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Teachers' Work as Bricolage: implications for teacher education

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ABSTRACT *The concept of bricolage, as it is developed by Levi-Strauss, is useful in characterising the form of teachers' work, it subsumes extensive research on the form of teachers' work and provides a heuristic device for developing causal explanations of the form of teachers' work as well as drawing together and unifying explanations developed in the literature. This assists and informs interventions to promote progressive pedagogy. The paper begins with an account of bricolage and its relationship to a science of pedagogy. Next, features of teachers' work which push it towards bricolage are discussed, viz. conservatism, limited creativity, repertoire enlargement, teachers' use of theory, the use of devious means, and ad hocism. Causal explanations of various of these features are discussed, viz. anticipatory socialisation, aspects of preservice teacher education experiences and constraints in the work situation. The paper concludes with a discussion of implications for teacher education of taking seriously the suggestion that teachers' work is bricolage and taking seriously the associated causal explanations. It is argued that a critical starting point for progressive change in educational practice is the provision of inservice for tertiary educators who may themselves be bricoleurs. Without this, the significant necessary changes to preservice students' on-campus and within school experiences are unlikely to be supported or legitimated.*

Introduction

The enterprise of changing teachers' work to better achieve progressive goals requires two theoretical foundations. First, it requires an accurate, theoretically useful characterisation of teachers' work. Second, it requires an adequate model of the determinants of teachers' work. The two are of course related. Most importantly a characterisation of the form of teachers' work will assist and guide the development of a model which causally explains it and which therefore permits progressive interventions. Existing models of the determinants of teachers' work (for example, Woods, 1977; A. Hargreaves, 1978; Arfwedson, 1979; D. Hargreaves, 1980; Denscombe, 1980, 1982; Bolster, 1983; Connell, 1985), while

providing important parts of the causal story, derive from inadequate accounts of the form of teachers' work.

The concept of bricolage, as it is developed by Levi-Strauss (1974), makes possible an illuminating characterisation, and account, of the form of teachers' work. The account subsumes extensive research on the form of teachers' work, helps to unify existing, incomplete causal models and provides a heuristic device which might be used in refining causal explanations of teachers' work. Much of teachers' work turns out to be bricolage and, as a matter of fact, teachers' bricolage is too frequently pedagogically inadequate. The task of teacher education is to find ways and means to change this state of affairs, either by redirecting teachers' bricolage or by transforming it into pedagogic science.

The Concept of Bricolage

Levi-Strauss (1974) distinguishes between bricolage on the technical plane and bricolage on the plane of speculation. The former concerns material manipulations or applications. The latter concerns general ideas or theory. The two kinds of bricolage are formally or structurally similar.

Bricolage on the Technical Plane

Levi-Strauss (1974: 16–17) introduces the concept of bricolage by defining its practitioner, the bricoleur, as “someone who works with his hands and uses devious means compared to those of a craftsman” (‘devious’ here would seem to mean remote, circuitous or indirect [1]). The bricoleur is reasonably proficient at performing a wide variety of tasks. While these may include odd jobs, bricoleurs are not really odd job persons. A more adequate characterisation is as professional-do-it-yourself person [2]. In terms of abilities and skills the bricoleur falls somewhere between an odd job person and craftsperson.

Bricoleurs have a distinctive approach to their bricolage. First, they do not consider a project and then ask what tools, materials, etc. are required for its completion. Rather, they review the tools, materials, etc. they have to hand and consider how they might be used to complete, or approximately complete, the project. The idea is that there is a fixed pool of tools, materials, etc. Understanding the nature of the project does not motivate the bricoleur to acquire new materials. It is the possible uses of materials presently to hand which determines the degree to which the project is completed. Indeed it is plausible to suggest that the bricoleur's capacity to understand the nature of the project is constrained by the fixed pool of tools, materials, etc. So, bricolage will have a tendency to produce narrow, incomplete, historically distorted conceptions of projects.

Second, a bricoleur's means are not typically collected with some particular use in mind but in the hope that they might turn out to be useful. Levi-Strauss remarks that the bricoleur works within a closed universe and that the “rules of his game are always to make do with whatever is at hand” (1974: 17). Thirdly, the bricoleur's means are largely determined by past experiences and are heterogeneous and finite. Heterogeneity of means arises from the fact that each element is open to a variety of uses and allows the bricoleur to function without “the equipment and knowledge of all trades and professions” (Levi-Strauss, 1974: 18). The contrast is with the means at the disposal of tradespersons and professionals

which, by contrast, tend "to have one definite and determinate use" (Levi-Strauss, 1974: 18). Of course, the uses towards which the bricoleur puts his or her means are partly shaped by their previous uses. The bricoleur's set of means is finite in the sense that bricoleurs operating on a technical plane do not, except by chance or luck, add to their stock of means. Their repertoire is not extendable in a principled, theoretically guided way [3]. Fourthly, the bricoleur's response to the tasks at hand is a rearrangement, understood as including new uses, of the existing set of means. It involves a reorganisation or improvisation with existing elements to create a new structure as an *ad hoc*, but rational, response to the environment [4]. The bricoleur's creativity is limited creativity.

Bricolage on the Plane of Speculation

Levi-Strauss (1974) distinguishes two modes of scientific thought; a science of the concrete (which is a kind of bricolage on the plane of speculation) and what we might call a 'science of the abstract'. The former is allegedly the mode of thought employed by so-called primitive people. The latter is the mode of thought employed by contemporary scientists. Levi-Strauss (1974: 19) concedes that the distinction is not absolute but one of degree. What these two modes of thought have in common is that they both involve sophisticated intellectual operations of similar kinds; that is, they are formally similar. Their chief difference is in the explanatory categories they employ. In the first "concrete categories (such as food or animals) ... serve as intellectual tools to express abstract notions and relationships" (Sarup, 1984: 50). These categories are accessible through unaided sensory perception. The second, by contrast, employs categories which are not thus accessible; for example, social class, economic base, electron, cell, atom and so on. It is this difference which motivates Levi-Strauss (1974) to see the science of the concrete as a prior science rather than an underdeveloped form of contemporary science.

Science of the concrete is a prior science in that it "forms a complete and well articulated system" independent of contemporary science (Levi-Strauss, 1974: 13). It is complete in the sense that it is thoroughly worked out. It is independent in the sense that it has its foundations in a different set of categories. The prior scientist, like the contemporary scientist, is concerned to order, explain, predict, intervene and so on. However, this ordering, etc. is based on qualities of objects available through images, percepts and experiences without assistance from technologically supplied extensions to our sensory capacities. While the two sciences are parallel modes of acquiring knowledge insofar as they "require the same sorts of mental operations", the difference in the explanatory categories employed means that they will achieve different, but nevertheless scientific, results (Levi-Strauss, 1974: 13). This is not to say that the results of prior science will be as useful, helpful or efficient as the results of contemporary science; clearly in many instances they will not be.

According to Levi-Strauss (1974: 17) the method of prior science is analogous to bricolage on the technical plane. While the latter has to do with results, completing projects and the like, the former has to do with ordering, explaining and the like. Both the technical bricoleur and the intellectual bricoleur work within a closed universe. For technical bricoleurs this means working with whatever is at hand to respond to events on an *ad hoc* basis. Likewise the

intellectual bricoleur is confined within a limited, fixed structure. The structure is constituted by the explanatory categories that the intellectual bricoleur employs. While it is possible to judge that one science of the concrete is better than some other; beyond a certain point theoretical improvement is impossible. That point is fixed by the nature of the explanatory categories deployed by the prior scientist. They are closed, not malleable, not rationally revisable.

The contemporary scientist and the prior scientist are differently placed in virtue of the inverse functions they respectively assign to events and structures as ends and means. The contemporary scientist "creates events (changes the world) by means of structures and the prior scientist creates structures by means of events" (Levi-Strauss, 1974: 22). While the contemporary scientist is able "to make his way out of or go beyond the constraints imposed by a particular state of civilisation...the bricoleur [prior scientist] by inclination or necessity always remains within them" (Levi-Strauss, 1974: 19). The explanatory categories employed by prior scientists do not permit the further theoretical development which would enable them, better or more efficiently, to explain, predict and intervene in the course of events. The contemporary scientist, by contrast, is not similarly imprisoned by a particular set of explanatory categories. The contemporary scientists' refinement of structures (theories) allows for the ongoing extension of means available to alter the course of events.

Teachers' Work as Bricolage

There are good reasons for counting teachers' work as bricolage both on the technical plane and on the plane of speculation. The chief parallels between what teachers do and what bricoleurs do are as follows.

(1) *Conservatism*. Teachers' work is typically conservative even where adaptive. Just as the bricoleur, by inclination or necessity, stays within existing constraints, so do teachers. Whether we consider the coping strategies (A. Hargreaves, 1978) or the survival strategies (Woods, 1977) or the hidden pedagogy (Denscombe, 1982) employed by teachers, we find indications that teachers work in ways characterised by a tendency to accommodate, rather than transcend, constraints on their work. Even beyond the classroom, this conservatism persists (see, for example, A. Hargreaves, 1984; on the cultural exclusion of theory in staff discussions).

(2) *Limited creativity*. Teachers' work is also likely to involve creative, but frequently limited, responses to circumstances. A. Hargreaves (1978) stresses the point that coping strategies are meaningful and creative responses to the world in which the work of teaching gets done. While institutional constraints will always place some limits on creativity, a limited bag of tricks and a reliance on concrete, rather than abstract, theory will ensure that in some cases teachers' capacity for creativity is indeed very limited.

(3) *Repertoire enlargement*. The repertoires of means on which teachers draw is typically enlarged in a non-principled way; fortuitously, by luck, through the example of others and the like. See, for example, Lortie (1975: 70). Practices are collected in a way that is typically unmediated by pedagogic theory. Theory is not deployed to generate the practices in question, to suggest how they might be developed, to predict how successful they might be, to suggest modifications

which might improve them, etc. Practices are directly collected as they are encountered or invented and the initial criterion for selection is the teacher's subjective judgement that they will suit his or her purposes. Moreover, the criterion for retention is typically egocentric pragmatism. Teacher's culture (attitudes, beliefs, personality) is typically held constant and left unquestioned and against this backdrop a judgement is made about the usefulness of the practices. This is bricolage (see Levi-Strauss, 1974: 19–22).

(4) *Teachers' use of theory.* If many teachers are largely bricoleurs we could expect that on the intellectual level (that is, on the plane of speculation) they will behave more like the prior scientist than the contemporary scientist. Their intellectual bricolage will involve ordering, explaining and the like within the confines of a limited, fixed, unquestioned framework. Moreover, the explanatory categories to which they will appeal will be those provided by sensory perceptions, a ragbag of commonsense or taken-for-granted beliefs and folk psychology. The explanations teachers offer of events in schools are often like explanation within prior science. For example, some teachers are inclined to explain comparative lack of academic achievement in working class schools in terms of extraordinarily unsophisticated deficit theories. One can see the evidence of this in remarks like 'These kids can't learn because their parents have just come down from the trees, their arms are still dangling on the ground' or, 'Look at the gene pool these kids come from. How can we be expected to teach them anything?' [5] (see also Giles, 1981; Connell *et al.*, 1982; Connell, 1985).

Teachers, unlike Levi-Strauss' 'primitive' people, have access of a kind to both their own science of the concrete and to pedagogic and relevant social science. They make some use, albeit a very distinctive use, of the latter to order and explain in ways that lack the full rigour and complexity of the theories they employ or they use theories which are superceded. Either way they employ science that is, by contemporary standards, deficient [6]. When they use abstract science it is through co-opting its explanatory categories without complete understanding and using them to perform intellectual bricolage. Presumably this yields intellectual satisfaction to its practitioners since it does have some capacity to order, explain and even predict. See, for example, Jackson (1968) who provides examples of concepts drawn from a variety of disciplines which have been employed by teachers in ways which strip these concepts of their potential richness.

As far as classroom practice is concerned, the teacher as bricoleur is likely to be more closely aligned to the technician than the craftsperson. In other words, the sharing that takes place amongst teachers is not likely to be craft-sharing understood as the exchange of principled theoretical understandings. Bricolage on the practical plane has to do with results, projects, solutions and accomplishments which yield event satisfaction to the practitioner. Solving the immediate problem will have greater importance overall than the longer term consequences of the means used to solve it. What this suggests is that acquisition, dissemination and application of craft knowledge about teaching within the occupational group is unlikely to appear as a distinctive feature of what teachers do in their work setting. The more likely preoccupation of teachers (particularly beginning teachers) as bricoleurs is a search for strategies and methods which work for certain limited purposes. For example, beginning teachers may search for survival

strategies which allow them to get through a planned lesson with minimum disruptions and minimum loss of face.

Bricoleurs and teachers have a preoccupation with limited technical competence. Both can be characterised as professional do-it-yourselfers. While teachers, through teacher education, gain a credential which carries the status of professional, teacher preparation, for a variety of reasons, fails to equip teachers with an abstract science of teaching or even a decent bricoleurs' package. The underdeveloped state of theories of teaching partly accounts for teachers' lack of an abstract science of teaching. See Kliebard (1973) and Lanier & Little (1986: 554) who point to an historical period of neglect in educational research of "the problems of teachers and teaching and the codification of good classroom practice". It has been persuasively argued that education as a field of study has found no way to "record and crystallise teaching for the benefit of beginners" (Lortie, 1975: 58). If this is so, beginners in the profession, like bricoleurs, are in large measure thrown back on their own individually collected and contrived resources in real classrooms to discover how to teach. Lortie observes: "to an astonishing degree the beginner in teaching must start afresh, largely uninformed about prior solutions and alternative approaches to recurring problems" (1975: 70).

(5) *Devious means*. It is not uncommon to find the bricoleur's devious means in teachers' work. They may well be employed for sensible reasons. Just as a bricoleur takes elements that are familiar and arrives at a surprising result, so may teachers. Commonly, the use of devious means is exemplified in introductions to lessons. Consider the following example. A teacher wishes to teach the skills involved in balancing an oxidation reduction equation. The teacher begins his or her lesson by writing an equation on the blackboard. The teacher then sets the students the task of balancing the equation knowing full well the students will be unable to perform the task. After allowing the students some time to grapple with the task the teacher declares time is up and asks how many students succeeded. When no student responds positively the teacher then makes a promise to the students that by the end of the lesson they will all know how to balance the equation. The intention here is to interest the students in acquiring the skills involved in balancing the equation. The teacher provides an almost certainly frustrating experience to provoke this interest. The means are devious because the connection between the means employed and the desired ends are not particularly obvious.

(6) *Ad hocism*. One of the most distinctive features of teachers' work is *ad hocism*, which is an integral part of bricolage on the technical plane. Aspects of teachers' work may be understood as attempts to get results by developing new structures in a non-principled way, as *ad hoc* responses to the environment (see Bolsters' (1983) conceptualisation of teaching as situational decision-making). These *ad hoc* responses are the responses of a group largely constrained by its culture. The responses are devised and enacted within the confines of an often limited, fixed, unquestioned structure of attitudes, beliefs, inclinations, dispositions and so on. It is likely that they will not solve problems in any real, lasting sense. Rather they are more likely to make problems diminish or temporarily disappear or reappear in other settings.

It is worth noting that even teachers who are theoretically motivated sometimes find themselves in situations where theory fails to generate means which are adequate to securing all desired ends and where consequently, and justifiably, they engage in bricolage. Consider Lampert's (1985) discussion of dilemma management. The need for dilemma management arises when it does not seem possible to secure all the goals relevant to some situation. As Lampert (1985: 184–5) says of one of the strategies she adopted; "It was not a general solution nor a permanent one; it was an act of improvisation which allowed the problems to remain". The trade-offs, balancing acts, etc. are typically accomplished by means of repertoires of strategies in the fashion of the bricoleur. However, there is a distinction between the two. Lampert's dilemma manager, is likely to employ theory to judge "where potential adversity makes solving some kinds of problems inadvisable" (Lampert, 1985: 193). This case is a good example of the positive aspect of bricolage.

D. Hargreaves (1980: 127) claims that at least some of the experiential problems of teachers arise from a teacher culture which is resistant to change. He says there is a need to explain "why the dilemmas which this culture helps to engender are resolved not so much by creating adaptations in the culture, but rather by the adoption of *ad hoc* coping strategies at the level of practical action" (D. Hargreaves, 1980: 127). This aspect of teachers' work fits well with the claim that teachers are bricoleurs. Teachers' work, understood as bricolage, involves the adoption of *ad hoc* (coping, survival, dilemma management, etc.) strategies. These strategies are formulated by practitioners who have gained their knowledge of teaching through experience within these existing constraints. Existing constraints, including the culture which contributes to its own dilemmas, are what these bricoleurs own and to some extent control. For such teachers to consciously set about making changes in their existing culture would be to erode those skills in which they take their competence to consist.

To recapitulate, teachers' work can be seen as bricolage because of the numerous parallels between what teachers do and what intellectual and practical bricoleurs do. These parallels include a tendency towards conservatism and limited creativity brought about by limited repertoires of means and limited approaches to repertoire enlargement on both intellectual and practical levels. Like bricoleurs, teachers employ devious means and their actual work is characterised by *ad hoc* responses at the level of practical action. Importantly, characterising teachers' work as bricolage, either on the plane of speculation or on the technical plane, involves accepting that it is typically a rational, even if limited, response to the circumstances in which teachers find themselves.

Why Teachers' Work is Bricolage

The tendency of teachers to act as scientists of the concrete or technical bricoleurs is intricately caused. The contributing causes are frequently, although not always, outside the immediate workplace. They include the following.

(a) *Anticipatory socialisation for teaching which occurs during the years spent in classrooms as pupils.* As Locke (cited in Tinning, 1984: 54) points out, pupils receive an "invisible apprenticeship in pedagogy lasting from 12 to 15 years"

which provides “more than enough time to acquire complex social behaviours through the agency of modelling”. Importantly, this “apprenticeship of observation” (Lortie, 1975: 65) occurs under conditions which ensure that “what students learn about teaching... is intuitive and imitative rather than explicit and analytical” (Lortie, 1975: 62). These early, unsophisticated learnings about teaching appear to remain intact despite teacher education (see also Lacey, 1977; Hanson & Herrington, 1976; Britzman, 1986; on the importance of personal history as a socialising influence). They incline preservice students to work as technical bricoleurs and as scientists of the concrete. This fact constitutes an invisible barrier which limits preservice students’ receptivity to, and future use of, abstract theory.

(b) *Some preservice experiences which have the unintended consequences of reinforcing the non-analytic, non-reflective orientation to teaching acquired during anticipatory socialisation.* Notable experiences in this category include practicum (i.e. teaching practice) and courses in the area of teaching studies. Research (see, for example, Innaccone, 1963; Fox *et al.*, 1976; Gibson, 1976; Popkewitz, 1977; Tabachnick *et al.*, 1980) supports the view that practicum contributes to what Zeichner (1981–2: 3) has called a ‘utilitarian teaching perspective’. Specifically, during practicum there are pressures on students to view “the technique of teaching ... [as] an end in itself rather than a means towards some specific educational purpose. In fact, the issue of *why* something is taught and the possible latent long-term effects of a particular classroom action are typically not addressed by students” (Zeichner, 1981–2: 3—emphasis in original).

Zeichner (1981–2: 3) indicates that this focus on technique ensures that teaching “is separated from its ethical and political dimensions” (Zeichner, 1981–2: 3). Rarely are practicum experiences structured to overcome these outcomes. (For a notable exception, see Zeichner, 1981–2: Zeichner & Liston, 1986.) Practicum experience, as a component of teacher education, has the unintended effect of supporting a previously acquired unreflective orientation (see, for example, Feiman-Nemser & Buchman, 1985). Teaching is thus pushed in the direction of a science of the concrete. Abstract theory, despite any intellectual interest it might spark on campus is, as a consequence, likely to be perceived as having no immediate relevance to the real work of teaching. Experience in the classroom, practical abilities and pragmatic operational principles are likely to be perceived as most valuable to the teacher.

It is frequently suggested that student teachers’ inclination to adopt strategies which ‘work’, particularly those modelled by supervising teachers (see Zimpher *et al.*, 1980; Tinning, 1984), cause student teachers to ignore much of what they have learned in methods courses. Thus, student teachers’ teaching style is governed by pragmatic concerns for efficiency, narrowly conceived, rather than by concerns to help students learn (Tinning, 1984). There is some truth in these claims.

However, it may well be that campus-based courses themselves make their own unintended contribution to student teachers’ unreflective technical orientation toward teaching; specifically courses which aim to equip students with a basic repertoire of skills and strategies (questioning, explaining, inductive teaching, grouping and so on). The focus of these courses, like the focus of practicum is procedural and involves attention to a very narrow, and, sometimes atheoretically

treated [7], range of 'how to's'. These courses form part of the rather large survival component of teacher education (Rudduck, 1985). In their attempt to provide students with immediate skills they typically divorce technique from substantive and theoretical issues relating to teaching. The dominant emphasis is on equipping students to reproduce existing practices or some modified version of existing practices. The development of a critical, reflective orientation to the work of teaching is considered the concern of other courses, particularly studies in education or foundation courses. Techniques and analytic, reflective thinking are effectively separated by course structure. This separation pushes teachers' work toward technical bricolage. This is because practical courses, provided they are appropriately shaped (see Lortie, 1975: 68–69; Britzman, 1986: 446), are the kinds of courses pre-service students perceive as relevant and desirable components of teacher education (see Ruddock, 1985). To the extent that courses of the kind described above are successful in appearing relevant to students' needs, they are likely to have the greatest impact on pre-service students' orientation. Alongside practicum, these courses with their almost exclusive emphasis on technique may encourage a non-reflective, non-analytic orientation to the work of teaching.

(c) *The failure of teacher education to radically challenge preservice students' predispositions toward teaching as a science of the concrete or as technical bricolage.* This failure manifests itself both in omission and legitimation. Omission occurs where teacher educators fail to confront their unique pedagogical problem. This may be put in the form of a question: "What implications are there for my teaching when my clientele, unlike the clientele of other groups in professional preparation, have had exceptional opportunity to observe members of the occupation at work?" (see Lortie, 1975: 66). Neglecting the effect of students' prior knowledge about teaching on the reception of new knowledge has a high cost; students resist, transform or pick selectively from theory. This neglect increases the likelihood that teachers will be intellectual and practical bricoleurs rather than operating reflectively or analytically on the basis of contemporary pedagogic or social theory.

It is not so much that student resistance to theory goes unremarked as that such resistance typically does not produce substantial changes in how theory is presented. This resistance is commonly explained away in the language of deficit theory (the students are not bright enough to understand theory) or in the language of readiness (we teach theory too soon) (see, for example, Petty & Hogben, 1980; Fuller & Brown, 1975). Omission may also occur through a total neglect of the point that some preservice experiences, notably practicum, may have unintended, conservative outcomes. Quite typically, practicum debriefings are casual affairs slotted into crowded courses and focus largely on difficulties and problems experienced (see, for example, Board of Teacher Education Research Report, 1984: 46 and 51). This compares unfavourably with, for example, Zeichner's (1981–2) attempts to promote reflective action by restructuring field-based experiences in ways that promote critical reflection on classroom experiences. Negative outcomes, for example the condition of 'excessive realism' (Katz, 1974), are ignored. This condition is one in which 'student teachers tend to accept the practices they observe in their field placements as the upper and outer limits of what is possible' (Zeichner, 1981–2: 3). In other words, the very

varied strategies (for example, cooperative group work, individualised instruction and so on) is left unexplored and unchallenged.

Legitimation occurs when teacher educators uncritically draw on preservice students' prior knowledge as adequate knowledge about teaching. The lay person's perspective and the teacher's professional perspective should be different but are treated as one by the very people who should demonstrate a capacity to distinguish the two. The supervision mode adopted by practicum supervisors may also tend to legitimate preservice students' predispositions towards teaching as practical bricolage, especially where the mode adopted is a 'technical instrumental' one (Zeichner & Tabachnick, 1982: 43ff) in which the dominant emphasis is on practices and techniques of teaching. Legitimation may also occur through an inadequate pedagogic response by teacher educators. For example, a common response is a 'watering down' of abstract theory or a reduction of courses to a recipe orientation in order to satisfy student expressed (and teacher educator perceived) need for relevance. There is reason to believe that many of those involved in teacher education themselves lack a reflective, scientific, analytical orientation to teaching [8]. In other words, teacher educators may, in significant numbers, treat teaching as no more than technical bricolage or a science of the concrete [9].

(d) *The failure of educational theory and teacher education to offer real help to beginners especially with respect to recurring dilemmas.* This is, in part, a consequence of the underdeveloped state of theories of teaching. It is also, in part, a consequence of a somewhat myopic view of the teacher's task, indicated, if not intended, when teacher educators exhort preservice students to attend to the needs of particular sub-sections of their client group (the gifted, slow learners, girls, the culturally different) who are presently seen to be disadvantaged. While some teacher educators may take a practical approach to educating the target group they favour, this practicality never extends far enough. For example, courses focusing on gifted children typically focus attention on specifics such as past neglect of gifted students, defining and recognising the gifted, the learning style of gifted students, models of learning for gifted students and programming for the gifted.

However, ethical and practical questions are often neglected or given inadequate attention. Practical questions such as 'How do I implement a program for gifted students in my class when I still have the rest of the class to attend to?' or 'What might the remainder of the class usefully do while I work with the gifted?' or 'How do I get a teacher dependent class to work independently while I give attention to a few students?' are glibly addressed if at all [10]. Similarly, ethical questions relating to distribution of time inside and outside of the classroom, which has consequences for non-members of the target group are seldom adequately addressed. After all, time is an educational resource, the distribution or allocation of which can advantage some or disadvantage others. A concern to use educational resources justly, for example to ensure equality of opportunity, requires two kinds of inquiry. First, it requires inquiry into relevant ethical principles of justice. Second, it requires inquiry into how, at the practical level, ethical principle should constrain teachers' actions. And since the relevant questions go unaddressed the essential problems go unsolved.

The lack of real help offered to beginners is exacerbated by the 'sink or swim' induction into the profession which throws beginning teachers back on their own

resources. They are left to discover their own useful knowledge about teaching. Not surprisingly it is this knowledge which becomes highly resistant to change (see Bolster, 1983).

(e) *The constrained nature of the work situation.* In attempts to account for conservative regularities in the form of teachers' work and, in particular, the pragmatic, atheoretical orientation of teachers to their work, researchers have focussed attention on constraints which shape teachers' work (see, *inter alia*, A. Hargreaves, 1978; Arfwedson, 1979; Woods, 1977; Denscombe, 1980, 1982). While causal explanations vary somewhat, the general view is that teachers are not free agents able to implement their teaching as they wish (see also Hatton, 1985a, 1987). For example, Denscombe (1982) directs attention to the influence of classroom experience in contributing to shared teacher beliefs about what competent teaching consists in, especially as these beliefs relate to matters of control and privacy (see Hatton, 1985a, b). He argues (1982: 259) that "there are certain aims and methods of teaching which: (i) underlie competent teaching in practice, (ii) are generally taken for granted and not explicitly associated with pedagogic theory, and (iii) thus constitute a cryptic, covert or '*hidden pedagogy*'" (his emphasis). On this view, teachers can and do respond to formal (e.g. liberal progressive) pedagogy at the level of ideas. However, such pedagogy is rarely implemented because "classroom experience has a hegemonic influence by controlling the range of alternatives that can be considered as real possibilities and, more to the point, by excluding others" (Denscombe, 1982: 259). Instead, teachers become preoccupied with informal aims and methods of teaching; a preoccupation which is forced by a set of identifiable, significant conditions (see Denscombe, 1982: 258). Teaching strategies are, in practice, little more than a context-specific response to these conditions.

Taken together, the conditions outlined above make it likely that teachers come to behave as technical bricoleurs or scientists of the concrete or some mix of both.

Bricolage as a Heuristic Device for Refining Causal Explanations of Teachers' Work

Some models of teachers' work make tight connections between work situations and the nature of teachers' work. Such models include Woods (1977), Arfwedson (1979), Denscombe (1980) and Bolster (1983). Further, some of these models implicitly or explicitly suggest that changes the work situations might promote progressive change in education practice. For example, Woods (1977) argues that increasing situational pressures force teachers to adopt survival strategies. When caught between commitment and an intractable situation teachers respond by adopting survival strategies. The point of this is more to secure their comfort in a difficult work situation than to make possible the achievement of worthwhile educational goals. This might happen in either of two ways. First, there are likely to be some teachers who do have an intellectual, and even motivational, commitment to genuine progressive goals, who are simply unable to carry this commitment into practice because of the nature of the work situation, for example, because of large classes, lack of resources and so on. Secondly, there will be other teachers who do not have any such commitment, except vestigially, and who may

not even have thought seriously about educational goals, who would have done the thinking and developed the commitment had their work situations been appropriately different. Woods (1977: 290) suggests that changes in the work situation would allow for “changes in teachers’ conceptions of children, pedagogical paradigms, dedication to child-centredness and so on”. The suggestion is that given other structures, teaching might look different. In other words, in ideal conditions teaching might be more likely to be guided by pedagogic principle.

The difficulty with models such as those proposed by Woods and others is that they draw too tightly the causal connections between the work situation and the way the work gets done. However, characterising teachers’ work as bricolage encourages a more thorough, and ultimately more useful, causal explanation. Characterising teaching as bricolage suggests that teaching should be seen as something other than the straightforward application of scientific principle thwarted by situational constraints. Teaching, on this view, has little to do with application of theoretical or pedagogic principle and much to do with the formulation of *ad hoc* response guided, in many instances, by ‘primitive’ theory. Models which draw the connection too tightly provide an inadequate representation of the situation for most teachers. There are some teachers with a reflective orientation to their work and a knowledge base which present circumstances prevents them from using. For these teachers even minor changes in the work situation may bring significant changes in the form of their work. Such teachers would no doubt have a clear grasp of appropriate goals and appropriate means available to them to achieve their goals. However, these teachers are a minority. There are ample indications in the literature that prior experience (anticipatory socialisation, dissatisfaction with preservice courses and unintended outcomes from some others) have encouraged teachers to eschew pedagogic knowledge and to adopt a non-reflective orientation to the work of teaching. There is a significant group of teachers who do not seriously reflect upon ends and means in their work. For these teachers, changed working conditions are unlikely to change significantly the form of teachers’ work. For these teachers, strategies formulated on the job have become teaching. There may be yet another, in fact very significant group, who have a presumably clear vision of appropriate goals, who recognise their current means are inappropriate, who possess or have real access to relevant pedagogical theory but who are unable to use the theory to generate effective means. These teachers differ from those in the first group in that they have little, if any, idea of how to develop particular and appropriate pedagogic techniques on the basis of their pedagogic theory.

Characterising teachers’ work as bricolage directs attention to broader issues such as structural limitations on the acquisition of pedagogic knowledge at the preservice level (Lortie, 1975; Zeichner, 1981–2). It forces attention toward the very real possibility that teachers, despite socialisation and professional preparation, may not possess any kind of theoretical orientation to teachers’ work or, at best, only the kind underwritten by an inadequate prior science. The means at the disposal of most teachers are those they have acquired on the job and many of these quite obviously will be inappropriate for the realisation of transformative goals. It also draws attention to the related point that earlier acquisition of prior and primitive theory, which is used by teachers to explain their world, may in itself constitute a structural limitation to the acquisition of more efficient means.

Implications for Teacher Education

The fact that there are very substantial elements of bricolage in teachers' work has some significant implications for teacher education. Like practical and intellectual bricoleurs, teachers show tendencies to conservatism, *ad hocism* and limited creativity brought about by a limited repertoire of means and limited approaches to repertoire enlargement. However, bricolage is not a bad thing *per se*. Whether it is bad depends on its consequences; specifically whether such bricolage contributes to the realisation of progressive educational goals. And one way of achieving these goals is to ensure that teachers' bricolage, if teachers are to be bricoleurs, is such that it will contribute to their realisation. This will depend on coordinated thrust across all units and sections of teacher education programs.

Teacher work is bricolage as a consequence of experiences in teacher education institutions and experiences in schools (prior to, during and after professional preparation). Teacher educators need to address their attention to both domains. This is not to overlook the effect of societal position and experiences on teachers' attitudes and values, etc. (see, for example, Grant & Sleeter, 1985, 1987; Nias, 1985). It is quite likely that inappropriate attitudes and values (acceptance of the *status quo*, elitism, racism, sexism and so on) may emerge as a result of societal experiences. It is possible that these attitudes and values may well push teachers' practical and intellectual bricolage in a direction which thwarts the realisation of progressive educational goals. Given that selection for teaching is currently based more on the possession of appropriate credentials than on the possession of appropriate attitudes and values, the only obvious points of intervention for teacher educators and pre- and inservice teacher education.

Experiences in Teacher Education Institutions

It was argued earlier that preservice teachers' experience in schools as pupils partially determined the form of their intellectual and practical bricolage. Further, it was suggested that these initial beliefs and predispositions could act as an invisible barrier to student receptivity to abstract theory, particularly if teacher educators failed to challenge these beliefs and predispositions. Failure to challenge beliefs and predispositions could occur either as a result of omission or legitimisation. Omission in this context is the failure of teacher educators to confront their unique pedagogical question: What implications are there for my teaching when my clientele... have had exceptional opportunity to observe members of the occupation at work? While teacher educators do notice student resistance to educational theory, this is too often not confronted and is explained away in the language of 'deficit' theory or in terms of 'readiness'.

The 'readiness' explanation warrants further attention. Petty & Hogben (1980) suggest that theory courses mounted at preservice level can have some impact but that this impact is largely offset by the need to attend to survival concerns at the onset of full-time teaching, particularly because beginning teachers lack the skills to translate theory into practice. They describe what is essentially a bricoleur's response:

Looking for advice on what to do, and never having been given the skills to translate theory into practice, the neophyte will consult notes from

method lectures, his new colleagues on those few occasions when they are available for consultation, and his memory of what his own teachers did when he was a pupil. (Petty & Hogben, 1980: 59)

According to Petty & Hogben (1980: 60) practising teachers' atheoretical perspectives are more a consequences of an ill-timed introduction to theory rather than "stubborn resistance to such theory on the part of students". They argue for an internship program following on from intensive instruction in content and some attention to instructional techniques. During the internship "the neophyte could carry a partial teaching load, and spend the rest of the week studying pedagogical theory". There are two advantages to this program: theory could be related to experience and instructors would need "to consider how theory should be expressed in programmatic terms" to match the pressures encountered by interns. Petty & Hogben (1980: 61) conclude that "Only when the beginning teacher's fears about his ability to perform adequately in a classroom has been laid to rest is he likely to be willing to examine what he is doing from the vantage point of the social sciences".

Taken at face value, these recommendations seem sound. However, there are two things which are problematic. First there is the claim that the orientation of practising teachers is atheoretical. Bolster (1983: 295–6), for example, suggests that researchers and teachers adopt radically different assumptions about how to conceptualise teaching. While social scientists value knowledge that is nomothetic in aim and universalistic in character (Bolster, 1983: 301), teachers typically value knowledge which is "idiographic in origin and therefore particularistic in character" (Bolster, 1983: 298). Discontinuities of belief arise from critical differences in how knowledge is formulated (perceived, structured and discovered) and how knowledge about teaching is determined (verified or proved) (Bolster, 1983: 295). On this view, the distinction between the theoretical knowledge of academic researchers and the atheoretical knowledge of practising teachers is difficult to sustain. Moreover, if the distinction between prior scientists and abstract scientists holds for teachers, then their perspectives are not atheoretical as much as theoretically impoverished. Teachers, on this view, are to varying degrees 'victims' of a prior science which has a logic of its own. This logic enmeshes them in the concrete world of the classroom and induces the use of the explanatory categories which are less than the best contemporary science has to offer.

The second concern is that the program suggested by Petty & Hogben (1980) significantly delays any attempt at replacing the perspective of the scientist of the concrete with the enlightened social scientist's perspective. The danger here is that this program may unintentionally solidify earlier views of teaching as a science of the concrete. Consider this. In the teaching of reading conventional wisdom held that the complex task should be simplified for the beginner. The appropriate approach was to teach basic skills first (sight words, phonics and so on). Once these basic skills were mastered comprehension could be attended to. This approach succeeded with some beginning readers. Typically, these pupils had a range of prior experiences with text which allowed them to intuitively disregard teacher instruction. However, for many pupils, text was, and remained, a meaningless jumble. One reason for this was that pupils had become locked into painstaking methods of processing text which frustrated comprehension. Comprehension of text does not rely upon the one-by-one application of basic skills; it

relies upon a complex interaction and simultaneous application of a variety of skills. Most importantly it relies on what the reader brings to the text, particularly the expectation that text will make sense (see Smith, 1978; Holdaway, 1979). The point is that if we want beginners (whether they be beginning readers or beginning teachers) to develop appropriate perspectives on their tasks, then the perspective is best inculcated from the outset.

Legitimation occurs in a variety of ways. One significant way is through an inadequate pedagogic response which typically involves the watering down of abstract theory or, indeed, the provision of practical courses with a recipe orientation. The providers of such courses justify their approach on the grounds of 'relevance' to student need. However, as Zeichner (1981-2: 10) suggests, there is "such a thing as too much relevance. To argue that relevance is synonymous with virtue is just plain irresponsible." Moreover,

The dominant utilitarian emphasis in teacher education today has failed to demonstrate that a focus on technique and survival needs enhances the developmental process towards more ethical behaviour. On the contrary, the current concern with "meeting the needs" of student teachers has encouraged students to accept the existing distributions of power and resources in the outside world as natural and has left the basic causes of human misery and social injustice untouched. It is not necessarily true that the best teacher education program prepares teachers to function with the least friction in the schools of today... (Zeichner, 1981-2; 10-11)

Conventional wisdom has held that teacher work, at both pre- and inservice levels, becomes conservative because of constraints met and mediated in the work situation (see, for example, Innaccone, 1973; Hoy & Rees, 1977; Arfwedson, 1979). It is often taken for granted that the effect of these constraints is to overwhelm the 'liberal' influence of teacher education. Suggestions that teacher education programs themselves contribute to the conservative nature of teacher work are notably less frequent and are obviously less dominant as is evidenced by the overwhelmingly utilitarian emphasis of teacher education. Explanations of the former kind not only provide an excuse for maintaining the *status quo* in teacher education, but they also mask the extent to which teacher educators themselves are massively implicated in the production of bricoleurs of the wrong kind and, moreover, believe their real work consists in no more than this. Existing recruitment practices make it highly likely that teacher educators themselves will be bricoleurs concerned with the 'how to' questions, which concern facilitating the replication of existing practices, rather than concerns to transcend existing practices. It is worth remarking that the view that only experienced teachers have worthwhile things to say about teaching is ripe for challenge.

What this suggests is that one critical starting point for progressive change in educational practice is with teacher educators. There is a serious need for inservice for teacher educators in which they are challenged to look critically at their own conceptions of the appropriate form of teachers' work and their own practices in lecture rooms [11] and in field supervision. They need to be challenged to develop adequate orientations, attitudes and values which would allow them to move students beyond concerns with technique and survival to become ethical, competent practitioners capable of meeting the liberal goals

espoused in curriculum guides. Without a serious challenge to existing views and orientations of the tertiary bricoleurs, necessary radical changes in programs, strategies and content are likely to be effectively resisted or, indeed, subverted.

It is worth noting that some teacher education students would resist, actively or passively, my preferred model of teacher education. Finding out why this is so, and responding appropriately, would be crucial in properly implementing the model. This is not something I can pursue here. However, one positive step towards an appropriate response is to win the allegiance of teacher educators to the preferred model, and one way of doing this is to cause them to reflect on teacher's work as bricolage.

Experiences in Schools

Experiences in schools prior to, during and after professional preparation are very much involved in the shaping of teachers' work as practical and intellectual bricolage. Some on-campus measures needed to challenge the influence of schools prior to and during professional preparation have been addressed. On their own they are unlikely to be sufficient. Further measures need to be seriously considered. In particular, the timing, duration and nature of practicum experiences warrant attention.

The timing and duration of practicum experiences is relatively non-negotiable for post-graduate programs. One year end-on programs do not allow much flexibility here. However, there is more flexibility in a three year diploma program. There might be good reason to delay practicum experiences until second or third year. This would provide a much needed hiatus between experiences in schools as pupils and experiences in schools as student teachers. Moreover, this would not be the only advantage. Another significant advantage accrues from the time and resources saved by lessening the commitment to practicum. In particular, tertiary institutions might gain a real opportunity to inculcate in their students an appropriately informed liberal perspective to guide their work. The time and resources secured could, for example, be used for the development of units in the foundations which not only address issues in and around education, but also allow opportunities for students to participate in society through research based components of these units.

The purpose of these units would be twofold. First, they would be designed to give students first hand experiences of inequalities in society. The point here is that it is often difficult for young people to commit themselves to social justice without real knowledge of the profound effects of existing inequalities on real people. Secondly, these units would also provide an opportunity to seriously address the students' own societal experiences which are often not only narrow in scope but which frequently remain unanalysed and unchallenged in teacher education. Wimshurst (1986), for example, draws attention to the way in which societal experiences gained through part-time work are in force for conservatism in preservice teachers' attitudes and beliefs. In this case, despite academic treatment of an issue like structurally based unemployment, students' experiences in the part-time labour market caused many of them to reveal an "overwhelmingly negative view of the unemployed" (Wimshurst, 1986: 6).

Nias (1985) provides some support here. Her research demonstrates the importance of a teacher's substantial self (i.e. the stable, closely defended of

personal identity including attitudes, values and beliefs) on his or her work. Her claim is that throughout a teacher's career, the substantial self is held largely constant. Teachers are therefore motivated to find work situations in which they find a close match between their substantial and situational self. In this way they can protect, or even propagate their cherished values, beliefs and so on. Not surprisingly, given the middle-class background of many teachers, working class schools become the least favoured work situation for teachers and subject to high staff turnover (Arfwedson, 1979; Petrie, 1984). Quite obviously this situation has unintended, but real, effects on the life chances of students in these schools (see Hatton, 1985a, for a discussion of this point). While teachers often blame the students for their dislike of these schools, it is quite obvious that the problem rests not only with the students. Nias argues there is an important implication for teacher education; namely:

the enduring importance to each teacher of his/her 'substantial' self throws teacher education back from peripheral concerns to where it rightly belongs—the personal education of individuals and the consideration of values. (Nias, 1985: 24)

Those who favour the promotion of technical competence over the promotion of an ethical and holistic orientation to the work of teaching may well be dismayed by the suggestion of delayed and substantially shorter set of practicum experiences. However, it must be recognised that the dominant, instrumental view of teaching (Smyth, 1986; Zeichner, 1981–2) has long past its time of trial in teacher education. And, importantly, it has had no noticeable effects on the unequal outcomes of schooling. It seems apparent that what teacher education programs require is something much more than mere fine-tuning of current orientations.

Irrespective of when preservice students enter schools, there is a genuine need for the nature of school-based experiences to be reconceptualised. This applies not only for diploma students, but also for post-graduate and joint program [11] students. Zeichner (1981–2) and Zeichner & Liston (1986) provide some interesting insights for the direction this reconceptualisation might take. Central to this work is the promotion of reflective, rather than routine, action. Zeichner (1981–2: 5) defines routine action as “that action which is guided by tradition, authority and official definitions within a social setting. In routine action one considers means as problematic but takes for granted the ends towards which they are directed”. It is not hard to see that current teacher education programs, intentionally or otherwise, typically promote this kind of orientation. Zeichner (1981–2: 5) draws on Dewey (1933: 9) for a definition of reflective action which entails “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further consequences to which it leads”. Structural changes are made in school-based experiences to create the appropriate material conditions to promote the goal of reflective action. These involve “Changing the ways in which students spend their time in the field and by changing power relationships (e.g. methods of evaluation) these kinds of changes would make ‘survival needs’ less salient and would make the attitudes and skills of reflective teaching legitimate areas to be addressed” (Zeichner, 1981–2: 11–12).

However, these changes constitute necessary but not sufficient conditions.

Zeichner and his associates also adopt a further strategy; namely, a campus based seminar. This seminar, through its various components (see Zeichner, 1981–2: 12–15) attempts not only to equip students to develop a “questioning rather than dogmatic attitude towards schooling” (Zeichner, 1981–2: 15) but to equip students with inquiry skills such that they can use the school as a social laboratory. See also Rudduck (1985: 281) who argues “Attitudes and habits supportive of research need to be encouraged in courses of initial teacher education which are all too often dominated by concerns of short-term survival rather than long-term professionalism”.

Conclusion

To summarise, it has been argued that there is a need to change the nature of preservice students’ experiences on-campus and in-school experiences in order to promote progressive change in educational practice. If teachers’ work is bricolage, and there is good reason to think that it is, then these suggestions are ones we should feel rationally compelled to adopt.

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NOTES

- [1] The old French verb ‘bricoler’, which is the ancestor of Levi-Strauss’ ‘bricoleur’, was used in the context of a variety of sports and ball games. Levi-Strauss remarks that it was “always used with reference to some extraneous movement; a ball rebounding, a dog straying or a horse swerving from its direct course to avoid an obstacle” (1974: 16). Hence the suggestion that bricoleurs sometimes use means for achieving goals which are in some relevant respect remote, circuitous or indirect.
- [2] See translator’s note (1974) *The Savage Mind*, p. 17.
- [3] An analogy might make the point. Imagine a person with a knowledge of a few words and phrases of Japanese. These would no doubt assist this person to get by in some contexts as a tourist in Japan. The person might even acquire a few more words and phrases. Moreover, by chance this person might be able to hit upon combinations of words which, while syntactically deviant, may be understood by Japanese people. However, a person with a principled understanding of the Japanese language would be quite differently placed. Such a person would be able to produce and understand sentences which he or she had never encountered before. This person’s theoretical knowledge, in this case knowledge of Japanese syntax, allows for an infinite restocking of his or her means of communication and understanding.
- [4] For example, imagine someone who wants to divide a room into two distinct areas and does so using materials contained within the room. Bookshelves aligned along the wall are moved so that they extend into the room, thereby dividing it into two spaces. In this example the set of means was closed but permitted a structural rearrangement as an *ad hoc*, but rational, response to a problem posed by the initial structure of the local environment.
- [5] These remarks were made to me during a period of time spent as an inservice advisor in Brisbane schools.
- [6] Importantly, in appealing to cultural deficit theory teachers are likely to further their own

interests at the expense of the students' interests. They are benefited by being able to rationalise their pedagogic problem, to deflect criticism and to protect their status as competent professionals. As far as students are concerned the appeal to deficit theory, or some relative of it, typically contributes to and compounds the school's failure to meet their educational needs and to advance their interests.

- [7] In my experience it is not uncommon to find these courses staffed by a significant number of part-time lecturers. They typically have previous recent classroom experience but no specialised knowledge in the area. Not surprisingly, the knowledge transferred in some of these instances is little more than 'recipe' knowledge.
- [8] It is not unusual to find teacher educators amongst those calling for a rejection of courses in teacher education which do not have a strict vocational utility. See, for example, Board of Teacher Education Research Report (1984).
- Moreover, interviews and participant observation carried out as part of a research project have provided evidence of the claim that teacher educators frequently uncritically draw on preservice students' prior knowledge as adequate knowledge about teaching.
- [9] This should come as no surprise, since the pattern of recruitment has historically been one which draws heavily on experienced teachers. See, for example, the Annual Report Kelvin Grove Campus (1981).
- [10] Again, this comment is based on participant observation carried out as part of a research project.
- [11] Harber & Meighan (1986) provide an interesting case study of an alternative course methodology; namely a democratic learning cooperative. Case studies of this kind would be particularly useful in inservice work with teacher educators.
- [12] Joint programs are preservice programs in which students prepare for teaching in two settings; namely, a College of Advanced Education and a University. In the program I am familiar with, students complete two years of their degree program at the university. They then spend one year at the CAE in a program quite similar to a postgraduate one. In their fourth year they return to University to complete their degree. In this year they do further practicum and further teacher education courses.

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