

The purpose, value and structure of the practicum in higher education: a literature review

GREG RYAN*, SUSAN TOOHEY & CHRIS HUGHES

Professional Development Centre, The University of New South Wales, Sydney, NSW 2052, Australia (Author for correspondence)*

Abstract. The practicum constitutes an integral part of many professional courses in higher education; and is manifest in several different forms depending on the discipline: field experience, cooperative education, sandwich programs, internships, clerkships, clinical practicum, and the like. This paper provides an overview of different ways in which the practicum has been conceptualised, implemented and evaluated in higher education. It focuses attention on the purpose and value of the practicum; the relationship between the practicum and the learning outcomes of a course as a whole; and the structure and placement of the practicum within a course. Findings indicate that whilst the practicum is widely accepted as a valuable and successful component of professional education, it has a number of shortcomings; and the lack of good quality research into the practicum makes it difficult to draw unequivocal conclusions. A number of questions are posed to guide further research into the role of supervision during practicum placements; the kinds of learning goals and outcomes that are best achieved through the practicum; and the impact on student learning of the length and structure of the practicum.

Introduction

Higher education institutions are under increasing pressure to better prepare their graduates for the world of work; and within professional courses, the practicum continues to be an important means by which this expectation is addressed. Depending on the discipline, the practicum appears in many forms: as field experience, cooperative education, sandwich program, internship, clerkship, clinical practicum, and the like. The published literature is diverse and idiosyncratic in nature, and rarely attempts to take a broad, cross-disciplinary view in order to compare the effectiveness of different models.

In its attempt to provide such an overview, this paper considers different ways in which the practicum in higher education has been conceived and constructed; and in its review and critique of relevant literature, addresses three areas:

- the purpose and value of the practicum;
- the relationship between the practicum and the learning outcomes of a course as a whole; and

- the structure and placement of the practicum within a course.

At the outset, it must be said that a substantial search of world-wide databases, both educational and discipline-based, using a wide range of key words, revealed a surprising paucity of good-quality research on the practicum. Not surprising, though, was that a large percentage of the published work was contained within the teacher education literature – and a sample of key overview works from this discipline was selected for inclusion in this review. Because of its complexity, the issue of assessment of the practicum has been addressed separately, and the reader is directed to Toohey, Ryan and Hughes (in press) for a comprehensive review of the strengths and weaknesses of five distinct approaches to the assessment of practicum learning outcomes.

The purpose and value of the practicum

In essence, there appear to be two somewhat different views regarding the purpose of the practicum within a curriculum. One, the more common or ‘traditional’ view, is evident in this statement about the practicum in teacher education made by Price:

While it is difficult to provide a universally acceptable synthesis statement of purposes, there is considerable agreement that the major purpose of the practicum is to link theory with practice by providing regular structured and supervised opportunities for student teachers to apply and test knowledge, skills and attitudes, developed largely in campus-based studies, to the real world of the school and the school community. (1987: 109)

Authors such as Price view the practicum as an opportunity to apply theoretical knowledge previously gained in campus-based activities. On the other hand, Schön (1990) argues that the role of the practicum is to raise problems and issues which are used to trigger the investigation of related theory and knowledge. Schön’s idea of a reflective practicum is radically different to the notion of the practicum in general use in the literature, as it reverses the traditional relationship between theory and practice, making professional practice the core organiser of the curriculum.

This is not a position which has found much support in the literature reviewed here. The notion appears either not to have been considered at all, or thought to be too radical. Some programs however are influenced by Schön in that they place constructions of professional practice at the core of the curriculum; and use these as the integrating factor to bring together the theoretical and practical components of a course. Two examples of this which are discussed in later sections of this paper are the use of practitioner roles/competencies/abilities as the key organisers of the curriculum;

and the use of case studies and clinical problems to stimulate and structure learning.

An alternative approach which appears to have found more acceptance is that of Boud, Keogh and Walker (1985) who question what it is that turns experience into learning and enables learners to gain the maximum benefit from the situations in which they find themselves. The factor that they identify as crucial is the opportunity to reflect on or to examine experience in the light of the individual's current knowledge and understanding. Many of the programs examined in this review now build in this requirement for reflection and critical analysis.

In the programs reviewed here, there is agreement about the kinds of outcomes that educators hope to achieve through the practicum. Daresh (1990), for example, says that it is an opportunity for students to:

- apply knowledge and skills in a practical setting;
- progressively develop competencies through participation in a range of practical experiences;
- test their commitment to a career;
- gain insight into professional practice; and
- evaluate progress and identify areas where further personal and professional development is needed.

Whilst goals such as these are not always achieved, research findings tend to indicate that, on balance, the practicum has a positive value in professional education – although this conclusion is, to some extent, equivocal. For example:

On the positive side.....

There is evidence that the practicum is successful in:

- giving students insight into the world of work and career prospects (Au Yeung *et al.*, 1993; Edward, 1985; Lloyd, 1985; Mann and Schlueter, 1985; Pienaar, 1985);
- developing job skills and on-the-job performance (Au Yeung *et al.*, 1993; Gibson, 1985);
- developing interpersonal and social skills (Au Yeung *et al.*, 1993);
- enhancing employment prospects of graduates (Au Yeung *et al.*, 1993; Mann, 1985);
- increasing industrial contact for college teachers (Au Yeung *et al.*, 1993);
- improving attitudes towards supervision, self confidence, job-knowledge, job-seeking skills and practical reasoning (Gibson, 1985);
- helping students to integrate well into the work environment (Mann, 1985);
- developing greater maturity in students (Pienaar, 1985); and

- enabling students to make more positive contributions, and demonstrate more positive attitudes, in class (Pienaar, 1985).

On the basis of earlier research which showed that the practicum was the most important element in teacher education, Briggs (1984) surveyed and interviewed 44 teachers who supervised students in an early childhood education practicum. 50% of those supervised agreed that the practicum was the *most* important aspect of teacher education; the remaining 50% thought it was 'important'. Despite this, these teachers did not place a high value on their roles as models for new teachers. Only 28% thought that new teachers tried to emulate their former supervisory teachers.

Edward (1985) in an evaluation of industrial placements of technician level engineering students at Robert Gordon Institute of Technology (Scotland UK) found different kinds of work experience were very differently valued by students. Most highly valued by students who had completed placements was project work. Of next importance was production work at the technician level. Training on the shop floor and training split between several different departments was least valued, although students were happy to work in different departments if the work was related to a specific project. Students most appreciated the opportunity to work on tasks of real value to the employer. In general the placement was not seen to make much contribution to college work but students did acknowledge that it often contributed to their understanding of specific technical areas and/or individual college subjects.

Graduates of a combined science degree and teaching certificate offered by the University of Bath identified the practicum experiences gained through placements in industry and teaching as the most important factor in changing the original career aspirations with which they entered university. More than 80% of graduates valued their work experience in both teaching and industry, regardless of which career they ultimately chose. If beginning their education again, 91% of graduates would repeat the concurrent degree/certificate sandwich program rather than a traditional program. (Lloyd, 1985)

Dareesh (1990) provides the following general observations which appear in literature related to the educational administration practicum:

- Field-based programs are valued as approaches to the training of educational administrators.
- Participants in field-based programs typically report feelings of satisfaction with these experiences.
- Although field-based programs are viewed as having great potential, attention is needed to ensure that they are indeed high quality learning experiences where participants are exposed to desirable and exemplary practices.

Price (1987) notes that published evidence indicates that student teachers see the practicum as an important central part of pre-service teacher education; and in a review of Australian research on the practicum in teacher education, Tisher concludes that

....The practicum has an acknowledged central place in teacher education programs. Trainees consider it the most important, satisfying, relevant, practical, worthwhile feature of their pre-service education. They believe they gain from it; they say it is the most realistic feature in their courses; and, they want its quantity and quality increased. Teacher educators state that, ideally, the practicum allows trainees to apply, refine and reconstruct the 'theoretical' learning developed in method and foundation studies. It is also generally accepted that the practicum has the potential to affect trainees' management and other teaching skills and, for some supervising teachers it may well be an important and effective form of in-service education. (1987: 81)

Reflecting on the overall value of the practicum, and in particular the role of supervision, Yarrow reports that

Students in pre-service courses commonly regard the practicum component as the most important part of their course. They maintain that from the practicum they gain the most useful knowledge to assist them when they begin working in the "real world". Employers also regard the practicum highly as they consider carefully a student's performance in this area when recruitment is undertaken. Within the University context, academics vary in their perceptions as to the value of practicum. Some consider the practicum to be extremely important and meaningfully integrate it into their courses, whilst others see the practicum as having far less significance in overall pre-service preparation.... Research substantiates that the practicum is the single most powerful intervention in professional preparation.... Supervision, therefore, becomes the most important process within such intervention. (1992: 2)

However, on the negative side

While there is a clear expression of the considerable benefits to student learning, and to personal and professional development, of practicum experiences, criticisms and concerns are raised by a number of writers. Negative aspects that have been identified include:

- lack of success (or sometimes lack of any attempt) in integrating theory and practice (Au Yeung *et al.*, 1993; Turney, 1988);

- difficulty in organising appropriate experiences for trainees (Tisher, 1987; Turney, 1988);
- focus in the practicum on a narrow range of technical skills at the expense of a wider understanding of systems and organisations (Price, 1989; Turney, 1988);
- poor, uneven supervision and lack of preparation for supervisors (Price, 1989; Au Yeung *et al.*, 1993; Yarrow, 1992);
- field experiences which may undermine the educational program (Price, 1989; Turney, 1988); and
- exploitation of students as cheap labour (Au Yeung *et al.*, 1993).

The relationship between the practicum and the learning outcomes of a course as a whole

Conceptualising the relationship

Although specifically addressing the practicum in Social Welfare, Lynch and Cornwall (1992: 101–103) provide a number of different ways of conceptualising the relationship (or lack of it) between the practicum and the broader course curriculum. Each option carries implications for the way in which the practicum is organised:

- *The apprenticeship practicum*: in which learning is conceived as primarily active, experiential and inductive; in which the field supervisor has the primary role of modelling, observing and guiding the student; in which the university plays a minimal role; and in which the purpose of the practicum is conceived as student mastery of relevant practices and student induction into the occupational group. *This model seems to predominate in many business and engineering courses.*

[The apprenticeship model has also been predominant in teacher education, and many researchers feel it has not produced the desired results. Simpson, for example, notes that

....the traditional approach to pre-service teacher education results in poor articulation between practice teaching and the campus based academic programs. Students tend not to draw upon the theory covered in campus classes in their teaching practice. In addition, they tend to perceive the theory as merely an “academic exercise” with little or no relationship to teaching in a “real school situation”. (1992: 23)]

- *The academic practicum*: in which learning is conceived as taking place primarily in specialised educational institutions; in which the field supervisor plays a secondary role, providing a context for application, making links

between academic theory and practice and focusing on the student's cognitive development; in which the university assumes major responsibility for the facilitation of learning, a responsibility implemented by the provision of extensive academic preparation before placement; and in which the purpose is conceived as the induction of the student into the profession through the acquisition and correct application of professionally relevant knowledge. *This model is found more often in medicine and nursing programs. It is facilitated by joint appointments of staff to hospitals and teaching institutions.*

- *The growth or casework practicum:* in which learning is conceived primarily in terms of a psychotherapeutic model of personal growth involving student reflection on the impact of the student's life experiences on the student's professional practice; in which the field supervisor assumes the primary educative role; and in which the purpose of the practicum is conceived as the personal growth of the student, so that, by resolving their own life crises they may be better equipped to assist others to resolve theirs. *This model may be unique to social work, but has some parallels in other disciplines where the practicum is conceived as being primarily about socialising the trainee into the world of work.*

- *The articulated practicum:* in which the learning task in the practicum is conceived as developing links between cognitive and experiential learning and between theory and practice; in which the student, the university and the field supervisor cooperate in achieving the aims of the practicum; in which the student is encouraged to reflect; in which the learning experiences are contracted and planned by the three parties; and in which the core purpose of the practicum is the induction of the student into the profession through demonstration of professional competencies (skills, knowledge and values). *This is a more recent conceptualisation of the practicum, and examples can be found in a range of different disciplines.*

In his argument for revision of the teacher education practicum, Turney (cited in Price, 1987) suggests that a practicum curriculum should incorporate the following key features:

- a strong inter-relationship between the ideas about teaching espoused by the teacher education program and the experiences of student teachers in schools;
- a comprehensive range of aims related to the roles of teachers not only in the classroom but also in the school and in its community;
- an increased amount of time that students are engaged in planned experiences under supervision;
- the inclusion of carefully selected role-related experiences; and
- careful sequencing of practicum experiences.

Turney also argues that a more comprehensive view of the practicum curriculum would include:

...(i) mastery of basic classroom teaching skills and competencies, (ii) developed capacity for management and decision-making, (iii) competence in professional relationships, (iv) understanding and competence in school and community as well as the classroom, (v) structures to accommodate individual student concerns, (vi) the fostering of a constructively critical approach to existing educational practice, and (vii) theory relevant in scope and sequence to professional responsibilities in classroom, school and community. (In Price, 1987: 119)

Integration of curriculum elements

Perhaps the single most important theme which emerges in the practicum literature surveyed is the idea that to be successful there must be a close and obvious (particularly to the student) relationship between the theoretical and practical components of a course. In order to achieve this integration, alternative approaches to the organisation of curriculum content other than around the content structures of disciplines are necessary. A strong message is that 'professional practice' be brought to the core of a curriculum to act as the organiser for both theoretical and practical learning. Examples include the identification and use of key workplace competencies or abilities; or key workplace roles and functions.

With this goal of integration in mind, the Bachelor of Business program at Auckland Institute of Technology (1992) in New Zealand is organised around a number of core capabilities which are developed throughout both on- and off-campus elements of the program and are assessed on different occasions using different methods. The capabilities include: critical and reflective thinking; problem solving and problem posing; effective teamwork; technical competence in the subject discipline (for example accounting, marketing); independent learning; effective oral and written communication; and research. Virtually all of these capabilities are expected to be demonstrated in the cooperative education program and the following are specifically assessed – critical and reflective thinking; teamwork; technical competence; independent learning and oral and written communication.

In the clinical practice component of the Nursing Degree at McMaster University in Canada (Knowles, 1991), students must develop and carry out a personal learning contract which provides evidence that they can meet the requirements of the course in two broad areas – *self development* (including responsibility for own learning, assertiveness and self-awareness) and *nursing competence* (including interpersonal relationships, professional growth,

nursing practice and scholarly application). These requirements form part of the core objectives of the nursing program.

In both of these examples (at Auckland Institute of Technology and McMaster University), core capabilities or competences have been used as the central organiser for the curriculum, and are examples of the 'articulated practicum' discussed earlier.

Likewise, Turney proposes that teacher education programs be reorganised around 'present and prospective' teacher roles. This reorganisation, he argues, would allow a 'purposeful series of supervised professional experiences' (1988: 6) to take place within three domains in which teachers normally operate – the classroom, the school and the school community. As examples of activities within the three domains student teachers might instruct individual children; contribute to developing a school discipline policy; and interact with parents of pupils. The essential roles in each of these domains would be identified and activities planned to provide experiences of each. These activities should be designed in a sequence which meets the needs of student teachers. For example in the role of managing the learning environment, early placements are focussed on using effective classroom management behaviours while other aspects such as establishing routines and procedures and maintaining records are left until later years. Turney believes that the focus in practicum activities should be on prompting students to examine existing practices critically, in the light of their theoretical and empirical knowledge and on enhancing their capacity for self analysis.

Similarly, in the School of Obstetrics and Gynaecology at the University of New South Wales, in Sydney, Australia, the skills which medical students must acquire during clinical practice have been specified as well as the level of competence to be achieved. Wren (1982) reports that the skills included are interpersonal as well as medical. These specifications are provided to all students and teaching staff. Students are assessed against a specified set of abilities for each of the different clinical situations. These abilities encompass technical skills (eg 'obstetric palpation'), interpersonal skills (eg 'ability to listen and communicate with patient') and intellectual abilities (eg 'problem solving'). It is the responsibility of each team of clinical teachers to provide the opportunities for all students to learn the expected skills; to demonstrate and supervise training and to assess students. The training on the ward is supplemented by lectures, tutorials, clinico-pathological sessions, clinico-physiological sessions and patient management problems provided by the teaching team. The value of the clinical program is dependent on a high degree of preparation and organisation to ensure a comprehensive program of clinical activities is provided for each team of students. 'The team leader must conduct a survey of the team to determine what patients are available,

where they can be seen, how the students may be involved with the patients and how supervision is to be provided.’ (1982: 235)

Another interesting example of the extent to which integration can occur between the theoretical and practical components of a curriculum is provided by the Faculty of Nursing at the University of Western Sydney, Macarthur, in Sydney, Australia. The three-year Bachelor of Nursing program is problem-based, and totally integrated around a set of core competencies of nursing practice. These broad competencies apply across all aspects of the program, including the practicum. Thus students can be assessed on the *same criteria* in either college or clinical settings, bringing home to the student overtly the very clear relationship between on-campus and practicum experiences.

Like many other programs in the health sciences and other disciplines, a more flexible definition of ‘practicum’ is employed by this Faculty. Practicum experiences are seen more in terms of a continuum of experiences which vary according to their realism. At one end of the range is the engagement of the student in actual clinical work in health care settings as a member of a team (including experience of different ‘shifts’) and with relatively little supervision (as might occur close to the point of graduation); moving further down the spectrum to actual work with increased levels of supervision; to just observation of practitioners at work; to simulations of reality on-campus (using clinical ‘laboratories’ which are close replicas of, for example, hospital wards); and into classrooms through the use of clinical problems, case studies, role plays and the like. At the University of Western Sydney Macarthur, the stimulus for these on-campus learning activities is provided by a series of ‘problem packages’ which are based on actual clinical cases. This further anchors student learning in the actual practice of the discipline, and strengthens the link between the theoretical and practical components of the curriculum. (Ryan and Little, 1991) This example most closely approximates Schön’s conceptualisation of professional practice as the core organiser of the curriculum.

Another means of achieving the goals of the practicum is Low’s (1988) re conceptualisation of the demonstration lesson. Quoting Hutchins, Low describes an approach which called for college staff to identify teaching situations or strategies which they believed students should observe, select exemplary teachers who were prepared to plan the experience with college staff and conduct a debriefing session afterwards. Student responses to these demonstrations has been very positive, with both staff and students valuing the clear focus of the experience and the opportunity for debriefing (in contrast to many practicum experiences). This approach has applications in a range of workplaces where students could observe a significant facet of operations and discuss how the situation was managed with the person in charge.

The structure and placement of the practicum within a course

Approaches to the structure and placement of the practicum seem to vary according to the degree of definition in the learning outcomes expected from the practicum. Generally speaking the more the learning outcomes expected for the practicum are clearly defined, the more the practicum is deliberately designed and structured to address these outcomes, and to the extent that the outcomes of the practicum are less well defined, the less prominent is the rationale for the structure and placement decisions that are made.

Practicum formats in use

Three practicum formats are commonly described in the literature

- *the extended single placement* usually situated toward the end of the training course (commonly called the *thick sandwich* model in the UK);
- *multiple, shorter block placements*, usually distributed throughout the training course (called the *thin sandwich* in the UK); and
- *part-time placements of one to three days per week* extending over a semester or a year, sometimes called the *concurrent* model.

Examples of the *extended single placement* are common in cooperative education programs in business and engineering and in most medical degrees. Au Yeung *et al.* (1993) report on arrangements in the UK and Hong Kong in engineering and technology courses. Quoting from an appraisal of supervised work experience in first degree engineering and technology courses carried out by the UK Council for National Academic Awards they note that the sandwich courses offered by the former Polytechnics and Colleges of Advanced Technology mainly involve placements of more than thirty-six weeks duration, with a tendency for the period to lengthen. The placements tend to be in the third or fourth year of a four year course.

The practicum in the Building Services Engineering Course at Hong Kong Polytechnic (Au Yeung *et al.*, 1993) follows this model. It extends over a full year and is placed in the third year of the course so that the industrial experience gained can contribute to the advanced design and research projects which form a major part of the fourth year of study.

Medical degrees have traditionally scheduled the clinical placement in the final year of the course, as is exemplified in the medical program at the University of New South Wales where students are on clinical placement for 4x8 week terms in their final (fifth) year. This is a common pattern in medicine, where 'blocks' or 'terms' of practicum occur after what is often a substantial period of on-campus 'theoretical' activity.

Some educational institutions which use the extended placement supplement the time spent in the workplace with classes in the college or university

ranging from a couple of hours per week to one full day per week. The Bachelor of Business course at the Auckland Institute of Technology requires students to be employed in one of the participating organisations for a minimum of 400 hours. For most students this means a full semester. However students must also attend workshops at the Institute for a total of 25 hours during the semester. This time is used for students to present and discuss their workplace experiences. The work placement occurs as semester six of an eight semester (four-year program) (Auckland Institute of Technology, 1992).

Knowles (1991) describes the 'guided nursing practice' utilised at McMaster University which occupies the fourth year of the nursing degree. Students spend 24 hours per week in clinical practice and one day per week in class at the university. The 24 hours clinical time can be programmed on any shift apart from the class day. The class day provides opportunities for seminars to explore theoretical concepts and clinical applications, and for student-led seminars which present the findings of particular projects undertaken as part of their learning contracts.

Multiple shorter placement blocks have been commonly used in teacher education programs (Carter, 1989) although Price quotes a 1982 survey of teaching practice which revealed that "both block practice of one or more weeks and short practices of one or two days per week were about equally favoured in teacher education programs throughout Australia" (1987: 111). This pattern can also be found in nursing, as at the University of Western Sydney, Macarthur (1993) which has used the following pattern: three weeks on-campus, followed by one week practicum; repeated twice; followed by a two-week mid-year practicum placement; with this pattern repeated in the second-half of the year.

A somewhat different version of the use of multiple shorter blocks is that provided by the German 'Berufsakademie' programs in Business Administration, Engineering and Social Work (Mann, 1985). Throughout the programs students spend alternate semesters in college and in industry. Students entering the program are employed as trainees and are paid a training wage throughout their course. Successful completion of two years of the program provides a first job qualification and after three years the student earns a BA degree (which is not a university degree but considered equivalent). Integration of work and learning experiences has been achieved through very detailed curricula which are worked out by curriculum development committees comprised of equal numbers of academics and employers.

Pienaar (1985) reports that the South African 'Technikons', which provide career oriented tertiary courses (in contrast to the academic courses offered by universities), tend to offer work placements in the technical faculties

only. In these faculties, which include architecture and building, engineering, biological sciences, physical sciences and pharmacy, students follow the 'Berufsakademie' model, spending 6 months on campus and 6 months in a placement throughout the course.

Part-time placements of one to three days per week extending over a semester or a year, are commonly found in the teacher education practicum as has already been noted. Briggs (1984) reports that this structure is also widely used in early childhood programs. Early childhood education students at the South Australian College of Advanced Education (now the University of South Australia) are placed in schools, day care centres and kindergartens for the first two weeks of each term and then one day per week for the remainder of the term. Briggs reports a lack of standardisation in the practicum component in early childhood education courses in Australia, with New South Wales requiring 60 days and Victoria 148 days, with a tendency for the length of the practicum to be reduced as a cost saving measure.

The perceived advantages and disadvantages of each of these models will be discussed below, but on the whole very little is offered in terms of a rationale for the choice of one format over another. The format chosen seems to be highly dependent on custom and practice in the particular discipline and frequently no explanation is given for why a particular model has been chosen. An interesting example which makes this evident is the combined science degree and teaching certificate offered at the University of Bath in the UK. During the four year program students undertake placements in industry (relating to the science content of the degree) and placements in schools (relating to the teaching certificate). In order to accommodate the full combined program in four years several of these placements occur in what was formerly the long vacation. School based experience is scheduled in three periods of four to six weeks each, a common pattern in teacher education. Industrial experience is scheduled in one six month block, as is common practice in engineering and technology programs. In an evaluation of the program Lloyd (1985) offers no explanation for the different patterns of placement within the same degree .

Rationales for practicum formats

Extended single placement (thick sandwich): Little rationale can be found in the literature reviewed for the choice of a single period of work experience extending between six months and one year. Arguments made for longer placements are that they allow students to see a project (such as an engineering or product development project) through all its stages (Wright, 1985) and to participate in the full range of organisational and work life experiences. No research could be found demonstrating the superiority of this form of

placement. Au Yeung *et al.* (1993) report that there has been a tendency in the UK for sandwich courses in engineering and technology to shift from multiple short placement blocks to a single extended placement. The reason cited for this shift is 'to consolidate the training periods' but it is not clear whether this is for educational reasons or administrative convenience.

Au Yeung *et al.* do however provide a rationale for the length of placement in describing the system used by the Hong Kong Institution of Engineers for regulating membership. In essence, the length of the work experience which must be undertaken depends on the degree to which the experience is structured and monitored. Membership of the Institution requires appropriate academic qualifications and specified periods of industrial experience which may follow graduation or be concurrent with education as in a sandwich program. Industrial experience is classified according to company infrastructure and the training content and supervision which companies can provide. There are three schemes, A, B & C:

- In scheme A the company provides a structured training program covering all aspects of professional experience. Log books are kept and continuously monitored. Trainees must spend 2 years in scheme A to qualify for recognition.
- In scheme B, trainees spend time in more than one company to acquire the full range of experiences which a small company may not be able to offer. Log books must be kept. Trainees must spend 3 years in scheme B to allow for overlap between companies.
- Scheme C training is less structured and no log books are kept but trainees must spend 4 years in scheme C to qualify.

Multiple shorter placement blocks: Slightly more information is available on rationales for choosing practicum formats involving multiple short blocks. Carter's (1989) study provides some evidence that integrating theoretical components with spaced but relatively short block teaching practices may be superior to a single protracted block of teaching practice. Carter observed 29 student teachers on three teaching practicums over two consecutive academic years. Detailed analysis of classroom interactions showed that expository, teacher-centred behaviours peaked on the second teaching practice and declined on the third. Carter explains this as a reaction to managerial difficulties on the first teaching practice which incline student teachers to favour low risk interactions. However following further work in college and with increased confidence student teachers are more likely to return to more pupil-centred and more intellectually challenging activities on the third practicum.

In discussing the ideal length for these short block placements Carter reports a study by Davis which compared eight and sixteen week blocks of practice.

No gains in 'teaching sophistication' (as evidenced by the student teachers' use of more logical and strategic behaviour patterns) could be attributed to the longer practice period. The shorter block periods must however be integrated with course work in ways which allow student teachers to reflect on their classroom experiences and consolidate skills. Following this study the University of Western Australia has restructured the length and spacing of its practice periods in the Diploma of Education. The pattern now is three periods of one week, four weeks and five weeks.

Dunn and Barnard (1992) in discussing clinical placement in nursing, also recommend short block placements, believing that the practicum should be structured so as to integrate theoretical input with clinical experience. In the model which they recommend, students would be responsible for only specific areas of patient care, with the areas of care being defined by the theoretical concepts undertaken during the relevant portion of an undergraduate program, and the designated learning outcomes for the specific patient contact. The purpose of this approach is to allow the students to focus their learning and provide time for them to reflect on the patient problems, develop problem solving approaches, and evaluate possible outcomes without risk to the patient. According to Dunn and Barnard this model appears to be more readily accommodated in releases of shorter duration, either short block placements or part-time concurrent placements either of which would allow integration with theoretical content and consolidation of learning.

Part-time or concurrent placements: Opportunity for greater integration of theoretical and work place learning was one of the guiding factors in the choice of the concurrent mode for the School of Accounting in a South African Technikon (Pienaar 1985) The choice of attendance pattern was between multiple short blocks (in this case, alternating semester) and concurrent (1-2 days per week). The technical faculties in the College all used the system of one semester in college alternating with one semester in work placement. After reviewing the experiences of those faculties, the concurrent mode was chosen for the School of Accounting because: it allowed greater integration of theory and practice (students' immediate experiences could be used in class); students received more guidance on project work as they are in regular contact with teachers; and lecturers could keep more contact with current practice. Disadvantages of the alternating system were seen to be: the intense pace of academic work due to the need to complete within the semester; the student population is divided into two groups (in and out) which disrupts college life and student activities; adaptation from work life to being a student was more pronounced and more difficult. The attendance pattern chosen was 2 days per week throughout the third year. In an evaluation after three years a large

majority of students (83%) preferred the concurrent mode to the alternating mode.

Briggs (1984), however, was less confident of the benefits of the concurrent model. She notes that the two week block followed by a day a week practicum undertaken by early childhood education students at the South Australian College of Advanced Education was intended to offer an initial intensive experience and the opportunity for students to keep contact with their schools and classes. However 54% of supervising teachers thought the one day visits were 'of limited value to students because they could only see (repeatedly) one fifth of the week's program'. Some periods of the year were seen as more beneficial to students than others. End of term was seen as a high pressure time when students did not get the attention they deserved. On the other hand supervising teachers thought that students would benefit from being present at the very beginning of the school year (when students are not normally on placement) because this is when planning and preparation was carried out. 55% of the supervising teachers surveyed thought that a mix of short and long term placements was the ideal.

Conclusions

In general, the practicum is accepted as a valuable component of professional education; and surveys of students, employers and graduates usually find that they prefer educational programs with a practicum component. However, persistent problems are identified with practicum placements which are poorly structured and poorly supervised, resulting in experiences that may actually undermine learning.

In an attempt to provide closer links between field experience and college study a range of different practicum formats are currently being implemented; but the rationale for choice of structure is often unstated or unclear, and evidence of effectiveness even more so. Concern is expressed by a number of writers regarding both the quantity and quality of research into use of the practicum in higher education. So little quality research has been undertaken on the effect of the length, structure and placement of the practicum that no clear recommendations can be made with confidence.

According to Veale, "the failure to reach the real seat of the problems (is ascribed)...to an oversimplification of the issues....(and the) failure of researchers to attend to the complex, dynamic and multi-dimensional reality of the practicum"(1989: 102). This reality, says Veale, includes "the institutional settings in which students are placed, the curriculum of the practicum...and the dispositions of students and of those with whom they interact."

The research which has been undertaken is criticised for its limited methodology (principally the use of satisfaction surveys) as well as its failure to address the complexity of the practicum as a learning environment. This criticism is exemplified by Price, who, in writing of teacher education, notes that:

a major problem of practice teaching studies has been a failure to focus upon the complexity of practice teaching experiences. A second major problem concerns the too simplistic methodologies adopted in many studies. The situation is little better in Australia where a major focus on the practicum has been developed.....but in each project the emphasis has been upon the review of existing studies of teacher education and upon survey techniques. (1989: 22)

Whilst the value of the practicum to student learning is widely acknowledged, the number of shortcomings identified suggest that greater attention needs to be paid to the planning and implementation of practicum experiences; and to the evaluation of these experiences as successful stimuli for learning.

Issues requiring further investigation

A number of areas are identified where further investigation is needed, and these are listed below. An important underlying issue, however, is the choice of research method. Several of the authors cited in this review have been critical of the limited range of research methods used in investigating the practicum.

Although all educational experiences pose difficulties for researchers the practicum is more complex than most. To the usual variables associated with individual students and teachers are added workplace supervisors, workplace colleagues, differing organisational procedures and standards and often, differing expectations on the part of all players. The most common method for investigating the practicum has been the satisfaction survey, used with students, graduates and employers. While this method has been able to demonstrate, in broad terms, the value which all groups place on the practicum experience, overuse of survey techniques has been criticised by some writers because of the inability of the technique to deal with the multitude of variables involved.

Whilst several writers have been critical of the research methods used to date, few have suggested alternative methods which would better address the issue of complexity. Certainly, more longitudinal studies, such as that by Carter (1989) which investigated the changes made by student teachers in

classroom management behaviour over three placements, would add some depth to discussions of how and what students learn in the workplace. Only one study was found in this survey which attempted to compare the results when one variable in a program was changed. (This was the study by Davis (cited by Carter, 1989) which compared teacher education placements of 8 weeks and 16 weeks.) Information from further studies of this type would make a valuable contribution to our knowledge of workplace learning and would be welcomed by curriculum designers.

With these cautionary notes regarding research method in mind, attention can now turn to a consideration of particular issues which, due to the paucity of their treatment in current literature, require further attention:

1. the role of supervision during the practicum placement;
2. the kinds of learning goals and outcomes that are best achieved through the practicum; and
3. the length and structure of the practicum.

1. The role of supervision during the practicum placement

Surveys of students and graduates have shown that the quality of supervision which the student receives in the workplace is usually the most important factor in determining the quality of the experience. In the literature surveyed here, three different methods of organising supervision were identified:

a) The student is assigned to a single workplace supervisor who assigns tasks and acts as guide and mentor. This is the model which is most commonly used.

b) A supervisor from the educational institution goes into the workplace with a group of students on placement and works with them there (the model usually found in clinical practicums in nursing).

c) A range of learning experiences is planned through a learning contract and a range of different resource people are identified to act as guides and instructors for specific tasks or projects. Such resource people may include workplace or educational supervisors, colleagues and other staff who may not be qualified in the same area as the trainee, such as administrators.

One question which could guide further investigation of this aspect of supervision is:

- Which model of supervision provides the best experience for students?

Further questions associated with other aspects of supervision include:

- How important is it that workplace supervisors understand the educational curriculum into which the practicum fits? If they are familiar with the curriculum does this make a difference in helping students integrate their educational and workplace experiences?

- To what extent can activities and structures put in place by the practicum coordinator (eg. goal setting, opportunities for reflection, learning contracts) compensate for inadequacies and unevenness in workplace supervision? (One of the enduring problems of the practicum is finding placements where workplace supervisors are able, and willing, to give adequate supervision to students. Inevitably, some students will be placed in less than optimal situations.)
- What impact do students, and participation in student placements, have on the workplace? Are there any positive transfers from students and educational institutions to the workplace – e.g. new knowledge, techniques, improved access to the educational institution?

2. The kinds of learning goals and outcomes that are best achieved through the practicum

In studies undertaken to date there is a considerable weight of evidence that suggests that the practicum is effective in giving students insight into the world of work and helping them integrate into the work environment. What has yet to be demonstrated is that the field placement offers the best environment for developing skills or is effective in helping students integrate theory and practice. These are often suggested as goals for the practicum (eg Langdon and Judd 1994) but the evidence on whether such goals can be consistently achieved is mixed.

Engineering students and graduates in the survey by Au Yeung *et al.*, (1993) did not believe that their semester-long placement was effective in developing technical skills or in helping them integrate theory and practice – they blamed employers for their unwillingness to provide adequate instruction in the workplace. Turney (1988) found that the teacher education practicum made student teachers more authoritarian and undermined their confidence in educational theory. Cox (1982) asserts that the pre-requisite knowledge and skills of practice can be effectively taught in the educational institution and that the practicum should be used to allow the student to learn how to bring knowledge and skills together in a complex environment, choosing the appropriate course of action and responding to a range of situations and clients.

Where the practicum does seem to have been used effectively to develop skills, such as in the Medical degree at UNSW, a very high degree of structure has been introduced to ensure that all students have adequate learning opportunities and workplace learning has been supplemented by concurrent formal instruction in the form of lectures and seminars.

Some of the questions raised here might well be addressed by future research. They include:

- Are skills learned more efficiently in the workplace or in the more controlled environment of the educational institution or simulated setting?
- To what extent should there be a curriculum for the practicum – that is, a specified and sequenced set of learning experiences which all students on placement undertake? At present some programs and some disciplines structure the practicum to a far greater extent than others. Can different outcomes be shown to result?
- Do additional educational activities designed to help students analyse and reflect on their workplace experiences make a difference in the learning outcome and particularly in the ability to integrate and apply what has been learned in the classroom in the workplace?

The length and structure of the placement

Questions concerning the ideal length and structure of the practicum are obviously of concern to educational institutions. Finding sufficient places for students is an on-going problem for most institutions but very little evidence can be found in the literature to indicate what is the optimal length or whether the extended single placement should be preferred to the concurrent (2-3 days per week) model. Of course the question of ideal length and structure will depend to a large degree on the goals and objectives to be achieved. Two examples found in the literature reviewed here provide an illustration. Following a study by Davis (cited by Carter, 1989) which showed that in a teacher education curriculum aimed at improving teacher sophistication (as evidenced by the use of more logical and strategic behaviour patterns) no gains could be attributed to sixteen weeks practical experience over eight weeks, the University of Western Australia restructured and reduced the practice periods in its Diploma of Education. In contrast, Monash University extended the practicum in their teacher education program to allow student teachers more scope to practise the full range of teaching activities and to provide students with a more comprehensive experience as a base for analysis in their subsequent course work. And as Turney (1988) has pointed out where there is no clear rationale for the practicum and no planned structure of experiences it is difficult to justify its length or to demonstrate its necessity at all.

As the question of ideal length and structure cannot be considered outside the context of the goals and objectives of the practicum the questions for researchers must be:

- In attempting to achieve a specified set of educational outcomes through learning in the workplace, can one structure be shown to be of greater benefit than another?

- What is the impact of the length of time spent in the workplace on achieving the specific goals of a particular practicum?
- Can supplementary educational activities (such as seminars which provide opportunities to discuss and analyse workplace experiences) increase learning and reduce the amount of time which is spent on placement?

Conclusion

There is pressure on higher education institutions to achieve greater integration between campus-based learning and learning in the workplace; and at least in professional courses the practicum or field placement holds out the promise that this might still be achieved. However, this paper has raised a number of issues which need further investigation in order that the effect of the practicum on student learning might be enhanced – particularly through better planning, and a much firmer research basis for design of the practicum curriculum.

Acknowledgement

This study was funded by the Assessment Centre for Vocational Education, Sydney, Australia.

References

- Auckland Institute of Technology (1992). *Bachelor of Business Course Document*. Faculty of Commerce, Auckland Institute of Technology: Auckland.
- Au Yeung, Y. N., Lai, C. C., Ho, W. F., Sivan, A., Gow, L. & Ledesma, J. (1993). 'Attitudes towards Industrial Training in the BEng. Course in Building Services Engineering at Hong Kong Polytechnic', *Studies in Higher Education*, 18(2), 205–226.
- Boud, D., Keogh, R., & Walker, D. (Ed.). (1985). *Reflection: turning experience into learning*. London: Kogan Page.
- Briggs, F. (1984). 'The organisation of practicum; the responsibilities of the teacher and the college supervisor: A pilot study', *Australian Journal of Teaching Practice*, 4(2), 15–26.
- Carter, D. S. G. (1989). 'Emergent Teaching Processes of Pre-Service, Social Studies Teachers', *Education Research and Perspectives*, 16(2), 30–43.
- Cox, K. R. (1982). Measuring Clinical Performance. In K. R. Cox & C. E. Ewan (Eds.), *The Medical Teacher*. Edinburgh: Churchill Livingstone.
- Daresh, J.C. (1990). 'Learning by doing: research on the Educational Administration Practicum', *Journal of Educational Administration*, 28(2), 34–47.
- Dunn, S., & Barnard, A. (1992). Contextual Factors Affecting Clinical Facilitation in Undergraduate Nursing. In A. Yarrow (Ed.), *Teaching Role of Supervision in the Practicum: cross-faculty perspectives* Brisbane: Queensland University of Technology.

- Edward, N. S. (1985). Evaluations of Industrial Training for Technician Engineers. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 92–95. Edinburgh: Napier College.
- Edwards, D. (1979). 'A Study of the Reliability of Tutor Marked Assignments at the Open University', *Assessment in Higher Education*, 5(1), 16–44.
- Garland, N. J., & Cole, W. J. (1985). Cooperative Education – Structure and Assessment Methods of Sandwich Education. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 264–267. Edinburgh: Napier College.
- Gibson, G. R. (1985). Work Experience, Employment Skills, and Work Attitudes of Disadvantaged Youth in the USA. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 78–81. Edinburgh: Napier College.
- Grady, N. (1988) Supervision in the practicum. *ACT Papers in Adult Education and Training*. September, 1988, 19–22.
- Jewell, D. L. (1993). *Professional Practicum Manual: experiential education in recreation and leisure services: a workbook for the Recreation and Leisure Studies Practicum*. Springfield, Illinois: Charles C. Thomas Publisher.
- Knowles, M. S. (1975). *Self-Directed Learning*. New York: Cambridge.
- Knowles, M. S. (1991). *Using Learning Contracts: Practical Approaches to Individualising and Structuring Learning*. San Francisco: Jossey Bass.
- Lloyd, G. (1985). 'An Evaluation of the Concurrent Sandwich Degree and Teacher's Certificate at the University of Bath', *Assessment and Evaluation in Higher Education*, 10(2), 119–129.
- Low, B. (1988). 'Research on the Practicum in Teacher Education. *Journal of Teaching Practice*', 8(1), 15–18.
- Lynch, B., & Cornwall, D. (1992). Re-conceptualising the Practicum: Meeting the Industrial and Intellectual Challenges for Higher Education in the 90's. In A. Yarrow (Ed.), *Teaching Role of Supervision in the Practicum: cross-faculty perspectives* Brisbane: Queensland University of Technology.
- Mann, R. (1985). Berufsakademie: A New Approach to Cooperative Education in Germany. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 38–41. Edinburgh: Napier College.
- Mann, R., & Schlueter, D. (1985). The Relationship between Realistic Expectations about Work and the Cooperative Work Experience. In *Positive Partnerships: Conference Papers presented at the 4th World Conference on Cooperative Education*, 2, 26–29. Edinburgh: Napier College.
- McKay, D. R. (1985). The Training Plan: Key to Success of Cooperative Education in the Two Year Community College. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 112–115. Edinburgh: Napier College.
- NSW TAFE Commission: Library Practice and Information Services (1991–3). *Fieldwork Documents*. Ultimo: Sydney Technical College.
- Northfield, J. (1988). 'School experience in preservice education: examining some assumptions', *Research in Science Education*, 18, 236–243
- Pienaar, E. W. (1985). Selection of an Operating Mode for Cooperative Education in Cost Accounting at a South African Technikon. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2. Edinburgh: Napier College.
- Price, D. A. (1987). The Practicum and its Supervision. In K. J. Eltis (Ed.), *Australian Teacher Education in Review* Place of Publication Unknown: South Pacific Association for Teacher Education Inc.
- Ramsden, P. (1992). *Learning to Teach in Higher Education*. London Routledge.

- Ryan, G., and Little, P. (1991). *Innovation in a Nursing Curriculum: A Process of Change*. In Boud, D., and Feletti, G., (Eds) *The Challenge of Problem Based Learning*. London: Kogan Page.
- Schön, D. A. (1990). *Educating the Reflective Practitioner: towards a new design for teaching and learning in the professions*. San Francisco: Jossey-Bass.
- Simpson, T. (1992). *Enhancing Practice Teaching Through Self-Directed Learning*. In A. Yarrow (Ed.), *Teaching Role of Supervision in the Practicum: cross-faculty perspectives* Brisbane: Queensland University of Technology.
- Stockhausen, L., & Creedy, D. (1992). *Promoting Reflection in Clinical Practice*. In A. Yarrow (Ed.), *Teaching Role of Supervision in the Practicum: cross-faculty perspectives* Brisbane: Queensland University of Technology.
- Tisher, R.P. (1987). 'Australian research on the practicum during the last decade', *The South Pacific Journal of Teacher Education*, 15(1), 81-92.
- Toohy, S., Ryan, G. & Hughes, C., (in press) 'Assessing the practicum in higher education', *Assessment and Evaluation in Higher Education*.
- Turney, C., Cairns, L. G., Eltis, K. J., Hatton, N., Thew, D. M., Towler, J., & Wright, R. (1982). *The Practicum in Teacher Education: research, practice and supervision*. Sydney: Sydney University Press.
- Turney, C. (1988). 'The Practicum Curriculum', *Journal of Teaching Practice*, 8(1), 3-14.
- University of Western Sydney, Macarthur (1993) *Bachelor of Nursing Course Document*. Faculty of Health. University of Western Sydney, Macarthur, Sydney, Australia.
- Veale, A. (1989). 'Becoming a teacher: early childhood practicum experiences', *Early Child Development and Care*, 52, 101-109.
- Wilson, J., and Moore, D. (1989). 'Developing and using evaluation guidelines for final practicum', *Australian Social Work*, 42(1), 21-27.
- Wren, B. G. (1982). *Continuous Assessment of Clinical Skills: a Case Study in Obstetrics and Gynaecology*. In K. R. Cox & C. E. Ewan (Eds.), *The Medical Teacher*, 231-236. Edinburgh: Churchill Livingstone.
- Wright, J. B. (1985). *Negative Elements in Positive Partnerships*. In *Positive Partnerships: Conference Papers presented at the Fourth World Conference on Cooperative Education*, 2, 377-379. Edinburgh: Napier College.
- Yarrow, A. (Ed.). (1992). *Teaching Role of Supervision in the Practicum: cross-faculty perspectives*. Brisbane: Queensland University of Technology.