Glazer attributes fixed and unambiguous ends, stable institutional contexts, and fixed contents of professional knowledge sufficient for rigorous practice. To professions such as divinity and social work he attributes ambiguous ends, shifting contexts of practice, and no fixed content of professional knowledge. Of these professions, he despair. Thus the gap which Schein locates between "convergent" science and "divergent" practice, Glazer locates between major and minor professions.

It is Simon, however, who most clearly links the predication of professional knowledge to the historical origins of the Positivist epistemology of practice. Simon believes that all professional practice is centrally concerned with what he calls "design," that is, with the process of "changing existing situations into preferred ones." But design in this sense is precisely what the professional schools do not teach. The older schools have a knowledge of design that is "intellectually soft, intuitive, informal and cookbooks," and the newer one, more absorbed into the general culture of the modern university, have become schools of natural science. Thus,

From Technical Rationality to Reflection-in-Action

Both older and newer schools have "nearly abdi
cated responsibility for training in the core professional skill," in large part because such training would have to be grounded in a science of design which does not yet exist. Simon proposes to build a science of design by emulating and extending the optimization methods which have been developed in statistical decision theory and management science. An optimization problem is a well-formed problem of the following kind:

A list of foods is provided, the command variables being quantities of the various foods that are to be included in the diet. The environmental parameters are the prices and nutritional contents (calories, vitamins, minerals, and so on) of each of the foods. The utility function is the cost (with a minus sign attached) of the diet, subject to the constraints, say, that it not contain more than 2000 calories per day, that it meet specified minimum needs for vitami
ts and minerals, and that rutabaga not be eaten more than once a week. The problem is to select the quantities of foods that will meet the nutritional requirements and side conditions at the given prices for the lowest cost.

Here, ends have been converted to "constraints" and "utility functions"; means, to "command variables"; and laws, to "environmental parameters." Once problems are well formed in this way, they can be solved by a calculus of decision. As we have seen, however, well-formed instrumental problems are not given but must be constructed from messy problematic situations. Although Simon proposes to fill the gap between natural science and design practice with a science of design, his science can be applied only to well-formed problems already extracted from situations of practice.

Schein, Glazer, and Simon propose three different approaches to the limitations of Technical Rationality and the related dilemma of rigor or relevance. All three employ a common strategy, however. They try to fill the gap between the
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

scientific basis of professional knowledge and the demands of real-world practice in such a way as to preserve the model of Technical Rationality. Schein does it by segregating convergent science from divergent practice, relegating divergence to a residual category called "divergent skill." Glaser does it by attributing convergence to the major professions, which he applauds, and divergence to the minor professions, which he dismisses. Simon does it by proposing a science of design which depends on having well-formed instrumental problems to begin with.

Yet the Positivist epistemology of practice, the model of professional knowledge to which these writers cling, has fallen into disrepute in its original home, the philosophy of science. As Richard Bernstein has written,

There is not a single major thesis advanced by either nineteenth-century Positivists or the Vienna Circle that has not been devastatingly criticized when measured by the Positivists' own standards for philosophical argument. The original formulations of the analytic-synthetic dichotomy and the verifiability criterion of meaning have been abandoned. It has been effectively shown that the Positivists' understanding of the natural sciences and the formal disciplines is greatly oversimplified. Whatever one's final judgment about the current disputes in the post-empiricist philosophy and history of science . . . there is rational agreement about the inadequacy of the original Positivist understanding of science, knowledge and meaning.49

Among philosophers of science no one wants any longer to be called a Positivist, and there is a rebirth of interest in the ancient topics of craft, artistry, and myth—topics whose fate Positivism once claimed to have sealed. It seems clear, however, that the dilemma which afflicts the professions hinges not on science per se but on the Positivist view of science. From this perspective, we tend to see science, after the fact, as a body

From Technical Rationality to Reflection-in-Action

of established propositions derived from research. When we recognize their limited utility in practice, we experience the dilemma of rigor or relevance. But we may also consider science before the fact as a process in which scientists grapple with uncertainties and display arts of inquiry akin to the uncertainties and arts of practice.

Let us then reconsider the question of professional knowledge; let us stand the question on its head. If the model of Technical Rationality is incomplete, in that it fails to account for practical competence in "divergent" situations, so much the worse for the model. Let us search, instead, for an epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict.

Reflection-in-Action

When we go about the spontaneous, intuitive performance of the actions of everyday life, we show ourselves to be knowledgeable in a special way. Often we cannot say what it is that we know. When we try to describe it we find ourselves at a loss, or we produce descriptions that are obviously inappropriate. Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing. It seems right to say that our knowing is in our action.

Similarly, the workaday life of the professional depends on tacit knowing-in-action. Every competent practitioner can recognize phenomena—families of symptoms associated with a particular disease, peculiarities of a certain kind of building site, irregularities of materials or structures—for which he cannot give a reasonably accurate or complete description. In his
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

day-to-day practice he makes innumerable judgments of quality for which he cannot state adequate criteria, and he displays skills for which he cannot state the rules and procedures. Even when he makes conscious use of research-based theories and techniques, he is dependent on tacit recognitions, judgments, and skillful performances.

On the other hand, both ordinary people and professional practitioners often think about what they are doing, sometimes even while doing it. Stimulated by surprise, they turn thought back on action and on the knowing which is implicit in action. They may ask themselves, for example, “What features do I notice when I recognize this thing? What are the criteria by which I make this judgment? What procedures am I enacting when I perform this skill? How am I framing the problem that I am trying to solve?” Usually reflection on knowing-in-action goes together with reflection on the stuff at hand. There is some puzzling, or troubling, or interesting phenomenon with which the individual is trying to deal. As he tries to make sense of it, he also reflects on the understandings which have been implicit in his action, understandings which he surfaces, criticizes, restructures, and embodies in further action.

It is this entire process of reflection-in-action which is central to the “art” by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness, and value conflict.

Knowing-in-action. Once we put aside the model of Technical Rationality, which leads us to think of intelligent practice as an application of knowledge to instrumental decisions, there is nothing strange about the idea that a kind of knowing is inherent in intelligent action. Common sense admits the category of know-how, and it does not stretch common sense very much to say that the know-how is in the action—that a tightrope walker’s know-how, for example, lies in, and is revealed from Technical Rationality to Reflection-in-Action

by, the way he takes his trip across the wire, or that a big-league pitcher’s know-how is in his way of pitching to a batter’s weakness, changing his pace, or distributing his energies over the course of a game. There is nothing in common sense to make us say that know-how consists in rules or plans which we entertain in the mind prior to action. Although we sometimes think before acting, it is also true that in much of the spontaneous behavior of skillful practice we reveal a kind of knowing which does not stem from a prior intellectual operation.

As Gilbert Ryle has put it,

What distinguishes sensible from silly operations is not their parentage but their procedure, and this holds no less for intellectual than for practical performances. “Intelligent” cannot be defined in terms of “intellectual” or “knowing how” in terms of “knowing that”; “thinking what I am doing” does not connote “both thinking what to do and doing it.” When I do something intelligently . . . . I am doing one thing and not two. My performance has a special procedure or manner, not special antecedents.

And Andrew Harrison has recently put the same thought in this pithy phrase: when someone acts intelligently, he “acts his mind.”

Over the years, several writers on the epistemology of practice have been struck by the fact that skillful action often reveals a “knowing more than we can say.” They have invented various names for this sort of knowing, and have drawn their examples from different domains of practice.

As early as 1938, in an essay called “Mind in Everyday Affairs,” Chester Barnard distinguished “thinking processes” from “non-logical processes” which are not capable of being expressed in words or as reasoning, and which are only made known by a judgment, decision, or action. Barnard’s examples include judgments of distance in golf or ball-throwing, a
high-school boy solving quadratic equations, and a practiced accountant who can take "a balance sheet of considerable complexity and within minutes or even seconds get a significant set of facts from it." Such processes may be unconscious or they may occur so rapidly that "they could not be analyzed by the persons in whose brain they take place." Of the high-school mathematician, Barnard says, memorably, "He could not write the textbooks which are registered in his mind." Barnard believes that our bias toward thinking blurs us to the non-logical processes which are omnipresent in effective practice.

Michael Polanyi, who invented the phrase "tacit knowing," draws examples from the recognition of faces and the use of tools. If we know a person's face, we can recognize it among a thousand, indeed, among a million, though we usually cannot tell how we recognize a face we know. Similarly, we can recognize the moods of the human face without being able to tell, "except quite vaguely," by what signs we know them. When we learn to use a tool, or a probe or stick for feeling our way, our initial awareness of its impact on our hand is transformed into a sense of its point touching the objects we are exploring. In Polanyi's phrase, we attend "from" its impact on our hand "to" its effect on the things to which we are applying it. In this process, which is essential to the acquisition of a skill, the feelings of which we are initially aware become internalized in our tacit knowing.

Chris Alexander, in his Notes Toward a Synthesis of Form, considers the knowing involved in design. He believes that we can often recognize and correct the "bad fit" of a form to its context, but that we usually cannot describe the rules by which we find a fit bad or recognize the corrected form to be good. Traditional artifacts evolve culturally through successive detections and corrections of bad fit until

From Technical Rationality to Reflection-in-Action

the resulting forms are good. Thus for generations the Slovakian peasants made beautiful shawls woven of yarns which had been dipped in homemade dyes. When aniline dyes were made available to them, "the glory of the shawls was spoiled." The shawl makers had no innate ability to make good shawls but "were simply able, as many of us are, to recognize bad shawls and their own mistakes. Over the generations ... whenever a bad one was made, it was recognized as such, and therefore not repeated." The introduction of aniline dyes disrupted the cultural process of design, for the shawl makers could not produce wholly new designs of high quality; they could only recognize "bad fit" within a familiar pattern.

Ruminating on Alexander's example, Geoffrey Vickers points out that it is not only artistic judgments which are based on a sense of form which cannot be fully articulated:

artists, so far from being alone in this, exhibit most clearly an oddity which is present in all such judgments. We can recognize and describe deviations from a norm very much more clearly than we can describe the norm itself.

For Vickers, it is through such tacit norms that all of us make the judgments, the qualitative appreciations of situations, on which our practical competence depends.

Psycholinguists have noted that we speak in conformity with rules of phonology and syntax which most of us cannot describe. Alfred Schultz and his intellectual descendants have analyzed the tacit, everyday know-how that we bring to social interactions such as the rituals of greeting, ending a meeting, or standing in a crowded elevator. Birdwhistell has made comparable contributions to a description of the tacit knowledge embodied in our use and recognition of movement and gesture. In these domains, too, we behave according to rules
and procedures that we cannot usually describe and of which we are often unaware.

In examples like these, knowing has the following properties:

- There are actions, recognitions, and judgments which we know how to carry out spontaneously; we do not have to think about them prior to or during their performance.
- We are often unaware of having learned to do these things; we simply find ourselves doing them.
- In some cases, we were once aware of the understandings which were subsequently internalized in our feeling for the stuff of action. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals.

It is in this sense that I speak of knowing-in-action, the characteristic mode of ordinary practical knowledge.

**Reflecting-in-action.** While common sense recognizes knowing-in-action, it also recognizes that we sometimes think about what we are doing. Phrases like "thinking on your feet," "keeping your wits about you," and "learning by doing" suggest not only that we can think about doing but that we can think about doing something while doing it. Some of the most interesting examples of this process occur in the midst of a performance.

Big-league baseball pitchers speak, for example, of the experience of "finding the groove":

Only a few pitchers can control the whole game with pure physical ability. The rest have to learn to adjust once they're out there. If they can't, they're dead ducks.

[You get] a special feel for the ball, a kind of command that lets you repeat the exact same thing you did before that proved successful.

Finding your groove has to do with studying those winning habits and trying to repeat them every time you perform.

From Technical Rationality to Reflection-in-Action

I do not wholly understand what it means to "find the groove." It is clear, however, that the pitchers are talking about a particular kind of reflection. What is "learning to adjust once you're out there"? Presumably it involves noticing how you have been pitching to the batters and how well it has been working, and on the basis of these thoughts and observations, changing the way you have been doing it. When you get a "feel for the ball" that lets you "repeat the exact same thing you did before that proved successful," you are noticing, at the very least, that you have been doing something right, and your "feeling" allows you to do that something again. When you "study those winning habits," you are thinking about the know-how that has enabled you to win. The pitchers seem to be talking about a kind of reflection on their patterns of action, on the situations in which they are performing, and on the know-how implicit in their performance. They are reflecting on action and, in some cases, reflecting in action.

When good jazz musicians improvise together, they also manifest a "feel for" their material and they make on-the-spot adjustments to the sounds they hear. Listening to one another and to themselves, they feel where the music is going and adjust their playing accordingly. They can do this, first of all, because their collective effort at musical invention makes use of a schema—a metric, melodic, and harmonic schema familiar to all the participants—which gives a predictable order to the piece. In addition, each of the musicians has at the ready a repertoire of musical figures which he can deliver at appropriate moments. Improvisation consists in varying, combining, and recombining a set of figures within the schema which bounds and gives coherence to the performance. As the musicians feel the direction of the music that is developing out of their interwoven contributions, they make new sense of it and adjust their performance to the new sense they have made.
They are reflecting-in-action on the music they are collectively making and on their individual contributions to it, thinking what they are doing and, in the process, evolving their way of doing it. Of course, we need not suppose that they reflect-in-action in the medium of words. More likely, they reflect through a “feel for the music” which is not unlike the pitcher’s “feel for the ball.”

Much reflection-in-action hinges on the experience of surprise. When intuitive, spontaneous performance yields nothing more than the results expected for it, then we tend not to think about it. But when intuitive performance leads to surprises, pleasing and promising or unwanted, we may respond by reflecting-in-action. Like the baseball pitcher, we may reflect on our “winning habits”; or like the jazz musician, on our sense of the music we are making; or like the designer, on the misfit we have unintentionally created. In such processes, reflection tends to focus interactively on the outcomes of action, the action itself, and the intuitive knowing implicit in the action.

Let us consider an example which reveals these processes in some detail.

In an article entitled “If you want to get ahead, get a theory,” Inhelder and Velmans-Smith describe a rather unusual experiment concerning “children’s processes of discovery in action.” They asked their subjects to balance wooden blocks on a metal bar. Some of the blocks were plain wooden blocks, but others were conspicuously or in conspicuously weighted at one end. The authors attended to the spontaneous processes by which the children tried to learn about the properties of the blocks, balance them on the bar, and regulate their actions after success or failure.

They found that virtually all children aged six to seven began the task in the same way:

From Technical Rationality to Reflection-in-Action

all blocks were systematically first tried at their geometric centers.

And they found that slightly older children would not only place all blocks at their geometric centers but that

when asked to add small blocks of varying shapes and sizes to blocks already in balance, they added up to ten blocks precariously one on top of the other at the geometric center rather than distributing them at the extremities.

They explain this persistent and virtually universal behavior by attributing to the children what they call a “theory-in-action”: a “geometric center theory” of balancing, or, as one child put it, a theory that “things always balance in the middle.”

Of course, when the children tried to balance the counterweighted blocks at their geometric centers, they failed. How did they respond to failure? Some children made what the authors call an “action-response.”

They now placed the very same blocks more and more systematically at the geometric center, with only very slight corrections around this point. They showed considerable surprise at not being able to balance the blocks a second time (“Heh, what’s gone wrong with this one; it worked before”). . . . Action sequences then became reduced to: Place carefully at geometric center, correct very slightly around this center, abandon all attempts, declaring the object “impossible” to balance.

Other children, generally between the ages of seven and eight, responded in a very different way. When the counterweighted blocks failed to balance at their geometric centers, these children began to de-center them. They did this first with conspicuously counterweighted blocks. Then gradually, and often almost reluctantly, the 7 to 8 year olds began to make corrections also on the inconspicuous weight blocks
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

... At this point, we observed many pauses during action sequences on the inconspicuous weight items.21

Later still,

As the children were now really beginning to question the generality of their geometric center theory, a negative response at the geometric center sufficed to have the child rapidly make corrections toward the point of balance.22

And finally,

children paused before each item, roughly assessed the weight distribution of the block by lifting it ("you have to be careful, sometimes it's just as heavy on each side, sometimes it's heavier on one side"), inferred the probable point of balance and then placed the object immediately very close to it, without making any attempts at first balancing at the geometric center.23

The children now behaved as though they had come to hold a theory-in-action that blocks balance, not at their geometric centers, but at their centers of gravity.

This second pattern of response to error, the authors call "theory-response." Children work their way toward it through a series of stages. When they are first confronted with a number of events which refute their geometric center theories-in-action, they stop and think. Then, starting with the conspicuous-weight blocks, they begin to make corrections away from the geometric center. Finally, when they have really abandoned their earlier theories-in-action, they weigh all the blocks in their hands so as to infer the probable point of balance. As they shift their theories of balancing from geometric center to center of gravity, they also shift from a "success orientation" to a "theory orientation." Positive and negative results come

From Technical Rationality to Reflection-in-Action

to be taken not as signs of success or failure in action but as information relevant to a theory of balancing.

It is interesting to note that as the authors observe and describe this process, they are compelled to invent a language. They describe theories-in-action which the children themselves cannot describe.

Indeed, although the (younger) child's action sequences bear eloquent witness to a theory-in-action implicit in his behavior, this should not be taken as a capacity to conceptualize explicitly on what he is doing and why.24

Knowing-in-action which the child may represent to himself in terms of a "feel for the blocks," the observers redescribe in terms of "theories." I shall say that they convert the child's knowing-in-action to knowledge-in-action.

A conversion of this kind seems to be inevitable in any attempt to talk about reflection-in-action. One must use words to describe a kind of knowing, and a change of knowing, which are probably not originally represented in words at all. Thus, from their observations of the children's behavior, the authors make verbal descriptions of the children's intuitive understandings. These are the authors' theories about the children's knowing-in-action. Like all such theories, they are deliberate, idiosyncratic constructions, and they can be put to experimental test:

just as the child was constructing a theory-in-action in his endeavor to balance the blocks, so we, too, were making on-the-spot hypotheses about the child's theories and providing opportunities for negative and positive responses in order to verify our own theories.25

Reflecting-in-practice The block-balancing experiment is a beautiful example of reflection-in-action, but it is very far removed from our usual images of professional practice. If we
are to relate the idea of reflection-in-action to professional practice, we must consider what a practice is and how it is like and unlike the kinds of action we have been discussing.

The word "practice" is ambiguous. When we speak of a lawyer's practice, we mean the kinds of things he does, the kinds of clients he has, the range of cases he is called upon to handle. When we speak of someone practicing the piano, however, we mean the repetitive or experimental activity by which he tries to increase his proficiency on the instrument. In the first sense, "practice" refers to performance in a range of professional situations. In the second, it refers to preparation for performance. But professional practice also includes an element of repetition. A professional practitioner is a specialist who encounters certain types of situations again and again. This is suggested by the way in which professionals use the word "case"—or project, account, commission, or deal, depending on the profession. All such terms denote the units which make up a practice, and they denote types of family-resembling examples. Thus a physician may encounter many different "cases of measles"; a lawyer, many different "cases of libel." As a practitioner experiences many variations of a small number of types of cases, he is able to "practice" his practice. He develops a repertoire of expectations, images, and techniques. He learns what to look for and how to respond to what he finds. As long as his practice is stable, in the sense that it brings him the same types of cases, he becomes less and less subject to surprise. His knowing-in-practice tends to become increasingly tacit, spontaneous, and automatic, thereby conferring upon him and his clients the benefits of specialization.

On the other hand, professional specialization can have negative effects. In the individual, a high degree of specialization can lead to a parochial narrowness of vision. When a profession divides into subspecialties, it can break apart an earlier wholeness of experience and understanding. Thus people sometimes yearn for the general practitioner of earlier days, who is thought to have concerned himself with the "whole patient," and they sometimes accuse contemporary specialists of treating particular illnesses in isolation from the rest of the patient's life experience. Further, as a practice becomes more repetitive and routine, and as knowing-in-practice becomes increasingly tacit and spontaneous, the practitioner may miss important opportunities to think about what he is doing. He may find that, like the younger children in the block-balancing experiment, he is drawn into patterns of error which he cannot correct. And if he learns, as often happens, to be selectively inattentive to phenomena that do not fit the categories of his knowing-in-action, then he may suffer from boredom or "burn-out" and afflict his clients with the consequences of his narrowness and rigidity. When this happens, the practitioner has "over-learned" what he knows.

A practitioner's reflection can serve as a corrective to over-learning. Through reflection, he can surface and criticize the tacit understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to experience.

Practitioners do reflect on their knowing-in-practice. Sometimes, in the relative tranquility of a postmortem, they think back on the project they have undertaken, a situation they have lived through, and they explore the understandings they have brought to their handling of the case. They may do this in a mood of idle speculation, or in a deliberate effort to prepare themselves for future cases.

But they may also reflect on practice while they are in the
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

midst of it, here they reflect-in-action, but the meaning of this term needs now to be considered in terms of the complexity of knowing-in-practice.

A practitioner's reflection-in-action may not be very rapid. It is bounded by the "action-present," the zone of time in which action can still make a difference to the situation. The action-present may stretch over minutes, hours, days, or even weeks or months, depending on the pace of activity and the situational boundaries that are characteristic of the practice. Within the give-and-take of courtroom behavior, for example, a lawyer's reflection-in-action may take place in seconds; but when the context is that of an antitrust case that drags on over years, reflection-in-action may proceed in leisurely fashion over the course of several months. An orchestra conductor may think of a single performance as a unit of practice, but in another sense a whole season is his unit. The pace and duration of episodes of reflection-in-action vary with the pace and duration of the situations of practice.

When a practitioner reflects in and on his practice, the possible objects of his reflection are as varied as the kinds of phenomena before him and the systems of knowing-in-practice which he brings to them. He may reflect on the tacit norms and appreciations which underlie a judgment, or on the strategies and theories implicit in a pattern of behavior. He may reflect on the feeling for a situation which has led him to adopt a particular course of action, on the way in which he has framed the problem he is trying to solve, or on the role he has constructed for himself within a larger institutional context.

Reflection-in-action, in these several modes, is central to the art through which practitioners sometimes cope with the troublesome "divergent" situations of practice.

When the phenomenon at hand eludes the ordinary categories of knowledge-in-practice, presenting itself as unique or un-

From Technical Rationality to Reflection-In-Action

stable, the practitioner may surface and criticize his initial understanding of the phenomenon, construct a new description of it, and test the new description by an on-the-spot experiment. Sometimes he arrives at a new theory of the phenomenon by articulating a feeling he has about it.

When he finds himself stuck in a problematic situation which he cannot readily convert to a manageable problem, he may construct a new way of setting the problem—a new frame which, in what I shall call a "frame experiment," he tries to impose on the situation.

When he is confronted with demands that seem incompatible or inconsistent, he may respond by reflecting on the appreciations which he and others have brought to the situation. Conscious of a dilemma, he may attribute it to the way in which he has set his problem, or even to the way in which he has framed his role. He may then find a way of integrating, or choosing among, the values at stake in the situation.

The following are brief examples of the kinds of reflection-in-action which I shall illustrate and discuss at greater length later on.

An investment banker, speaking of the process by which he makes his judgments of investment risk, observes that he really cannot describe everything that goes into his judgments. The ordinary rules of thumb allow him to calculate "only 20 to 30 percent of the risk in investment." In terms of the rules of thumb, a company's operating numbers may be excellent. Still, if the management's explanation of the situation does not fit the numbers, or if there is something odd in the behavior of the people, that is a subject for worry which must be considered fresh in each new situation. He recalls a situation in which he spent a day with one of the largest banks in Latin America. Several new business proposals were made to him, and the bank's operating numbers seemed satisfactory. Still, he had a
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

growing feeling that something was wrong. When he thought about it, it seemed that he was responding to the fact that he had been treated with a degree of deference out of all proportion to his actual position in the international world of banking. What could have led these bankers to treat him so inappropriately? When he left the bank at the end of the day, he said to his colleague, "No new business with that outfit! Let the existing obligations come in, but nothing new!" Some months later, the bank went through the biggest bankruptcy ever in Latin America—and all the time there had been nothing wrong with the numbers.

An ophthalmologist says that a great many of his patients bring problems that are not in the book. In 80 or 85 percent of the cases, the patient's complaints and symptoms do not fall into familiar categories of diagnosis and treatment. A good physician searches for new ways of making sense of such cases, and invents experiments by which to test his new hypotheses. In a particularly important family of situations, the patient suffers simultaneously from two or more diseases. While each of these, individually, lends itself to familiar patterns of thought and action, their combination may constitute a unique case that resists ordinary approaches to treatment.

The ophthalmologist recalls one patient who had inflammation of the eye (uveitis) combined with glaucoma. The treatment for glaucoma aggravated the inflammation, and the treatment for uveitis aggravated the glaucoma. When the patient came in, he was already under treatment at a level insufficient for cure but sufficient to irritate the complementary disease.

The ophthalmologist decided to remove all treatment and wait to see what would emerge. The result was that the patient's uveitis, a parasitic infection, remained in much reduced form. On the other hand, the glaucoma disappeared altogether, thus proving to have been an artifact of the treatment. The

From Technical Rationality to Reflection-in-Action

ophthalmologist then began to "titrate" the patient. Working with very small quantities of drugs, he aimed not at total cure but at a reduction of symptoms which would allow the patient to go back to work. (Seven lives depended on his 5000 ocular cells!) The prognosis was not good, for uveitis moves in cycles and leaves scars behind which impede vision. But for the time being, the patient was able to work.

In his mid-thirties, sometime between the composition of his early work The Cossacks and his later War and Peace, Lev Nikolayevitch Tolstoy became interested in education. He started a school for peasant children on his estate at Yasnaya Polanya, he visited Europe to learn the latest educational methods, and he published an educational journal, also called Yasnaya Polanya. Before he was done (his new novel eventually replaced his interest in education), he had built some seventy schools, had created an informal teacher-training program, and had written an exemplary piece of educational evaluation.

For the most part, the methods of the European schools filled him with disgust, yet he was entranced by Rousseau's writings on education. His own school anticipated John Dewey's later approach to learning by doing, and bore the stamp of his conviction that good teaching required "not a method but an art." In an essay, "On Teaching the Rudiments," he describes his notion of art in the teaching of reading:

Every individual must, in order to acquire the art of reading in the shortest possible time, be taught quite apart from any other, and therefore there must be a separate method for each. That which forms an insuperable difficulty to one does not in the least keep back another, and vice versa. One pupil has a good memory, and it is easier for him to memorize the syllables than to comprehend the vowelessness of the consonants; another reflects calmly and will comprehend a most rational sound method, another has
From Technical Rationality to Reflection-in-Action

discoveries. They have allowed themselves to become confused about subjects they are supposed to “know”; and as they have tried to work their way out of their confusions, they have also begun to think differently about learning and teaching.

Early in the project, a critical event occurred. The teachers were asked to observe and react to a videotape of two boys engaged in playing a simple game. The boys sat at a table, separated from one another by an opaque screen. In front of one boy, blocks of various colors, shapes, and sizes were arranged in a pattern. In front of the other, similar blocks were lying on the table in no particular order. The first boy was to tell the second one how to reproduce the pattern. After the first few instructions, however, it became clear that the second boy had gone astray. In fact, the two boys had lost touch with one another, though neither of them knew it.

In their initial reactions to the videotape, the teachers spoke of a “communications problem.” They said that the instructions given had “well-developed verbal skills” and that the receiver was “unable to follow directions.” Then one of the researchers pointed out that, although the blocks contained no green squares—all squares were orange and only triangles were green—she had heard the first boy tell the second to “take a green square.” When the teachers watched the videotape again, they were astonished. That small mistake had set off a chain of false moves. The second boy had put a green thing, a triangle, where the first boy’s pattern had an orange square, and from then on all the instructions became problematic. Under the circumstances, the second boy seemed to have displayed considerable ingenuity in his attempts to reconcile the instructions with the pattern before him.

At this point, the teachers reversed their picture of the situation. They could see why the second boy behaved as he did. He no longer seemed stupid; he had, indeed, “followed instruc-
PROFESSIONAL KNOWLEDGE AND REFLECTION-IN-ACTION

As one teacher put it, they were now "giving him reason." They saw reasons for his behavior; and his errors, which they had previously seen as an inability to follow directions, they now found reasonable.

Later on in the project, as the teachers increasingly challenged themselves to discover the meanings of a child's puzzling behavior, they often spoke of "giving him reason."

In examples such as these, something falls outside the range of ordinary expectations. The banker has a feeling that something is wrong, though he cannot at first say what it is. The physician sees an odd combination of diseases never before described in a medical text. Tolstoy thinks of each of his pupils as an individual with ways of learning and imperfections peculiar to himself. The teachers are astonished by the sense behind a student's mistake. In each instance, the practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomena before him, and on the prior understandings which have been implicit in his behavior. He carries out an experiment which serves to generate both a new understanding of the phenomena and a change in the situation.

When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action. Because his experimenting is a kind of action, implementation is built into his inquiry. Thus reflection-in-action can proceed, even

From Technical Rationality to Reflection-in-Action

in situations of uncertainty or uniqueness, because it is not bound by the dichotomies of Technical Rationality.

Although reflection-in-action is an extraordinary process, it is not a rare event. Indeed, for some reflective practitioners it is the core of practice. Nevertheless, because professionalism is still mainly identified with technical expertise, reflection-in-action is not generally accepted—even by those who do it—as a legitimate form of professional knowing.

Many practitioners, locked into a view of themselves as technical experts, find nothing in the world of practice to occasion reflection. They have become too skillful at techniques of selective inattention, junk categories, and situational control, techniques which they use to preserve the constancy of their knowledge-in-practice. For them, uncertainty is a threat; its admission is a sign of weakness. Others, more inclined toward and adept at reflection-in-action, nevertheless feel profoundly uneasy because they cannot say what they know how to do. They cannot justify its quality or rigor.

For these reasons, the study of reflection-in-action is critically important. The dilemma of rigor or relevance may be dissolved if we can develop an epistemology of practice which places technical problem solving within a broader context of reflective inquiry, shows how reflection-in-action may be rigorous in its own right, and links the art of practice in uncertainty and uniqueness to the scientist's art of research. We may thereby increase the legitimacy of reflection-in-action and encourage its broader, deeper, and more rigorous use.
The Structure of Reflection-in-Action

Introduction

In the two previous chapters, I have discussed examples of practice in two professions usually considered very different from one another.

The differences between architecture and psychotherapy are so very striking that at first glance there seems to be very little point in searching for resemblances. To begin with, the goals of the two professions have almost nothing to do with one another. The one aims at designing good buildings on a site; the other, at curing mental illness or helping people to cope with the problems they encounter in their lives. One uses the media of sketchpad, delineations, scale models; the other, talk. The architect works in his studio; the therapist, in a clinic or office. And the two professions draw on very different bodies of professional knowledge.

But in the two cases there are also similarities. To be sure, there are partly a function of my methods of selection and study, but they are also, in part, a function of the practices themselves.

In both examples, the practitioner approaches the practice problem as a unique case. He does not act as though he had no relevant prior experiences; on the contrary. But he attends to the peculiarities of the situation at hand. Quixt pays attention to the special problem of this screwy site and the Supervisor, to the special problem of this frustrated patient. Neither one behaves as though he were looking for cues to a standard solution. Rather, each seeks to discover the particular features of his problematic situation, and from their gradual discovery, design an intervention.

In neither example is the problem given. Or rather, the student presents a problem that the teacher criticizes and rejects. The student has gotten stuck and does not know how to go further. The teacher, who attributes the student's predicament to his way of framing the problem, tries to make new sense of the problematic situation he is encountering at secondhand. The situation is complex and uncertain, and there is a problem in finding the problem.

These points of similarity create the conditions for reflection-in-action. Because each practitioner tends his case as unique, he cannot deal with it by applying standard theories or techniques. In the half hour or so that he spends with the student, he must construct an understanding of the situation as he finds it. And because he finds the situation problematic, he must reframe it.

The cases are similar in the further sense that in both architecture and psychiatry there are many competing views of the nature of the practice. There is controversy not only about the best way of solving specific problems, but about what problems
are worth solving and what role the practitioner should play in their solution. I propose that by attending to the practitioner's reflection-in-action in both cases it is possible to discover a fundamental structure of professional inquiry which underlies the many varieties of design or therapy advocated by the contentious schools of practice.

Finally, in each case the practitioner gives an artistic performance. He responds to the complexity, which confuses the student, in what seems like a simple, spontaneous way. His artistry is evident in his selective management of large amounts of information, his ability to spin out long lines of invention and inference, and his capacity to hold several ways of looking at things at once without disrupting the flow of inquiry.

It is the art of these practitioners that I shall compare and discuss in the following pages. Their art seems to me to be, in considerable measure, a kind of reflection-in-action. In spite of the very great differences between the two cases, Quiet and the Supervisor engage in a process whose underlying structure is the same: a reflective conversation with a unique and uncertain situation.

The main lines of this process can be readily drawn. Indeed, they are not very far below the surface of the examples as I have described them.

In each case, the student has set and tried to solve a problem and has been unable to solve the problem as set. Petra cannot butt the shapes of the building into the contours of the slope; neither can the Resident unravel the puzzle of the patient by analyzing her relationships with others. In each case the teacher responds by surfacing and criticizing the student’s framing of the problem. He does this implicitly, leaving his criticism of the old problem to be inferred from his way of re-structuring it. Petra must infer that the site is incoherent and cannot give an order to the design. The Resident must infer

The Structure of Reflection-in-Action

that he cannot make sense of the patient’s stalemate relation to her boyfriend without looking at it in relation to her stalemate with himself.

As the practitioner reframes the student’s problem, he suggests a direction for reshaping the situation. Petra is urged to impose a geometry onto the slope, a geometry seen as generated by the L-shaped classrooms. The Resident is invited to join the two streams of experience drawn from the patient’s life in and out of therapy. The practitioner asks the student to step into the situation, to make himself part of it—in Quiet’s case, by imposing his own order onto the site; in the Supervisor’s, by treating his own relations with the patient as a microcosm of the patient’s life outside of therapy.

The practitioner then takes the reframed problem and conducts an experiment to discover what consequences and implications can be made to follow from it. Quiet’s global, framing-experiment begins with “You must impose a discipline” and ends with “which works slightly with the contours.” The Supervisor’s begins with “How is she stuck . . . ?” and ends with, “This is really a woman who feels quite guilty . . . and that’s how she’s stuck.”

In order to see what can be made to follow from his reframing of the situation, each practitioner tries to adapt the situation to the frame. This he does through a web of moves, discovered consequences, implications, appreciations, and further moves. Within the larger web, individual moves yield phenomena to be understood, problems to be solved, or opportunities to be exploited. Quiet discovers spaces that can be made into nooks. The Supervisor finds a procedure for answering the question, “Punishment for what?” These are local experiments nested within larger ones.

But the practitioner’s moves also produce unintended changes which give the situations new meanings. The situation
talks back, the practitioner listens, and as he appreciates what he hears, he reframes the situation once again. When Quist discovers that his moves have produced a gallery which is “in a minor way . . . the major thing,” he becomes aware of a new whole idea, which sets criteria for the further designing. When the Supervisor discerns in the patient’s stories the pattern which he describes as “continual self-frustration,” he sets a restructured problem of interpretation which guides his further inquiry.

In this reflective conversation, the practitioner’s effort to solve the reframed problem yields new discoveries which call for new reflection-in-action. The process spirals through stages of appreciation, action, and reappraisal. The unique and uncertain situation comes to be understood through the attempt to change it, and changed through the attempt to understand it.

Such is the skeleton of the process. It suggests several further questions.

1. The practitioner conducts an experiment in reframing the problematic situation. But how is such an experiment to be evaluated? The practitioner judges his problem-solving effectiveness in terms of an objective function, but how ought he to judge the problem setting which establishes the objective function?

2. When the practitioner takes seriously the uniqueness of the present situation, how does he make use of the experience he has accumulated in his earlier practice? When he cannot apply familiar categories of theory or technique, how does he bring prior knowledge to bear on the invention of new frames, theories, and strategies of acting?

3. Reflection-in-action is a kind of experimenting. But practice situations are notoriously resistant to controlled experiment. How does the practitioner escape or compensate for the lack of limits to controlled experiment? In what sense, if any, is there rigor in on-the-spot experiment?

4. Technical problem solving involves a characteristic stance toward inquiry, as suggested by terms such as objectivity, control, and distance. These terms have limited application to the processes demonstrated by Quist and the Supervisor. Nevertheless, their stance toward inquiry is critical to the quality of their reflection-in-action. How should we describe it?

Questions such as these point to a further elaboration of reflection-in-action as an epistemology of practice. One might try to answer them by appeal to a structure of inquiry, but I do not know what such a structure might be or how it might be discovered, if not by reflection on the actual practice of experienced, competent practitioners who reflect-in-action. Accordingly, I shall approach these questions by looking for answers to them implicit in Quist’s designing and in the Supervisor’s interpretive inquiry.

Evaluating Experiments in Problem Setting

Quist and the Supervisor act as though they were judging their reframing of the students’ problems in terms of these questions:

Can I solve the problem I have set?
Do I like what I get when I solve this problem?
Have I made the situation coherent?
Have I made it congruent with my fundamental values and theories?
Have I kept inquiry moving?
to scale and the Supervisor probes the Resident’s stories, they engage in a disciplined pursuit of the implications of their chosen frames.

At the same time that the inquirer tries to shape the situation to his frame, he must hold himself open to the situation’s back-talk. He must be willing to enter into new confusions and uncertainties. Hence, he must adopt a kind of double vision. He must act in accordance with the view he has adopted, but he must recognize that he can always break it open later, indeed, must break it open later in order to make new sense of his transaction with the situation. This becomes more difficult to do as the process continues. His choices become more committing; his moves, more nearly irreversible. As the risk of uncertainty increases, so does the temptation to treat the view as the reality. Nevertheless, if the inquirer maintains his double vision, even while deepening his commitment to a chosen frame, he increases his chances of arriving at a deeper and broader coherence of artifact and idea.

His ability to do this depends on certain relatively constant elements that he may bring to a situation otherwise in flux: an overarching theory, an appreciative system, and a stance of reflection-in-action which can become, in some practitioners, an ethic for inquiry.

Technical Rationality and Reflection-in-Action Compared

As we have described similarities of patterns and principles in Quint’s designing and the Supervisor’s therapeutic inquiry, we have also begun to describe an epistemology of reflection-in-action which accounts for artistry in situations of uniqueness and uncertainty. On this view of professional knowing, technical problem solving occupies a limited place within the inquirer’s reflective conversation with his situation; the model of Technical Rationality appears as radically incomplete.

The Positivist epistemology of practice rests on three dichotomies. Given the separation of means from ends, instrumental problem solving can be seen as a technical procedure to be measured by its effectiveness in achieving a pre-established objective. Given the separation of research from practice, rigorous practice can be seen as an application to instrumental problems of research-based theories and techniques whose objectivity and generality derive from the method of controlled experiment. Given the separation of knowing from doing, action is only an implementation and test of technical decision.

In the reflective conversations of Quint and the Supervisor, these dichotomies do not hold. For Quint and the Supervisor, practice is a kind of research. In their problem setting, means and ends are framed interdependently. And their inquiry is a transaction with the situation in which knowing and doing are inseparable.

These inquirers encounter a problematic situation whose reality they must construct. As they frame the problem of the situation, they determine the features to which they will attend, the order they will attempt to impose on the situation, the directions in which they will try to change it. In this process, they identify both the ends to be sought and the means to be employed. In the ensuing inquiry, action on the situation is integral with deciding, and problem solving is a part of the larger experiment in problem setting. For example, Quint applies his rules of thumb, about the use of slopes ap-
appropriate to their various grades, as a component of the larger experiment in which he tries to impose a geometry of parallels onto the site. His frame experiment sets the problem to be solved, and his problem-solving is one element in his test of the frame.

Squat and the Supervisor reflect on their students’ intuitive understandings of the phenomena before them and construct new problems and models derived, not from application of research-based theories, but from their repertoires of familiar examples and themes. Through seeing as and doing as, they make and test new models of the situation. But their on-the-spot experiments, conducted in the virtual worlds of sketchpad and storytelling, also function as transforming moves and exploratory probes. Hypothesis testing has the limited function of enabling them to achieve satisfactory moves or to surface phenomena which cause them to reframe the situation.

The values of control, distance, and objectivity, central to the model of Technical Rationality, take on new meanings in the reflective conversation. Here the inquirer tries, within the limits of his virtual world, to control variables for the sake of hypothesis-testing experiment. But his hypothesis is about the situation’s potential for transformation, and in the testing process he steps into the situation. He produces knowledge that is objective, in the sense that he can disconfirm it. He can discover that he has not achieved satisfactory change or that he ought to undertake change of a different order. But his knowledge is also personal, bounded by his commitments to appreciative system and overarching theory. It is compelling only to members of a community of inquiry who share these commitments.

In the following chapters, we will explore other examples of knowing-in-practice which exhibit, in greater or lesser degree,
Situated Cognition and the Culture of Learning

JOHN SEELY BROWN  ALLAN COLLINS  PAUL DUGUID

The breach between learning and use, which is covered by the folk categories "know what" and "know how," may well be a product of the structure and practices of our education system. Many methods of didactic education assume a separation between knowing and doing, treating knowledge as an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used.

The primary concern of schools often seems to be the transfer of this substance, which comprises abstract, decontextualized formal concepts. The activity and context in which learning takes place are thus regarded as merely ancillary to learning—pedagogically useful, of course, but fundamentally distinct and even neutral with respect to what is learned.

Recent investigations of learning, however, challenge this separating of what is learned from how it is learned and used. The activity in which knowledge is developed and deployed, it is now argued, is not separable from or ancillary to learning and cognition. Nor is it neutral. Rather, it is an integral part of what is learned. Situations might be said to co-produce knowledge through activity. Learning and cognition is now possible to argue, is fundamentally situated.

In this paper, we try to explain in a deliberately speculative way, why activity and situations are integral to cognition and learning, and how different ideas of what is appropriate learning activity produce very different results. We suggest that, by ignoring the situated nature of cognition, education defeats its own goal of providing usable, robust knowledge. And conversely, we argue that approaches such as cognitive apprenticeship (Collins, Brown, & Newman, in press) that embed learning in activity and make deliberate use of the social and physical context are more in line with the understanding of learning and cognition that is emerging from research.

Situated Knowledge and Learning

Miller and Glodea's (1987) work on vocabulary teaching has shown how the assumption that knowing and doing can be separated leads to a teaching method that ignores the way situations structure cognition. Their work has described how children are taught words from dictionary definitions and a few exemplary sentences, and they have compared this method with the way vocabulary is normally learned outside school.

People generally learn words in the context of ordinary communication. This process is startlingly fast and successful. Miller and Glodea note that by listening, talking, and reading, the average 3-year-old has learned vocabulary at a rate of 5,000 words per year (13 per day) for over 16 years. By contrast, learning words from abstract definitions and sentences taken out of the context turns of normal use, the way vocabulary has often been taught, is slow and generally unsuccessful. There is rarely enough classroom time to teach more than 100 to 200 words per year. Moreover, much of what is taught turns out to be almost useless in practice. They give the following examples of students' uses of vocabulary acquired this way:

Me and my parents correlate, because without them I wouldn't be here.
I was meticulous about falling off the cliff.

Mrs. Moreau stimulated the soup.

Given the method, such mistakes seem unavoidable. Teaching from dictionaries assumes that definitions and exemplary sentences are self-contained "pieces" of knowledge. But words and sentences are not islands, existing unto themselves. Language use would involve an unrelenting confrontation with ambiguity, polysemy, nuances, and so forth were these not resolved with the extralinguistic help that context of an utterance provides (Nunberg, 1978).

Prominent among the intracacies of language that depend on extralinguistic help are indexical words—words like I, here, now, next, tomorrow, afterwards, this, indexical terms are those that "index" or more plainly point to a part of the situation in which communication is being conducted. They are not merely context-sensitive; they are completely context-dependent. Words like I or now,

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for instance, can only be interpreted in the context of their use. Surprisingly, all words can be seen as at least partially indexical (Barwise & Perry, 1983).

Experienced readers implicitly understand that words are situated. They, therefore, ask for the rest of the sentence or the context before committing themselves to an interpretation of a word. And they go to dictionaries with situated examples of usage in mind. The situation as well as the dictionary supports the interpretation. But the students who produced the sentences listed had no support from a normal communicative situation. In tasks like theirs, dictionary definitions are assumed to be self-sufficient. The extralinguistic props that would structure, constrain, and ultimately allow interpretation in normal communication are ignored.

Learning from dictionaries, like many method that tries to teach abstract concepts independently of authentic situations, overlooks the way understanding is developed through continued, situated use. This development, which involves complex social negotiations, does not crystallize into a categorical definition. Because it is dependent on situations and negotiations, the meaning of a word cannot, in principle, be captured by a definition, even when the definition is supported by a couple of exemplary sentences.

All knowledge is, we believe, like language. Its constituent parts index the world and so are intrinsically a product of the activity and situations in which they are produced. A concept, for example, will continually evolve with each new occasion of use, because new situations, negotiations, and activities inevitably recast it in a new, more densely textured form. So a concept, like the meaning of a word, is always under construction. This would also appear to be true of apparently well-defined, abstract technical concepts. Even these are not wholly definable and defy categorical description; part of their meaning is always inherited from the context of use.

Learning and tools. To explore the idea that concepts are both situated and progressively developed through activity, we should abandon any notion that they are abstract, self-contained entities. Instead, it may be more useful to consider conceptual knowledge as, in some ways, similar to a set of tools. Tools share several significant features with knowledge. They can only be fully understood through use, and using them entails both changing the user's view of the world and adopting the belief system of the culture in which they are used.

First, if knowledge is thought of as tools, we can illustrate Whitehead's (1929) distinction between the mere acquisition of inert concepts and the development of useful, robust knowledge. It is quite possible to acquire a tool but to be unable to use it. Similarly, it is common for students to acquire algorithms, routines, and decontextualized definitions that they cannot use and that, therefore, lie inert. Unfortunately, this problem is not always apparent. Old-fashioned pocket knives, for example, have a device for removing stones from horses' hooves. People with this device may know its use and be able to talk wisely about horses, hooves, and stones. But they may never betray—or even recognize—that they would not begin to know how to use this implement on a horse. Similarly, students can often manipulate algorithms, routines, and definitions they have acquired with apparent competence and yet not reveal, to their teachers or themselves, that they would have no idea what to do if they came upon the domain equivalent of a limp hoof.

People who use tools actively rather than just acquire them, by contrast, build an increasingly rich implicit understanding of the world in which they use the tools and of the tools themselves. The understanding, both of the world and of the tool, continually changes as a result of their interaction. Learning and acting are intimately interrelated. Learning being a continuous, life-long process resulting from acting in situations.

Learning how to use a tool involves far more than can be accounted for in any set of explicit rules. The occasions and conditions for use arise directly out of the context of activities of each community that uses the tool, framed by the way members of that community view the world. The community and its viewpoint, quite as much as the tool itself, determine how a tool is used. Thus, carpenters and cabinet makers use chisels differently. Because tools and the way they are used reflect the particular accumulated insights of communities, it is not possible to use a tool appropriately without understanding the community or culture in which it is used.

Conceptual tools similarly reflect the cumulative wisdom of the culture in which they are used and the insights and experience of individuals. Their meaning is not invariant but a product of negotiation within the community. Again, appropriate use is not simply a function of the abstract concept alone. It is a function of the culture and the activities in which the concept has been developed. Just as carpenters and cabinet makers use chisels differently, so physicists and engineers use mathematical formulae differently. Activity, concept, and culture are interdependent. No one can be totally understood without the other two. Learning must involve all three. Teaching methods often try to impart abstract concepts as fixed, well-defined, independent entities that can be explored in prototypical examples and textbook exercises. But such exemplification cannot provide the important insights into either the culture or the authentic activities of members of that culture that learners need.

To talk about academic disciplines, professional or even manual trades as communities or cultures will perhaps seem strange. Yet communities of practitioners are connected by more than their ostensible tasks. They are bound by jargon, socially constructed webs of belief, which are essential to understanding what they do (Geertz, 1983).

The activities of many communities are unfathomable, unless they are viewed from within the culture. The culture and the use of a tool act together to determine the way practitioners see the world and the way the world appears to them determines the culture's understanding of the world and of the tools. Unfortunately, students are too often asked to use the tools of a discipline without being able to adopt its culture. To learn to use tools as practitioners use them, a student, like an apprentice, must enter that community and its culture. Thus, in a significant way, learning to be a professional or an enculturated.
and so on. From a very early age and throughout their lives, people, consciously or unconsciously, adopt the behavior and belief systems of new social groups. Given the chance to observe and practice in situ the behavior of members of a culture, people pick up relevant jargon, imitate behavior, and gradually start to act in accordance with its norms. These cultural practices are often recognizable by their input, output, and behavior in a particular activity. The ease and success with which people do this (as opposed to the intricacy of describing what it entails) belie the immense importance of the process and obscure the fact that what they pick up is a product of the ambient culture rather than of explicit teaching.

Too often the practices of contemporary schooling deny students the chance to engage the relevant domain culture, because that culture is not in evidence. Although students are shown the tools of many academic cultures in the course of a school career, the pervasive cultures that they observe, in which they participate, and which some enter quite effectively are the cultures of school life itself. These cultures can be understood only through a theoretical approach to useful domain learning. The ways schools use dictionaries, or math formulas, or historical analysis are very different from the ways practitioners use them (Schoenfeld, in press). Thus, students may pass exams (a distinctive part of school culture) but still not be able to use a domain's conceptual tools in authentic practice.

This is not to suggest that all students of math or history must be expected to become professional mathematicians or historians, but to claim that in order to learn these subjects (and not just to learn about them) students need much more than abstract concepts and self-contained examples. They need to be exposed to the use of a domain's conceptual tools in authentic activity—to teachers acting as practitioners and using these tools in wrestling with problems of the world. Such activity can tease out the way a mathematician or historian looks at the world and solves emergent problems. The process may appear informal, but it is nonetheless full-blooded, authentic activity that can be deeply informative—in a way that textbook examples and declarative explanations are not.

Archetypal school activity is very different from what we have in mind when we talk of authentic activity, because it is very different from what authentic practitioners do. When authentic activities are transferred to the classroom, their context is inevitably transmuted: the classroom is a domain of tasks and part of the school culture. Classroom procedures, as a result, are applied to what have become classroom tasks. The system of learning and using (and, of course, testing) thereafter remains hermetically sealed within the classroom tasks and part of the school culture. Consequently, contrary to the aim of schooling, success within this culture often has little bearing on performance elsewhere.

Math word problems, for instance, are generally encoded in a syntax and diction that is common only to other math problems. Thus the word problems of a textbook of 1478 are instantly recognizable today (Lave, 1988a). But word problems are as foreign to authentic math practice as Miller and Gudles's example of dictionary learning is to the practices of readers and writers. By participating in such ersatz activities students are likely to misconceive entirely what practitioners actually do. As a result, students can easily be introduced to a formalistic, initiating view of math that endorses a culture of math phobia rather than one of authentic math activity.

In the creation of classroom tasks, apparently peripheral features of authentic activity—like the extralinguistic supports involved in the interpretation of communication—are often dismissed as "noise" from which salient features can be abstracted for the purpose of teaching. But the context of activity is an extraordinarily complex network from which practitioners draw essential support. The source of such support is often only tacitly recognized by practitioners, or even by teachers or designers of simulations. Classroom tasks, therefore, can completely fail to provide the contextual features that allow authentic activity. At the same time, students may come to rely, in important but little noticed ways, on features of the classroom context, in which the task is now embedded, that are wholly absent from and alien to authentic activity. Thus, much of what is learned in school may apply only to the ersatz activity, if it was learned through such activity.
Activities of students, prestudents, and just plain folk. The idea that most school activity exists in a culture of its own is central to understanding many of the difficulties of learning in school. Jean Lave's ethnographic studies of learning and everyday activity (1988b) reveal how different schooling is from the activities and culture that give meaning and purpose to what students learn elsewhere. Lave focuses on the behavior of JPPs (just plain folks) and records that the ways they learn are quite distinct from what students are asked to do.

Three categories primarily concern us here: JPPs, students, and practitioners. Put most simply, when JPPs aspire to learn a particular set of practices, they have two apparent options. First, they can enculturate through apprenticeship. Becoming an apprentice does not involve a qualitative change from what JPPs normally do. People enculturate into different communities all the time. The apprentices' behavior and the JPPs' behavior can thus be thought of as pretty much the same.3

The second, and now more conventional, option is to enter a school as a student. Schools, however, do seem to demand a qualitative change in behavior. What the student is expected to do and what a JPP does are significantly different. The student enters the school culture while ostensibly being taught something else. And the general strategies for intuitive reasoning, resolving issues, and negotiating meaning that people develop through everyday activity are superseded by the precise, well-defined problems, formal definitions, and symbol manipulation of much school activity.

We try to represent this discontinuity in Table 1, which compares salient features of JPP, practitioner, andputative student behavior.

This Table is intended mainly to make apparent that, in our terms, there is a great similarity between JPPs' and practitioners' activity. Both have their activities situated in the cultures in which they work, within which they negotiate meanings and construct understanding. The issues and problems that they face arise out of, are defined by, and are resolved within the constraints of the activity they are pursuing.

Lave's work (1988b) provides a good example of a JPP engaged in authentic activity using the context in which an issue emerged to help find a resolution. The example comes from a study of a Weight Watchers class, whose participants were preparing their carefully regulated meals under instruction.

In this case they were to fix a serving of cottage cheese, permitting the amount laid out for the meal was three-quarters of the two-thirds cup the program allowed. The problem solver in this example began the task by muddling that he had taken a calcium course in cottage. . . . Then after filling a measuring-cup two-thirds full of cottage cheese, dumped it out on the cutting board, patted it into a circle, marked a cross on it, scooped away one quadrant, and served the rest.

Thus, "take three-quarters of two-thirds of a cup of cottage cheese" was not just the problem statement but also the solution to the problem and the procedure for solving it. The setting was part of the calculating process and the solution was simply the problem statement, enacted with the setting. At no time did the Weight Watcher check his procedure against a paper and pencil algorithm, which would have produced 18 cup x 1/3 cup = 6 cup. Instead, the coincidence of the problem, setting, and enactment was the means by which checking took place. (p. 165)

The diet's solution path was extremely expedient and drew on a sort of inventiveness that characterizes the activity of both JPPs and practitioners. It reflected the nature of the activity, the resources available, and the sort of resolution required in a way that problem solving that relies on abstracted knowledge cannot.

This inventive resolution depended on the dieters seeing the problem in the particular context, which itself was embedded in ongoing activity. And this again is characteristic of both JPPs and experts. The dieters' position gave him privileged access to the solution path he chose. (This probably accounts for the certainty he expressed before beginning his calculation.) He was thus able to see the problem and its resolution in terms of the measuring cup, cutting board, and knife. Activity-type culture (cooking-kitchen utensils-dieting) moved in step throughout this procedure because of the way the problem was seen and the task was performed. The whole micro-routine simply became one more step on the road to a meal. Knowing and doing were interlocked and inseparable.

This sort of problem solving is carried out in conjunction with the environment and is quite distinct from the process occurring solely inside heads that many teaching practices implicitly endorse. By off-loading part of the cognitive task on to the environment, the dieter automatically used his environment to help solve the problem. His actions were not in any way exceptional; they resemble many ordinary working practices. Scribner (1984) records, for instance, how complex calculations can be performed by practitioners using their environment directly. In the case she studied, dairy loaders used the configuration of cates they were filling and emptying almost like an elaborate abacus. Nor are such problem solving strategies limited to the physical or social environment. This sort of reliance on situations can be seen in the work of physicists, who see "through" formulas by envisioning a physical situa-

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TABLE 1.

<table>
<thead>
<tr>
<th>JPPs</th>
<th>Students</th>
<th>Practitioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>reasoning with:</td>
<td>causal stories</td>
<td>laws</td>
</tr>
<tr>
<td>acting on:</td>
<td>situations</td>
<td>symbols</td>
</tr>
<tr>
<td>teaching:</td>
<td>emergent problems and dilemmas</td>
<td>well-defined problems</td>
</tr>
<tr>
<td>producing:</td>
<td>negotiable meaning &amp; socially constructed understanding</td>
<td>fixed meaning &amp; immutable concepts</td>
</tr>
</tbody>
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Jan 1999
tion, which then provides support for inferences and approximations (Dobbsley & Brown, 1984). Hutchins' (in press) study of intricate collaborative naval navigation records the way people distribute the burden across the environment and the group as well. The resulting cognitive activity can then only be explained in relation to its context.

"When the context of cognition is ignored," Hutchins observes, "it is impossible to see the contribution of structure in the environment, in artifacts, and in other people to the organization of mental processes.

Instead of taking problems out of the context of their creation and providing them with an out-of-context framework, JPPs seem particularly adept at solving them within the framework of the context that produced them. This allows JPPs to share the burdens of both defining and solving the problem with the task environment as they respond in "real time." The adequacy of the solution they reach becomes apparent in relation to the role it must play in allowing activity to continue. The problem, the solution, and the cognition involved in getting between the two cannot be isolated from the context in which they are embedded.

Even though students are expected to behave differently, they inevitably do behave like the JPPs they are and solve most of their problems in their own situated way. Schoenfeld (in press) describes mathematics students using well-known but unacknowledged strategies, such as the position of a problem in a particular section of the book (e.g., the first questions at the end of chapters are always simple ones, and the last usually demand concepts from earlier chapters) or the occurrence of a particular word in the problem (e.g., "left" signals a subtraction problem), to find solutions quickly and efficiently. Such plays indicate how thoroughly learners really are situated, and how they always lean on whatever context is available for help. Within the practices of school teaching can obviously be very effective. But the school situation is extremely specialized. Viewed from outside, where problems do not come in textbooks, a dependency on such school-based cues makes the learning extremely fragile.

Furthermore, though schooling seeks to encourage problem solving, it disregards most of the inventive heuristics that students bring to the classroom. It thus implicitly diverts not just individual heuristics, which may be fragile, but the whole process of inventive problem solving. Lave (1988b) describes how some students feel it necessary to disguise effective strategies so that teachers believe the problems have been solved in the approved way.

Structuring activity, authentic activity, as we have argued, is important for learners, because it is the only way they can access to the standpoint that enables practitioners to act meaningfully and purposefully. It is activity that shapes or hones their tools. How and why remain to be explained. Activity also provides experience, which is plainly important for subsequent action. Here, we try to explain some of the products of activity in terms of idiosyncratic "indescribed" representations.

Representations arising out of activity cannot easily (or perhaps at all) be replaced by descriptions. Plans, as Suchman argues (1987), are distinct from situated actions. Most people will agree that a picture of a complex machine in a manual is distinctly different from how the machine actually looks. (In an intriguing way you need the machine to understand the manual, as much as the manual to understand the machine.) The perceptions resulting from actions are a central feature in both learning and activity. How a person perceives activity may be determined by tools and their appropriated use. What they perceive, however, contributes to how they act and learn. Different activities produce different idiosyncratic representations not equivalent, universal ones. And, thus, the activity that led to those representations plays a central role in learning.

Representations are, we suggest, idiosyncratic rather in the way that language is. That is to say, they are dependent on context. In face-to-face conversations, people can interpret indexical expressions (containing such words as, I, you, here, now, that, etc.), because they have access to the indexed features of the situation, though people rarely notice the significance of the surroundings to their understanding. The importance of the surroundings becomes apparent, however, when they try to hold similar conversations at a distance. Then indexical expressions become problematic until ways are found to secure their interpretation by situating their reference (see, for instance, Rubin, 1988, on the difference between speech and writing).

Perhaps the best way to discover the importance and efficiency of indexical terms and their embedding context is to imagine discourse without them. Authors of collaborative work such as this one will recognize the problems if they have ever discussed the paper over the phone. "What you say here" is not a very useful remark. Here in this setting needs an elaborate description (such as "page 3, second full paragraph, fifth sentence," beginning... .) and can often lead to conversations at cross purposes. The problem gets harder in conference calls when you become as ambiguous as here is unclear. The contents of a shared environment make a central contribution to conversation.

When the immediacy of indexical terms is replaced by descriptions, the nature of discourse changes and understanding becomes much more problematic. Indexical terms are virtually transparent. They draw little or no attention to themselves. They do not necessarily add significantly to the difficulty of understanding a proposition in which they occur, but simply point to the subject under discussion, which then provides essential structure for the discourse. Descriptions, by comparison, are at best translucent and at worst opaque, intruding emphatically between speakers and their subjects. The audience has first to focus on the descriptions and try to interpret them and find what they might refer to. Only then can the proposition in which they are embedded be understood. (However elaborate, a description does not merely replace the indexical word.) The more elaborate the description is in an attempt to be unambiguous, the more opaque it is in danger of becoming.

In some circumstances, the indexical term simply cannot be replaced (Perry, 1979).

Knowledge, we suggest, similarly indexes the situation in which it arises and is used. The embedding circumstances efficiently provide essential parts of its structure and meaning. So knowledge, which comes coded and connected to the activity and environment in which it is developed, is spread across its component parts, some of which are in the mind and some in the world such as the final picture on a jig-saw is spread across its component
As Hutchins (to press), Pea (1988), and others point out, the structure of cognition is widely distributed across the environment, both social and physical. And we suggest that the environment, therefore, contributes importantly to indelible representations, and in turn, contribute to future activity. Indelible representations developed through engagement in a task may greatly increase the efficiency with which subsequent tasks can be done, if part of the environment that structures the representations remains invariant. This is evident in the ability to perform tasks that cannot be described or remembered in the absence of the situation. Recurring features of the environment may thus afford recurrent sequences of actions. Memory and subsequent actions, as knots in handkerchiefs and other *aids memoria* reveal, are not context-independent processes. Routines (Agras, 1985) may well be a product of this sort of indelabilization. Thus, authentic activity becomes a central component of learning.

One of the key points of the concept of indelibility is that it indicates that knowledge, and not just learning, is situated. A corollary of this is that learning methods that are embedded in authentic situations are not merely useful; they are essential.

**Learning Through Cognitive Apprenticeship**

We have been working toward a conception of human learning and reasoning that, we feel, is important for school practices to honor. Though there are many innovative teachers, schools, and programs that act otherwise, prevalent school practices assume, more often than not, that knowledge is individual and self-structured, that schools are neutral with respect to what is learned, that concepts are abstract, relatively fixed, and unaffected by the activity through which they are acquired and used, and that IFP behavior should be discouraged.

Cognitive apprenticeship (Collins, Brown, & Newman, in press), whose mechanisms we have, to some extent, been trying to elucidate, embraces methods that stand in contradistinction to these practices. Cognitive apprenticeship methods try to encourage students into authentic practices through activity and social interaction in a way similar to that evident—and evidently successful—in craft apprenticeship. In this section, we examine briefly two examples of mathematics teaching in an attempt to illustrate how some of the characteristics of learning that we have discussed can be honored in the classroom. We use examples from mathematics in part because that is where some of the most innovative work in teaching can be found. But we firmly believe that this sort of teaching is not just possible in mathematics.

Schoenfeld's teaching of problem solving. Schoenfeld's teaching of problem solving (1985, in press) deliberately attempts to generate mathematical practice and to show college students how to think mathematically about the world, how to see the world through mathematicians' eyes, and, thus, how to use the mathematician's tools. His approach goes well beyond simply giving students problem-solving strategies. Much more importantly, it provides students with the opportunity to enter the culture of mathematical practice. Schoenfeld's students bring problems to class that he and they investigate mathematically. His students can witness and participate in spontaneous mathematical thinking and see mathematics as a sense-making pursuit. This approach is distinctive because, before graduate school, few students get the opportunity to see their teachers engaged in mathematical practice, yet the students are expected to understand
The Magic Square Problem

Can you place the digits 1, 2, 3, 4, 5, 6, 7, 8, 9 in the box below, so that the sum of the digits along each row, each column, and each diagonal is the same? The completed box is called a magic square.

![Magic Square Diagram]

Note: From Schoenfeld, in press.

For example, in the context of coin problems, because in the community of fourth grade students, there is usually a strong, explicit, shared understanding of coins. Next, the students create stories for multiplication problems, drawing on their implicit knowledge to delineate different examples of multiplication. Then, Lampert helps them toward the abstract algorithm that everyone learns for multidigit multiplication, in the context of the coin problem and stories the community has created. Thus, the method presents the algorithm as one more useful strategy to help them resolve community problems.

The first phase of teaching starts with simple coin problems, such as “using only nickels and pennies, make 82 cents.” With such problems, Lampert helps students explore their implicit knowledge. Then, in the second phase, the students create stories for multiplication problems (see Figure 2). They perform a series of decompositions and discover that there is no one, magically “right” decomposition decreed by authority, just more and less useful decompositions whose correctness is judged in the context of the problem to be solved and the interests of the problem solvers.

The third phase of instruction gradually introduces students to the standard algorithm, now that such an algorithm has a meaning and a purpose in their community. The students’ procedure parallels the story problems they had created. Eventually they find ways to shorten the process, and they usually arrive at the standard algorithm, justifying their findings with the stories they created earlier.

This approach fosters procedures that are characteristic of cognitive apprenticeship:

- By beginning with a task embedded in a familiar activity, it shows the students the legitimacy of their implicit knowledge and its availability as scaffolding in apparently unfamiliar tasks.
- By pointing to different decompositions, it stresses that heuristics are not absolute, but assessed with respect to a particular task—and that even algorithms can be assessed in this way.
- By allowing students to generate their own solution paths, it helps make them conscious, creative members of the culture of problem-solving mathematicians. And, in enunciating through this activity, they acquire some of the culture’s tools—a shared vocabulary and the means to discuss, reflect upon, evaluate, and validate community procedures in a collaborative process.

Schoenfeld’s approach differs principally in its strong emphasis on exposing students to the authentic ways of thinking of a culture and its conceptual viewpoint, as much as to its subject matter.

Figure 3 shows how, in the terms of cognitive apprenticeship, we can repre-
sent the progress of the students from embedded activity to general principles of the culture. In this sequence, apprenticeship and coaching in a domain begin by providing modeling in situ and scaffolding for students to get started in an authentic activity. As the students gain more self-confidence and control, they move into a more autonomous phase of collaborative learning, where they begin to participate consciously in the culture. The social network within the culture helps them develop its language and the belief systems and promotes the process of enculturation. Collaboration also leads to articulation of strategies, which can then be discussed and reflected on. This, in turn, fosters generalizing, grounded in the students' situated understanding. From here, students can use their developing conceptual knowledge in activity, seeing that activity in a new light, which in turn leads to the further development of the conceptual knowledge.

In language learning, for instance, the original literal understanding of a word is developed and extended through subsequent use and social negotiation, though each use is obviously situated. Miller and Gudea (1978) describe two stages of this process. The first, in which people learn the word and assign it a semantic category (e.g., the word alive is first assigned to the general category of color words), is quickly done. The second, in which distinctions within this semantic category (e.g., between alive and other colors) are explored as the word occurs again and again, is a far more gradual process, which "may never be completely finished" (p. 55). This second phase of word learning corresponds to the development through activity of all conceptual knowledge. The threadbare concepts that initially develop out of activity are gradually given texture as they are deployed in different situations.

Apprenticeship and Cognition

The development of concepts out of and through continuing authentic activity is the approach of cognitive apprenticeship—a term closely allied to our image of knowledge as a tool. Cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop, and use cognitive tools in authentic domain activity. Similarly, craft apprenticeship enables apprentices to acquire and develop the tools and skills of their craft through authentic work at and membership in their trade. Through this process, apprentices enter the culture of practice. So the term apprenticeship helps to emphasize the centrality of activity in learning and knowledge and highlights the inherently context-dependent, situated, and enculturated nature of learning. Apprenticeship also suggests the paradigm of "taught modeling, coaching, and fading" (Collins, Brown, & Newman, in press), whereby teachers or coaches promote learning, first by making explicit their tacit knowledge or by modeling their own strategies for students in authentic activity. Then, teachers and colleagues support students' attempts at doing the task. And finally they empower the students to continue independently. The progressive process of learning and enculturation, perhaps argues that Increasingly Complex Micro-

**FIGURE 2**

Story Problems for Teaching Multiplication

T: Can anyone come up with a story that could go with this multiplication... 12 x 4?
S1: There were 12 jars, and each had 4 butterflies in it.
T: And if I did that multiplication and found the answer, what would I know about those jars and butterflies?
S1: You’d know you had that many butterflies altogether.
T: Okay, here are the jars. [Draw a picture to represent the jars of butterflies—see diagram.] The start in them will stand for butterflies. Now, it will be easier for us to count how many butterflies there are altogether, if we think of the jars in groups. And as usual, the mathematician’s favorite number for thinking about groups is 10.
S1: 10 jars.
T: Each of these 10 jars has 4 butterflies in it. [Draw a loop around 10 jars. . .]
S1: Suppose I erase my circle and go back to looking at the 12 jars again altogether. Is there any other way I could group them to make it easier for us to count all the butterflies?
S1: You could do 6 and 6.
T: Now, how many do I have in this group?
S1: 24.
T: How did you figure that out?
S1: 8 and 8 and 8. [He puts the 6 jars together into 3 pairs, intuitively finding a grouping that made the figuring easier for him.]
T: That’s 2 x 3. 3 groups of 8. Now, how many are in this group?
S1: 24. It’s the same. They both have 6 jars.
T: And now how many are there altogether?
S1: 24 and 24 is 48.
T: Do we get the same number of butterflies as before? Why?
S1: Yeah, because we have the same number of jars and they still have 4 butterflies in each.

students in the humanities, the social sciences, and the physical sciences acquire their extremely refined research skills through the apprenticeships they serve with senior researchers. It is then that they, like all apprentices, must recognize and resolve the ill-defined problems that issue out of authentic activity, in contrast to the well-defined exercises that are typically given to them in textbooks and on exams throughout their earlier schooling. It is at this stage, in short, that students no longer behave as students, but as practitioners, and develop their conceptual understanding through social interaction and collaboration in the culture of the domain, not of the school.

In essence, cognitive apprenticeship attempts to promote learning within the nexus of activity, tool, and culture that we have described. Learning, both outside and inside school, advances through collaborative social interaction and the social construction of knowledge. Resnick has pointed out (1988) that throughout most of their lives people learn and work collaboratively, not individually, as they are asked to do in many schools. Lamport's and Schoenfeld's work, Scardamalia's, Bereiter, and Steinbach's teaching of writing (1984), and Palinczar and Brown's (1984) work with reciprocal teaching of reading all employ some form of social interaction, social construction of knowledge, and collaboration.

Within a culture, ideas are exchanged and modified and belief systems developed and appropriated through conversation and narratives, so these must be promoted, not inhibited. Though they are often anathema to traditional schooling, they are an essential component of social interaction and, thus, of learning. They provide access to much of the distributed knowledge and elaborate support of the social matrix. Environments must allow narratives to circulate and "war stories" to be added to the collective wisdom of the community.

The role of narratives and conversations is perhaps more complex than might first appear. An intriguing role in learning is played by "legitimate peripheral participation," where people who are not taking part directly in a particular activity learn a great deal from their legitimate position on the periphery (Lave & Wenger, in preparation). It is a mistake to think that important discourse in learning is always direct and declarative. This peripheral participation is particularly important for people entering the culture. They need to observe how practitioners at various levels behave and talk to get a sense of how expertise is manifest in conversation and other activities.

Cognitive apprenticeship and collaborative learning. If, as we propose, learning is a process of enculturation that is supported in part through social interaction and the circulation of narrative, groups of practitioners are particularly important, for it is only within groups that social interaction and conversation can take place. Salient features of group learning include:

- Collective problem solving. Groups are not just a convenient way to accumulate the individual knowledge of their members. They give rise synergistically to insights and solutions that would not come about without them (Schoenfeld, in preparation).
- Displaying multiple roles. Successful execution of most individual tasks requires students to understand the many different roles needed for carrying out any cognitive task. Getting one person to be able to play all the roles entailed by authentic activity and to reflect productively upon his or her performance is one of the monumental tasks of education. The group, however, permits different roles to be displayed and engenders reflective narratives and discussions about the aptness of those roles.
- Confronting ineffective strategies and misconceptions. We know from an extensive literature (disessa, 1982, 1983, 1986; McClosky, Carraza, & Green, 1980; White, 1983) that students have many misconceptions about qualitative phenomena in physics. Teachers rarely have the opportunity to hear enough of what students think to recognize when the information that is offered back to students is only a surface retelling for school purposes (the handing back of an uncomprehended tool, as we described it at the beginning) that may undo deep misconceptions about the physical world and problem solving strategies. Groups however, can be efficient in drawing out, confronting and discussing both misconceptions and ineffective strategies.

- Providing collaborative work skills. Students who are taught individually rather than collaboratively can fail to develop skills needed for collaborative work. In the collaborative conditions of the workplace, knowing how to learn and work collaboratively is increasingly important. If people are going to learn and work in conjunction with others, they must be given the situated opportunity to develop these skills.

In looking at Schoenfeld's and Lamport's teaching, in noting what we believe are important features of their methods, and in stressing social interaction and collaborative learning, we are trying to show how teaching through a form of apprenticeship can accommodate the new view of knowledge and learning we have been outlining.

The increasing role of the teacher as a master to apprentices, and the teachers' use of authentic domain activity as a major part of teaching will perhaps once and for all, dismiss George Bernard Shaw's scurrilous criticism of teachers. "He who can, does. He who cannot, teaches." His comment may then be replaced with Alexander Pope's hopeful "Let such each others who themselves excel."

Conclusion—Toward an Epistemology of Situated Cognition

Much research investigating situated features of cognition remains to be done. It is, however, already possible to begin serious reappraisal of the assumptions about learning that underlie current classroom practice (see, for example Resnick, 1988a; Shanker, 1988a).

One of the particularly difficult challenges for research, (which exceptional teachers may solve independently) is determining what should be made explicit in teaching and what should be left implicit. A common strategy in trying to overcome difficult pedagogic problems is to make as much as possi-
tle explicit. Thus, we have ended up with wholly inappropriate methods. A major point, explained or implicit, and equally even nonconceptual constraints (Cassirer, 1932) out of the embedding theory and tries to make the explicit or conceptual. These now take a place in our ontology and become something more to learn about rather than simply something useful in an interpretation. But in- form as much of the context underrepresented or implied. Future work in situated cognition, from which educational practices will benefit, much, among other things, try to frame unifying accounts of the relationship between explicit knowledge and im- plicit understanding.

We have described here only a fragment of an agenda for a fully developed theory of situated cognition. There remains major theoretical work to shift the traditional focus of education. For centuries, the epistemology that has guided educational practice has concentrated precisely on conceptual representations and made its relation to ob- jects in the world problematic by assuming that, cognitively, representation is prior to all else. A theory of situated cognition suggests that activity and per- ception are important and epistemological factors that are at a nonconceptual level to conceptualization and that it is on them that more attention needs to be focused. An epistemology that be- gins with activity and perception, which are first and foremost embedded in the world, may simplify the classical problem of reference of mediating conceptual representations. In conclusion, the unheralded impor- tance of activity and engagement in learning suggests that much common educational practice is the victim of an inadequate epistemology. A new epistemology might hold the key to a dramatic improvement in learning and a completely new perspective on edu-

"All work in this area is to a greater or lesser degree, built upon research of activity theorists such as Vygotsky, Leontiev, and others. For example, recent work, see for instance, Rogoff and Lave, 1984; Schuster, 1984; Hut- chins, in press; Engeström, 1987; Lave and Wenger, 1991. Lave and Wenger; another cogent in particular, Lave, 1977, 1988a, 1988b, 1990a, in preparation. Anyone familiar with Jean Lave's work on learning, apprenticeship, and everyday cognition will realize at once that we are deeply indebted to her groundbreaking work.

The dictionary definitions that the students used in writing these sentences are as follows: Correlate—a related one to the other, metacognitive—very careful, stimulate—arr up. They were given these definitions with little or no contextual help, so it would be unfair to regard the students as foolish for using the words as they did.

In a linguistics literature, the term 'error' is often used instead of incoherence. See, for example, J. Fillmore, Santa Cruz Linguistics. *This image at, of course, not original For the way it is developed here, we are particular- ly indebted to Richard Burton, who explored it during a symposium on education organized by the Secretary of Education of Kentucky and to D. N. Perkins' book Knowledge as Design (1985).

"The JPF must, of course, have access to a culture and become what Lave and Wenger (in preparation) call a "legitimate peripheral participant." And, of course, an apprentice usually has to do a great deal of work. We are not trying to suggest that anything magical oc- curs in the process of enculturation. (Medical interest itself to how hard it can be.) But the process, we think, is not qualitatively different from what people do all the time in adopting the behavior and belief system of their peers.

"To get some sense of how foreign this is to school tasks, it might be useful to imagine the improperity of a student's being given this problem and asked "Does the reactor have a measuring cup, cutting board, and knife at hand?" Though word problems are meant to ground theory in activity, the things that struc- ture activity are denied to the problem solver. Textbooks ask students to solve supposedly "real-life" questions about people who do not engage in such things, such as driving at constant speeds in straight lines or filling leaking buckets with buckets. Students are usually not allowed to indulge in real-life speculation. Their everyday inventiveness is constrained by prescribing and prescribing ways in which the solution must be found. The same rule: Smith miggle after all, wide repair the hole in his bucket or fill the through with a hose. Sitting down and calculating how many journeys it will take with a leaking bucket is probably the very last thing he would do. (See also Lave, 1988.)

Editor's Note: In an effort to encourage in- formed discussion and debate on the themes of this article, the new ER will publish a set of commentaries in the May 1989 issue.

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January-February 1989
Educational Testing Service
1989-90 Fellowship Programs
William H. Angoff, Director

Educational Testing Service invites applications for the ETS Postdoctoral Fellowship Program and the National Assessment of Educational Progress (NAEP) Visiting Scholar Program.

Programs

ETS Postdoctoral Fellowship Program
Up to four participants will conduct research for one year (September 1, 1989, through July 31, 1990) at ETS in Princeton, NJ, in association with ETS senior staff and in one of the following areas: psychometrics, cognitive psychology, educational psychology, statistics, higher education, technology, occupational testing, minority issues, testing issues, or policy studies. Stipend: $24,000. Some relocation expenses will be included, as will a small allowance for an accompanying family.

Goals of the Program: To provide research opportunities for recent awardees of the doctorate and to increase the number of women and minority professionals working in the areas specified above.

Who Should Apply: The program is open to any individual who holds a doctorate in a relevant discipline and provides evidence of prior research.

National Assessment of Educational Progress (NAEP) Visiting Scholar Program
One or two participants, using the NAEP data base, will conduct their own studies (normally from September 1, 1989, through July 31, 1990) at ETS in Princeton, NJ, with access to senior NAEP and ETS research staff. Studies should pertain to educational policy or measurement issues associated with black, Hispanic, or other minority students. Stipend: $6,000 in relation to compensation at home institution. Some relocation expenses will be included, as will a small allowance for an accompanying family.

Goals of the Program: To provide research opportunities for recent awardees of the doctorate and to increase the number of women and minority professionals working in the areas specified above.

Who Should Apply: The program is open to any individual who holds a doctorate in a relevant discipline and provides evidence of prior research.

How to Apply (There is no application form.)

Applicants should submit:
- A resume of educational and job history, honors, awards, etc.
- A detailed description of research interests and experience, plus a description of the nature of the research the applicant would be interested in pursuing during the fellowship year (letter of about three pages).
- Names, addresses, and telephone numbers of three individuals who are willing to provide recommendations for the candidate.

Transcripts—undergraduate and graduate.

An applicant should specify the program for which he or she is applying.

Applications for 1989-90 must be received by ETS on or before February 1, 1989. All applicants will be notified by April 30, 1989.

Contacts: Direct required materials and inquiries to: Margaret B. Lamb, ETS, Mail Stop 30-B, Princeton, NJ 08541-0001; telephone (609) 734-1124.
Most current theoretical formulations of program planning in continuing education are borrowed from Tylecote's curriculum development approaches used in primary and secondary education. This rational model assumes a planning process that entails a certain sequence of steps, all of which are interrelated and interdependent. Alternative conceptual statements are emerging, describing the planning process as a series of decision points relating to both the explicit design (decisions made only after forethought and consideration of alternatives) and the implicit design (action based on precedent and habit without the consideration of alternatives). The differences in the two models were succinctly described by Walker.

This model is primarily descriptive, whereas the classical model is prescriptive. This model is basically a temporal one; it postulates a beginning (the platform), an end (the design), and a process (deliberation) by means of which the beginning progresses to the end. In contrast, the classical model is a means-end model; it postulates a desired end (the objective), a means for attaining this end (the learning experience), and a process (evaluation) for determining whether the means does indeed bring about the end.

The major purpose of the present study was to develop a substantive theory of program planning in continuing professional education which is sponsored by institutions of higher education. Glaser and Strauss (2,25) describe substantive theory as that developed for a substantive, or empirical, area of inquiry. This is in contrast to formal theories developed for a formal or conceptual area of inquiry. A secondary purpose was to study the utility of a formal naturalistic inquiry for developing educational theory, specifically grounded theory. In the process of developing substantive theory, it was hoped that a general model could be devised that described the important activities planners in several professions engaged in as they planned learning activities for practicing professionals.

To be useful to program planners, the generalizations based on the data must enable planners of continuing education activities to understand better the dynamics of the planning process. Many studies in education research attempt to verify existing theory. This study attempted to develop theory, especially propositions that describe program development in continuing professional education. Bruner's review (2) of adult education research found that most studies were limited to descriptions of single programs or to prescriptive analysis of local situations. Few of the findings could be generalized beyond the case or situation studied. Horne (411) asserted that "the comparative study of continuing professional education appears to be a most promising field of inquiry, but its rewards will be achieved only by dealing successfully

with the complexities of method and interpretation.

RESEARCH METHODS

The seminal idea that guided the research was found in the methodology of grounded theory developed by Glaser and Strauss (2). The techniques used in developing grounded theory provided the tools for the type of inquiry needed in the study.

The researcher goes to the field with a minimum of predigested assumptions. In studying a number of similar situations, he identifies qualitative similarities and differences and tests the findings in subsequent field work. The researcher concurrently collects, codes, and analyzes the data before deciding what data to collect next and where to find more information in order to develop the theory as it emerges.

The criterion for determining when to stop sampling the different groups was the point at which the theory reached a level of maturity. The data were gathered until the researcher felt that no more information would result in a substantial difference in the theory. The data were collected in repeated cycles of data collection and analysis.

Data collection means that no new information is being found that enables the researcher to further develop a category. The continuous process of theoretical sampling will provide different views of the same phenomena of which to understand a category and to develop its properties. The views are called slices of data. The final stage in theory building involves collecting the coded data on each category, cross-checking for validity and strength of relationship, and generating hypotheses to be empirically tested. In this study, the theory was portrayed as a planning process model which is discussed below.
institutions. Contact was made with the deans or directors of continuing education at the five institutions to explain the study and help arrange interviews with one or two people who had personally been involved in planning continuing professional education programs in each of the six professional fields.

Informal contact with continuing education administrators from each campus to be visited was made at a national convention which they attended. A brief description of the study was given and names of individuals who might be interviewed were solicited. Each person identified by the campus administrator was contacted by the researcher or by a liaison agent on his campus to schedule time for an interview.

The first personal contact at each campus was with the person(s) who helped arrange the visit and schedule the interviews for the team of two researchers. An abbreviated overview of the study was presented. The research team was given background information about the campus administrative structure for continuing education and a briefing on who would be interviewed. One to three persons in each profession at each school were interviewed. Thirty-seven interviews were conducted. Since some interviews were conducted with more than one person, a total of fifty-nine persons were interviewed.

The interview guide was developed and tested with University of Illinois Continuing Education and Public Service staff and selected faculty members. The guide was field tested at one institution prior to use at the other universities.

The interview was responsive to the differences in programs; however, in most cases all topics in the guide were covered in each interview. The main concern was not to impose any structure on respondents' descriptions of the program development process. The outline of each interview was generally: 1) an explanation of the project to the respondent; 2) a request for a brief description of one program and the planning process used in developing the program; 3) the interviewer repeating what he understood the planning process to be; 4) clarification of the planning process; and 5) probing questions concerning specific aspects of the planning process.

Interviews were conducted in the respondents' offices. Each interview lasted approximately one hour and involved one interviewer and one or more respondents. The interviewers noted responses on the interview guide. Following each interview, time was allocated for the researcher to write-up more extensive notes. At the end of each day, the researchers exchanged notes and discussed the emerging results. Some field notes were read by colleagues when the researchers returned to their home campus.

RESULTS

Categories that emerged during the interviews were tested, expanded upon, or dropped in subsequent field work. A flow chart was prepared that portrayed the program planning processes reported by each individual. Data were then combined and flow charts were developed to depict relationships among the various categories for each of the six professional fields. These six program planning process models were then merged into one General Model. The General Model was compared and contrasted with individual models and with the model prepared for each group. Comparisons were made using descriptive data, similarities and differences in planning processes and issues that affected planning within and across groups. The General Model was revised as a result of this careful analysis.

Results supported the idea that the planning process comprised a series of tasks and decisions that seemed to cluster around six groups of activities. There was some overlap between those clusters that occurred in sequence, as well as between all clusters and the activities described as "Originating the Idea."

The specific activities reported within each of the clusters represent a composite of the data from the interviews. Specific quotes are not used in favor of descriptions of the categories that contributed to the development of the theoretical model which is portrayed in Figure 1.
Cluster one is labeled "Originating the Idea." The idea or request for the program came from or from a person on the campus. During the interviews, several origins were suggested:

1. A formal needs assessment
2. Requests from a client or client group
3. The availability of project monies
4. Legislative mandate
5. Suggestions from campus faculty and staff

Ideas originating from the outside requests were received by some person on campus, either a faculty member or a continuing education staff member. After the idea was received, clarification of the topic began. This led to the second cluster.

Cluster two is labeled "Developing the Idea." The activities that occurred in this cluster were those designed to test and refine the idea before a commitment to proceed with a program was made. Several activities were mentioned in the interviews:

1. The idea was tested informally with other practicing professionals to explore the extent of interest in the field.
2. The idea was tested with campus peers to help identify resources and begin to make the idea more specific and manageable.
3. A review of literature was conducted as a source of current ideas related to the program request.
4. Some assessment of institutional interest and delivery capabilities was made to determine if this program was one the institution could or could not plan.
5. Planners were enlisted to shape the possible response to the request.
6. Some market analysis was done to see if the program would pay for itself.
7. A structured needs assessment focusing on the extent of interest in the idea was conducted.

Not every planner engaged in all of these activities before deciding to conduct the program. Some planners engaged in only one of the activities. In virtually every case, some activity or series of activities did occur to set boundaries around the idea, gather resource support, and get some preliminary commitments to the idea and the possible program.

Cluster three is labeled "Making a Commitment." After the preliminary work was done that led to the decision to go through with the program and some person or persons were identified as planners, a number of activities occurred to formalize the effort.

PROGRAM DEVELOPMENT PROCESSES

1. An instructor was selected and in some instances provided with orientation concerning teaching adults.
2. A decision was made concerning the use of campus faculty members or outside experts.
3. A decision was made about using an existing campus course or some revision of an existing campus course, or developing a new learning activity for the program.
4. Some consideration was given to why the professionals wanted to attend the activity and what the probable characteristics of the target audience would be.
5. The logistics of recruitment, publicity and arrangements for facilities were started.

Not all of these activities would be completed before "Developing the Program" began. In this fourth cluster, which included the following activities, instructional design was the main concern.

1. Objectives were determined.
2. Objectives were stated.
3. Subject matter was developed.
4. A review of literature might occur.
5. Materials were designed or accumulated.
6. Instructional methods were selected.

Some of the recruitment and publicity efforts were started. A better idea of needed facilities and equipment was obtained. Recruitment was completed and the activity was ready to happen.

Cluster five is labeled "Teaching the Course." This was the result of all planning and preparation. In this cluster, the learning activity occurred. It usually occurred as planned, but some flexibility was maintained that permitted changes in focus and methods in response to learner needs. Some evaluation of the activity occurred during the program or immediately following the activity.

Cluster six is labeled "Evaluating the Impact." The activities here were usually the result of previous planning.

1. Determination of methods for judging the success of the program.
2. Determination of what to evaluate.
4. Determination of who would use the evaluation.
5. Administration of the evaluation.
6. Utilization of the evaluation results.

The General Model (Figure 1) indicates the nature of the interrelationships among the six activity clusters. Clusters 2, 3, 5, and 6 all interact with Cluster 1. Instructions in Clusters 2, 3, and 5 are aimed at clusters, Clusters 2, 3, 5, and 6 at Cluster 1.
"Evaluating the Impact" and "Originating the Idea" show some evaluation data being fed into the origination of the idea. Most program planning activities took place in Cluster 2 and 4. The size of the circles does not indicate the relative number of activities within the clusters.

The sequential order of the clusters corresponds with the numbers (1-6).

The lists of activities under each cluster are not exhaustive of all possible planning activities. They were the ones most often mentioned in the interviews. Every planner attended to each cluster in some way, although not always in a linear fashion. Nevertheless, at some time during the planning process some work related to each cluster occurred.

DISCUSSION

It struck the researchers that program development was a form of administrative decision making. Some stimuli from inside or outside of the organization received the attention of a planning agent. The planning agent responded to the stimuli, usually a request or idea for a continuing education activity, in a preliminary fashion to check its strength. If the strength of the stimulus was sufficient, resources were gathered to respond. The response took the form of a number of critical decisions and a consideration of alternative activities which would lead to the execution of those decisions that in the end shaped the educational activity.

Ideally, all clusters of activities focused on facilitating the teaching learning transaction. On several occasions, persons interviewed indicated that the way they planned was "by the seat of the pants." This study proposes a structure for that intuitive response. How well an intuitive approach to planning can and does focus on the product must be tested in future research.

This study brought to light some very important discrepancies between program planning models found within the literature and actual practice in diverse fields of continuing professional education. Planning, as described by those planners involved with this study, was superficial at best. In comparing existing planning procedures with ideal models described in the literature, four major discrepancies emerged:

Analysis of Client Needs: Although there was indication of some of these types of activities preceding programs, the overall picture portrayed by the data was that little comprehensive needs assessment was being conducted. Lack of time, resources, and expertise were the major reasons mentioned when planners were asked why this situation existed. Most planners gave lip service to the importance of needs assessment, but very few followed through. In the authors’ opinion, the additional time and money spent in focusing on documenting educational needs represents a long-term savings and investment. Although programs may be well planned and evaluated in depth, without baseline data indicating a need for such an effort the program may be providing learning opportunities for needs the target professionals never had.

Systematic Determination of Objectives: If programs were based on the documented needs of a target audience, systematically determining objectives becomes the next critical activity. An end result of needs assessment would be a listing and prioritizing of learning objectives. Other sources of program objectives mentioned in the literature and in isolated instances in this study include previous programs, literature reviews, and opinions of experts. In most cases, when objectives were determined "systematically," only one of the above sources was utilized; however, the ideal in the authors’ judgment is to use as many sources as possible. This comprehensive approach to developing objectives rarely occurred. A second aspect of developing ideal objectives is to specify the nature of the learning tasks—cognitive, behavioral, or affective. Determining objectives is essential if we are to make judgments about how well the program is meeting the needs of practitioners. In many situations, this is not being done because planners lack the expertise, or because barriers in their work settings do not permit them to exercise their expertise.

Designing Instruction: Carefully chosen educational formats and methods have a great potential for improving the responsiveness and impact of continuing professional education programs. Lectures and group discussions are not always the most appropriate methods. A body of literature and research exists on the subject of selecting methods and media based on learner characteristics, desired learning outcomes, time, money, and other available resources. No indication of planning decisions based on these criteria was found in the present study. Lack of time or expertise was given as a reason for why these activities did not occur.

Comprehensive Evaluation: This term does not describe evaluation practices in continuing professional education programs as observed in this study. The term signifies attempts at judging the real-world impact of educational efforts. Evaluation methods include within-course evaluation, pre-post testing, post workshop questionnaires, pre-workshop procedural analyses and post-workshop field follow-up, phone interviews, and questionnaires. Combinations of these procedures provide data that can help in the accurate assessment of impact. What occurred most often in practice was the use of one or a few of these methods. Evaluation can be very time consuming but should be viewed as a long-term investment. Continuing professional education planners must become
aware of various cost-effective evaluation methods and their value.

What appeared to be occurring as those interviewed described their planning strategies was a blending of what Walker (6:56) labelled a "classical" model and a "temporal" model. Planners use the language of the classical model to label their planning actions. However, as they describe their planning actions it becomes clear that personal values, environmental constraints, available resources, alternatives, and other factors impinge on the program development process. These actions have received little attention in the literature, but probably represent a major set of critical factors for program development in continuing professional education.

SUGGESTIONS FOR FURTHER INVESTIGATION

The programs and planning processes reported by respondents in this study were ones the planners judged as successful. Investigations into the planning processes of unsuccessful programs might prove to be interesting and helpful. Factors in the planning process of successful programs could then be compared to the planning processes of programs judged unsuccessful. A preliminary task will be to gain agreement on criteria of successful programs.

Research needs to be conducted that will provide specific information about what clusters of planning activities are most crucial to any program development effort. More detail needs to be provided concerning which activities and decisions consistently occur and can be included in the clusters identified in this study. What are the properties of these categories? Are some clusters more important than others? Are there specific activities within the clusters which cannot be neglected? How important is the sequence of clusters to an efficient planning model?

A more precise investigation should be made of critical relationships that exist between the clusters. Is the planner the person who creates the relationships based on his own values, insights, and environmental constraints? How useful is the notion that the planner is a linkage agent bringing together resources through the program development process? Ideally, the purpose of research in program development will not only be to improve planning efficiency and effectiveness but to focus on improving the quality of learning activities for the professional's continuing education. Effective planning decisions should focus constantly on the ultimate teaching-learning encounter.

CONCLUSION

Planning continuing professional education programs is a highly individualistic activity as the planner moves through the development process. There are clusters of activities that planners attend to somewhat in sequence. The decision planners make to keep the program development process moving involves consideration of the environment in which they are operating, internal and external constraints and resources, and the possible outcome of any decision. The more effectively the planner deals with these issues in completing tasks within each cluster, the more effective and efficient the program development process will be.

Planners who understand the essential activities that must be attended to in planning programs in their situations can strengthen the operational aspects of their decisions. Their insights need to be shared with peers in the field and will become data for expanding and refining our collective grounded theory of program development.

REFERENCES

ANALYZING THE EFFECTIVENESS OF CONTINUING PROFESSIONAL EDUCATION AT THE WORKPLACE

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SUZANNE ROTTET
KATHERINE H. DIMMOCK

ABSTRACT

The purpose of the study was to conduct a second test of Cervero’s framework that explains the relationship between continuing professional education and performance. A six-week continuing nursing education program was evaluated using both qualitative and quantitative data. The four independent variables explained 36 percent of the variance (p = .002) in performance outcomes. The study provides evidence that the multiple-variable research model is inadequate for explaining the relationship between continuing education and performance. Unless researchers begin to address the complexity of this relationship, they will continue producing results that contribute negligibly to understanding how to plan programs that change performance.

All professional groups use continuing professional education (CPE) as one means of improving the practice of their members. Toward this end, innumerable continuing education offerings are presented annually by these groups. The ultimate question addressed by those involved in CPE is whether or not a particular program was successful in improving practice. For years, researchers and evaluators have used the CPE program, itself, as the lone independent variable in determining whether that program actually improved performance. That is, any impact on performance has always been attributed directly and solely to the CPE program. This one-variable model, however, has generated more heat than light in answering the basic questions about CPE and performance. For example, a recent literature review by Hayes, Davis, McKibbon, and Tugwell (1984) analyzed 248 studies of continuing medical education (CME) and concluded that the studies “provide convincing evidence that CME can improve physician behaviors” (p. 67). Connell (1984), on the other hand, reviewed 17 studies in continuing nursing education and determined that the results were inconclusive as to the effect of continuing education on particular behaviors or ultimate outcomes” (p. 10). These contradictory conclusions have led many researchers and practitioners to express dissatisfaction with the one-variable model; they argue that many factors are needed to account for the impact of CPE on professional performance (Abrahamsen, 1984; Caplan, 1983; Cervero, 1983; Cervero & Rotter, 1984; American Nurses Association, 1982; Knox, 1979; Light, 1979; Fox, 1984).

As an alternative to the one-variable model, Cervero (1985) has developed a conceptual framework using four sets of independent variables to explain performance change resulting from a CPE program. The framework components include characteristics of 1) the individual professional, 2) the CPE program, 3) the nature of the proposed change, and 4) the social system in which the professional practices. In this “multiple-variable” model, then, an impact on performance can come from any or all of these four areas. Previous research found that the 10 variables used to operationalize the framework explained 59% of the variance in performance outcomes immediately following the CPE program (Cervero & Rotter, 1984) and 57% of the variance in these same outcomes six months after the program had ended (Cervero, 1984). While the framework provided strong statistical explanations for the performance outcomes, it did not explain the reasons for these relationships. This uncertainty about the meaning of statistical findings in this area of research is shared by others who suggest the use of qualitative forms of inquiry (Abrahamsen, 1984; Light, 1979). Therefore, the purpose of the present study was to test Cervero’s multiple-variable framework again, this time using qualitative data to provide substantive meaning to the statistical findings.

QUANTITATIVE PROCEDURES AND RESULTS

The CPE program, which included 58 hours of classroom instruction, was designed to prepare recently hired registered nurses to practice at a 500-bed medical center hospital. Clinical instruction during the nurses’ practice was used extensively throughout the six weeks to complement the classroom work.

Measurement of Variables and Data Analysis

The dependent variable, nursing performance, was measured by a 74-item quality assurance review instrument that was created specifically for the program. The items were designed to assess how well the nurses achieved each of the program’s eight major goals. Data collection methods included reviewing patient records, observing patients, and interviewing each nurse and her supervisor. These measures of performance were taken during the nurses’ first week in practice following the program and again six months after the program had ended. A performance score for each nurse was computed by dividing the number of items that the nurse performed correctly by the total number of items measured.

The first independent variable, the individual professional, was measured by having the supervisors rate the participants’ attitudes toward nursing practice in terms of Hout’s (1980) classification of professionals in relation to adoption of innovations. The supervisors rated the nurses according to four descriptive statements that reflected Hout’s categories of “innovators,” “early adopters,” “late majority,” and “laggards.” The CPE program component was assessed by four items on a questionnaire that the nurses completed during the last class.
meeting. Using a four-point Likert scale, nurses raised the program’s relevance to the needs of their practice, the clarity of its objectives, the effectiveness of the faculty, and the match between their own learning styles and the teaching styles used in the program. Responses to these four items were summed to create an overall CPE program evaluation index. The component labeled “nature of the proposed change” was assessed with the same questionnaire format used for the CPE program evaluation. This component was measured by asking participants the likelihood of their implementing the program goals in their practice. To measure the social system component, participants were asked to designate the one nurse to whom they had looked for help and guidance during their first few weeks in practice. The performance of these designated staff nurses (mentors) was then measured with the same 74-item instrument used to measure participants’ performance. The rationale for this type of measurement is that the social system has an effect on new nurses as they observe the way the nurses around them practice, and as they adjust their own practice accordingly.

A hierarchical analysis of variance approach was used to analyze the data. Each independent variable was entered according to the time in which that variable would appear in practice. In this way, the individual professional variable was entered first because the participants entered the program with this characteristic. The nature of the proposed change variable was entered next, and then the CPE program variable. The social system variable was entered last because its effect should occur after the program has ended and when the nurses begin to practice nursing.

**Descriptive Statistics**

The 47 participants had a mean age of 25.5 years (range 20–42 years); 57% were female; 89% were white; 65% had a bachelor’s degree in nursing, and 96% were new graduates. Supervisors rated the participants attitudes toward nursing according to the following distribution: laggards (15%), middle majority (29%), passers (24%), and innovators (39%). For each of the five questionnaire items, participants’ responses were dichotomized with those who responded “very” forming one set, and those who responded “moderately”, “somewhat” or “not” forming the other set. Fifty-nine percent of the nurses raised the program very relevant to their practice needs; 65% rated the program objectives as very clear, and 65% rated the program faculty as very effective. Only 35% felt that the program’s educational strategies matched very well the way they prefer to learn. Fewer than half (40%) indicated that they were very likely to implement all of the program goals in their practice.

The participants achieved a high level of performance during their first-week and six-month reviews, with mean scores of 93% and 94%, respectively. The participants’ one-week and six-month performance scores had a correlation of .15 (p = .19). Of the 37 nurses remaining in the study six months after the start of the training program, 16 achieved a higher score, 10 achieved the same score, and 7 had a lower score (with change defined as one standard deviation of difference between scores). The mentors also achieved high performance scores, with a mean of 97%. The reliability of the 74-item instrument was .85.

### ANALYZING EFFECTIVENESS

**Table 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes toward nursing practice</td>
<td>264.3</td>
<td>3</td>
<td>88.1</td>
<td>5.5**</td>
</tr>
<tr>
<td>Intent to implement program goals</td>
<td>94.3</td>
<td>1</td>
<td>94.3</td>
<td>5.0**</td>
</tr>
<tr>
<td>Program evaluation index</td>
<td>31.6</td>
<td>1</td>
<td>31.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Explained</td>
<td>580.9</td>
<td>5</td>
<td>116.2</td>
<td>4.6**</td>
</tr>
<tr>
<td>Residual</td>
<td>608.9</td>
<td>40</td>
<td>15.2</td>
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<tr>
<td>Total</td>
<td>1049.5</td>
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</tr>
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</table>

*p < .05. **p < .01.

**Results**

The findings in Table 1 indicate the relationships between three components of the framework and the nurses’ performance during their first week in practice. The mentors’ performance scores were not used in this analysis, because the effect of the mentors would probably not occur until after the participants had been in practice. Participants’ attitudes toward nursing practice and their intent to implement the goals of the program were significantly associated with their performance. The attitude variable is particularly strong, accounting for 25% of the variance in performance. The participants’ evaluation of the program did not have a significant relationship with performance, meaning that those who gave the program a very positive rating performed at the same level as those who rated the program less positively.

As might be expected, there was a positive relationship between the nurses’ attitudes toward nursing practice and their performance, with those described as “laggards” performing least well (87%), and “innovators” performing at the highest level (95%). Also as might be expected, the nurses who claimed they were very likely to implement all of the program goals performed at a higher level (90%) than those who claimed to be less likely to implement the goals (91%).

The results in Table 2 indicate that neither the total framework nor any of its components explain the participants’ performance after six months. Even the two variables that had been significant one week after the conclusion of the

**Table 2**

<table>
<thead>
<tr>
<th>Variable</th>
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<th>df</th>
<th>MS</th>
<th>F</th>
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<td>Program evaluation index</td>
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<td>94.4</td>
<td>3.2</td>
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<tr>
<td>Explained</td>
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<tr>
<td>Residual</td>
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<td>50</td>
<td>18.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1106.4</td>
<td>56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.
program failed to retain their significance when measured almost six months later. The four variables, including mentors' performance, explained only about 21% of the variance.

QUALITATIVE PROCEDURES AND RESULTS

In order to provide substantive interpretations for these statistical relationships, we asked four groups of nurses in the hospital to give us their explanations for the findings. These qualitative data were generated at meetings held approximately one year after the program where each group discussed the study's results, and each nurse responded in writing to open-ended questions. At the four meetings held for the participants, 16 of the 37 nurses who were still employed at the hospital were involved. Eight mentors (of 20) attended one of two meetings held for them. At the meeting held for the participants' supervisors and for the auditors, 14 of 17 were present. Attendance at these meetings was voluntary and responses to the questionnaire were anonymous. General themes were derived from comments, similar in content, that arose from more than one group. The participants' explanations were considered important because these participants were, after all, the object of the study. The other three groups were selected because they represent the major hospital systems related to nursing: the supervisors are nursing administrators directly responsible for patient care; the nurses compose the informal leadership network, which can have a substantial impact on nursing practice; and the auditors are members of the hospital's quality assurance committee, which is responsible for the evaluation of nursing performance and of patient care.

Qualitative Themes

Three general themes emerged from the data analysis: 1) there was overall agreement among the participants and the members of the three systems (supervisors, mentors, and auditors) about expected nursing practice at the hospital; 2) along with the CPE program, the activities of the supervisors, mentors, and auditors were recognized as part of a comprehensive educational intervention; and 3) the program evaluation (being described in this article) was also part of the educational intervention.

There were three specific findings within the first theme. First, all of the groups agreed that the program goals were important to the practice of nursing at the hospital. For example, several supervisors noted that the goals gave them a clear standard to direct their practice, while several supervisors said that the goals directly related to the way nursing is practiced at the hospital. Second, there was general agreement that the performance expectations taught in the program were consistent with those of the staff nurses, the primary difference being that the staff nurses provided more details about performance expectations than did the program. Finally, all the groups agreed that the performance evaluation measured behaviors that were important to nursing practice in the hospital. The mentors, supervisors, and auditors were particularly sure of this, although there was some disagreement among participants with several commenting that they cut corners in some of the areas stressed on the performance evaluation.

ANALYZING EFFECTIVENESS

Another theme emerged from responses to a question that asked why some performance scores decreased while others increased. All four groups indicated that the participants learned through experience when they arrived on the hospital units, with some types of experiences influencing a higher score and others a lower score. The participants themselves said that the mentors and supervisors were very influential in this learning process. Those whose scores increased mentioned that they became more confident and less anxious because of the guidance given by their mentors and supervisors, and that they had the opportunity to practice their skills routinely. Those whose scores decreased, on the other hand, said that they learned to cut corners and still get an adequate job done, and that some supervisors had different expectations about performance measures than those stressed in the program.

The evaluation process itself seemed part of the educational intervention not only because of how it affected the participants, but also because of its effects on the members of the other systems. The major effect on the participants was that the feedback from having their performance audited helped to improve their job performance. Over half the mentors came to the realization that their role as informal leaders and educators was much more important than they had thought. The fact that they had been explicitly recognized by the participants as informal leaders heightened their awareness of these new roles and stimulated their interest in performing them. Finally, several auditors learned how nurses practice on units other than their own, contributing to a cross-polimation effect, with new ideas from one unit being carried to another for consideration.

DISCUSSION

This is the second study that has demonstrated the framework's usefulness in explaining variance in performance outcomes resulting from a CPE program. As in the previous study, we have shown that there are influences on the outcomes other than the program itself. Specifically, we found that the participants who were considered more innovative in their practice and who felt that they were very likely to implement the program goals performed at a higher level than did those who were less innovative and who felt less positive about implementing the goals.

This study has demonstrated that the one-variable, analytic model that is usually employed in addressing this question is inadequate for explaining professional performance. Continuing education planners and researchers should be asking a more complex question such as, "Under what conditions and for which types of individuals are which characteristics of a CPE program most likely to improve professionals' performance?" Unless this is done, researchers will continue to produce studies that contribute negatively to our understanding of how to plan effective CPE programs.

While the framework provided a useful amount of explanatory power, the design had three characteristics that limit the generalizability of the results. First, there is no sound theoretical rationale to explain the specific findings of the study. That is, another study might show that the social system is the most powerful explanatory variable. Until such research is done, it is not possible to conclude from the data presented that the social system is the most powerful explanatory variable.
cause the participants were new to the hospital at the time the program began. Rather, it was a posttest only design using correlations to measure the strength of associations between independent and dependent variables. This limitation particularly constrains any conclusions about the effectiveness of the CPE program. For any definitive statements would require both pretreatment and posttest measures on a control and an experimental group. Finally, the sample size is relatively small (about 10 subjects per independent variable) and thus may have produced statistically significant results where none truly exist. Therefore, although the entire population of recently hired staff nurses was used, caution should be applied in generalizing the results.

From the qualitative responses, we generated a picture of an educational intervention that was a complex web of interactions among the formal educational program, the informal leadership network, and administrative system, and the evaluation process itself. We found general agreement among the mentors, supervisors, nurses, and participants that what was taught in the program was consistent with the expected performance of staff nurses. Thus, the formal educational system, the informal learning system, the administrative system, and the evaluation system all reinforced each other regarding expected nursing performance, perhaps accounting for the high levels of performance.

Given what we learned from the qualitative responses, the variable used to operationalize the social system was inadequate. When continuing education is conducted at the workplace, the social system provides the context in which everything else happens. That is, once participants leave the CPE program, they are not simply free to choose whether to perform in the ways suggested by the program. Upon returning to their work setting, they will be influenced by administrative, evaluation, and informal leadership systems. This is a strong argument for involving members of these systems in the program-planning process, thus increasing the likelihood that what is taught and learned is applied in practice. The rationale for this is made more specific by Fox (1984), who argues that an organization has several features that can interfere with the transfer of learning to the work setting: its value structure; its formal and informal goal structure, and the norms, roles, power, authority, hierarchies, sanctions, and rewards of its social organization.

A major direction for research in this area should be to study directly the relationship between performance and the complex webwork that makes up an educational intervention. In particular, we need to learn how the different components of the framework work together, or against each other, in changing professionals' performance in the work setting. Special attention must be paid to the informal learning networks and to the administrative controls operating in the system.

Because an important factor related to performance is the congruence between program goals and the expectations of the work environment, the location of the CPE program is critical. Continuing education programs conducted at locations other than the workplace (e.g., universities) may be less likely to change performance because there is a greater likelihood that there will be discrepancies between the goals and values of the program and those that exist in the participants' work setting. Regardless of where the program is located, it would be desirable to include in the program-planning process representatives of the major systems that affect performance in the work setting.

Analyzing effectiveness

In attempting to change performance through continuing education, the most important act of the educator may be to choose the most appropriate people to assist in program-planning. To the extent that people who are chosen will affect the participants' performance after the program, the continuing educator will have increased the likelihood that what is learned during the program will be translated into performance changes on the job.

References


