

Influence of National Curriculum Physical Education on
Teachers' Use of Productive and Reproductive Teaching Styles

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Abstract

Although a great deal of work has been completed describing various changes which could be made in physical education curricula, to-date there has been little research directed at discovering how curricular change can most effectively be accomplished (Jewett, 1994). While some scholars have been supportive of top-down technical change models in which experts disseminate curriculum packages to schools, others have been critical, arguing that lasting change can only be achieved by employing bottom-up innovations designed by teachers (Jewett, Bain, & Ennis, 1995). The introduction of National Curriculum Physical Education (NCPE) in England and Wales in August 1992 by the government is arguably the most comprehensive attempt at top-down technical innovation the subject has seen in Britain. The purpose of this study was to ascertain whether or not the introduction of NCPE led to teachers expanding the range of teaching styles they used in congruence with the requirements of the new curriculum. Participants were 20 physical education teachers employed in the five state secondary schools of one southwestern English town. During the summer terms of 1992 (pre-NCPE) and 1994 (post-NCPE) two lessons of each teacher's choice in which they taught any activity to pupils in years 7, 8, and 9 were videotaped. Lessons were coded with the IFITS, a systematic observation instrument designed to record the percentage of time teachers employed each of eight teaching styles described by Mosston (1981). Data generated by the IFITS were then entered into an SPSS programme and descriptive statistics were computed across all 40 lessons for each summer term. Comparisons of teaching style use during the two summer terms were made by employing independent t-tests. Results indicated that the percentages of time teachers used each of the eight teaching styles before and after the introduction of NCPE were not significantly different. During both the 1992 and 1994 summer terms, teachers spent most time using the practice style (55.97% and 50.35%) and the command style (11.50% and 5.98%). Teachers used the reciprocal (1.98% and 2.72%), self-check (0.00% and 0.73%), inclusion (1.64% and 1.08%), guided discovery (4.59% and 4.74%), and divergent (4.06% and 3.12%) teaching styles comparatively rarely during 1992 and 1994, while they did not employ the going beyond style at all. These data support those who argue that top-down models of curriculum innovation are ineffective. They are discussed in relation to the technological, ecological, and cultural perspectives on curriculum change identified by Sparkes (1991a).

Influence of National Curriculum Physical Education on Teachers' Use of Productive and Reproductive Teaching Styles

Although a great deal of work has been completed describing various changes which could be made to physical education curricula (e.g., see Hellison & Templin, 1991; Jewett, Bain, & Ennis, 1995; Melograno, 1996; Stillwell & Willgoose, 1997), to-date there has been little research directed at discovering how curricular change in the subject can most effectively be accomplished (Jewett, 1994). If improvements in what is offered to pupils in the name of physical education are to be made, it is important that we discover which methods lead to real change in educational practice (Jewett, 1994), which lead to no change, and which lead to what Sparkes (1991a) referred to as superficial change.

Curricular change may be attempted in one of two ways. As explained by Jewett et al. (1995) and Sparkes (1991a), top-down curricular innovations are developed by teams of experts which are often part of government agencies or institutions of higher education. Generally, these experts merely disseminate curriculum packages to schools. In top-down change models, therefore, teachers are considered to be passive receivers of information whose attitudes, beliefs, and opinions are rarely considered (Darling-Hammond, 1990; Kirk, 1990; Sparkes, 1991a). In contrast, bottom-up attempts at curricular change are initiated and carried out by small groups of teachers in reaction to local opportunities and problems. These innovations are then disseminated to other groups of teachers and schools through modelling and formal and informal meetings (Jewett et al., 1995; Sparkes, 1991a).

Some scholars, including Hord, Rutherford, Huling-Austin, and Hall (1987), have been supportive of top-down technical change models because they are generally well-funded and are given momentum and prestige by their central source of support. Others, however, have argued that teachers' lack of involvement in these types of initiative prevents real change from occurring and serves to alienate teachers (Darling-Hammond, 1990; Evans, Davies, & Penney, 1997; Kirk, 1988, 1990; Locke, 1992; Richardson, 1990; Ruddock, 1986). In addition, Fullan (1982) and Sparkes (1991a) argued that when teachers do actually adopt innovations imposed on them by outside agencies it is often because this course of action will lead to their survival and not because of changes in their values and beliefs.

Scholars supporting bottom-up attempts at curricular change have argued that they are much more likely to succeed than top-down strategies because those who have to implement changes (i.e., teachers) are central to and actively involved in the entire process (Locke, 1992; Sparkes, 1991a). Conversely, those who have been critical of using bottom-up strategies have argued that while they might work when the aim is small-scale local change, they will simply result in failure if the type of change sought is radical and large-scale (Jewett et al., 1995).

The physical education component of the National Curriculum (NCPE) introduced in England and Wales in 1992 is arguably the most comprehensive attempt at innovation the subject has seen in recent years. Since NCPE was sponsored by the central government, designed by a government-appointed Working Group, and imposed through legislation and formal inspections (see Department for Education, 1995; Department of Education and Science, 1992; Department of Education and Science & the Welsh Office, 1991a, 1991b, 1992; Silvernail, 1996; Smith, 1993), it is a classic example of an attempt at top-down technical change (Jewett et al., 1995; Sparkes, 1991a). Qualitative studies completed by Evans and his associates (Evans & Penney, 1992, 1995a, 1995b; Evans, Penney, & Bryant, 1993; Evans & Penney, 1993a, 1993b; Penney & Evans, 1991, 1994) and by Curtner-Smith (1996, 1998) revealed that rather than reproducing NCPE legislation as practice, teachers working in two English Local Education Authorities were modifying, adapting, and recreating it to fit with their own beliefs about physical education teaching. Moreover, in a third qualitative study, Laws and Aldridge (1995) found teachers were reluctant to make any changes in their practice at all and that they regarded NCPE as one in a long line of tiresome changes which had been imposed on them.

In another series of studies, Curtner-Smith and his associates (Curtner-Smith, Chen & Kerr, 1995; Curtner-Smith, Kerr, & Clapp, 1996; Curtner-Smith, Kerr, & Hencken, 1995a, 1995b, 1995c; Curtner-Smith, Kerr, Kuesel, & Curtner-Smith, 1995; Curtner-Smith, Kerr, & Todorovich, 1996; Smith, Kerr, & Wang, 1993) attempted to discover whether or not the introduction of NCPE influenced the quality of instruction provided by 20 teachers working in five schools situated in one southwestern English town. Results indicated that, in this particular town, the introduction of NCPE had little or no impact on (a) teachers' behaviours related with pupils' skill learning, (b) teachers' behaviours related with pupils' opportunities to learn sports skills, (c)

teachers' behaviours related with pupils' psychosocial development, and (d) teachers' and pupils' behaviours related with pupils' development of health-related fitness. However, although they are all indicators of quality physical education teaching, none of the first three of these sets of behaviours was specifically targeted for change or improvement in NCPE documentation. Moreover, while an increase in the teaching of health-related fitness was a target of NCPE (Department of Education and Science & the Welsh Office, 1991a, 1991b, 1992), this goal may not have been realised due to its predominant mode of implementation (i.e., permeated within lessons aimed at teaching specific physical activities) (Fox, 1992) rather than because of the model used to implement the entire NCPE.

By contrast, at least in some early official policy documents (Department of Education and Science & the Welsh Office, 1991a, 1991b; National Curriculum Council, 1991), a central theme of NCPE was that pupils should be taught to *plan, perform, and evaluate* movement and hence many, including Mawer (1993), Read (1993), O'Neill (1993), Keighly (1993), Williams (1993) and Goldberger and Howarth (1993), argued that teachers would need to use a greater range of teaching styles than they had previously. Specifically, it was suggested that teachers would have to shift from the exclusive use of direct, reproductive, didactic, or teacher-centred styles of teaching to using more indirect, productive, or pupil-centred styles so that they could achieve a variety of objectives in the psychomotor, cognitive, and affective domains. For example, writing in The British Journal of Physical Education Mawer (1993) remarked

... it is noticeable that the National Curriculum for Physical Education does not actually make specific suggestions concerning teaching approaches for implementing the Programmes of Study. However, many feel that there are "hidden" suggestions that a variety of teaching strategies may be necessary in order to achieve the objectives laid down in the end of key stage statements and cross curricular guidelines. . . . The language used in the Order related to the development of knowledge, skills and understanding through the inter-related processes covering planning, performing, and evaluating give the impression that a range of teaching approaches may be necessary to meet the requirements of the National Curriculum. Examples of the language used include "setting goals," "exploring and selecting outcomes,"

"refining," "adapting," "improvising," "describing," "comparing and contrasting," "analysing," "judging" and "reviewing". . . . The suggestion is that a variety of approaches are needed that will enable pupils to achieve the wider range of skills, including personal and social, communication, and problem solving (p. 5)

Similarly, Goldberger and Howarth (1993) suggested that

To achieve and assess the variety of skills suggested [in NCPE], many of which are not in the motor domain, teachers will need to involve their students in many thinking operations. Such skills as decision-making, adapting, applying, judging, observing, selecting, organizing, and evaluating are not passively acquired but require active participation and practice. The teacher's task will be to plan and conduct learning activities which allow and encourage these skills, without losing the practical nature of the subject. (p. 23)

Purpose

As yet, there has been no research aimed at discovering what influence NCPE in general, and the "teaching styles" movement in particular, has had on teachers' instruction. Therefore, the purpose of this study was to ascertain whether or not the introduction of NCPE led to a sample of secondary school teachers expanding the range of teaching styles they used in congruence with the requirements of the new curriculum.

Mosston's Spectrum of Teaching Styles

Like other researchers who have studied teaching styles in physical education in the last 20 years, during this study we drew heavily from the pioneering work of Muska Mosston. The spectrum of teaching styles described by Mosston (Mosston, 1981; Mosston & Ashworth, 1986, 1990) is a theoretical framework of different approaches to instruction based on the chain of decision-making which occurs in the teaching-learning process. Within what Mosston terms the "anatomy of a style" he theorises that there are three sets of decisions which have to be made during any "teaching episode." These are (a) preimpact or planning decisions, (b) impact or implementation decisions, and (c) postimpact or evaluation decisions. Specific teaching styles

emerge based on who makes these decisions--the teacher or the pupil.

According to spectrum theory there are two "pure" styles of teaching. At one end of the spectrum is a style in which the teacher makes all the decisions and at the other end is a style in which the pupils make all the decisions. In between these two styles, to-date, nine "landmark styles" have been identified. Each of these styles has its own decision-making anatomy and, therefore, provides a unique set of conditions under which both teachers and pupils operate. Different landmark styles, therefore, are thought to realise different learning objectives and lead to what Mosston refers to as different "developmental effects" on pupils. These effects can be categorised as cognitive, affective, or psychomotor and are hypothesised as promoting physical, social, emotional, cognitive, and moral development.

Mosston identifies two clusters of landmark styles. The styles in the first cluster are referred to as "reproductive styles" because in each style pupils are expected to reproduce information or skills given to them or demonstrated by the teacher. Conversely, the styles in the second cluster are referred to as "productive styles" because pupils are expected to produce knowledge or skills with which they were previously unfamiliar. Styles in the productive cluster are also frequently referred to as "discovery" or "problem-solving" due to the nature of the cognitive processes in which pupils engage when they are taught by these styles.

Finally, in addition to landmark styles, Mosston suggests that there are an infinite number of "non-landmark" teaching styles along the spectrum. Each of these styles also has a unique decision-making structure. Analysis of a non-landmark style's anatomy, therefore, enables its approximate position on the spectrum to be located. For the purposes of classification, these non-landmark styles are described as falling "under the canopy" of the nearest landmark style.

Method

Design

The research design used in this study was a one group pretest-posttest experimental design (Borg & Gall, 1989). This design has proven to be effective when attempting to change stable patterns of behaviour or internal processes. Borg and Gall (1989) stated that "the one group pretest-posttest design is most justified when extraneous factors can be estimated with a high degree of certainty or can be safely assumed to be nonexistent" (p. 673). An accepted weakness at

the outset of the present study was the impossibility of using a control group design, since all schools in England and Wales were legally mandated to introduce NCPE at the same time.

Participants and Setting

Twenty specialist physical education teachers employed in a rural southwestern English town (population 50,000) in the summer term of 1992, the last term before NCPE was introduced in English and Welsh schools, agreed to take part in the study. Ten were female and 10 were male. Their mean number of years teaching was 9.65 (SD = 6.58).

These teachers taught in five mixed-gender, predominantly Caucasian, state comprehensive schools. Pupil enrollments for the five schools were 720 (school 1), 964 (school 2), 653 (school 3), 948 (school 4), and 630 (school 5). Two male and two female teachers taught in schools 1 and 2, one male and two female teachers taught in school 3, three male and three female teachers taught in school 4, and one female and two male teachers taught in school 5.

Once participants had agreed to participate in the study, they were informed that two lessons of their choice, teaching any activity to years 7, 8, and 9, would be videotaped. Teachers were assured that all data would be treated in a confidential manner and were asked to teach using their normal methods.

Of the 40 lessons videotaped, 16 were taught to pupils in year 7, 11 to pupils in year 8, and 13 to pupils in year 9. Twelve lessons were taught to boys-only classes, 12 were taught to girls-only classes, and 16 were taught to mixed-gender classes. The mean class size of videotaped lessons was 18.50 pupils (SD = 6.02), while the mean length of lessons was 43.77 minutes (SD = 11.84).

Activities taught included javelin (5 lessons), shot put (2 lessons), discus (3 lessons), track (4 lessons), high jump (1 lesson), long jump (3 lessons), tennis (7 lessons), swimming (3 lessons), cricket (4 lessons), rounders (4 lessons), striking/fielding games (3 lessons), and volleyball (1 lesson).

During the summer term of 1994, 2 years after NCPE had been implemented, the first author returned to the same town and asked for permission to videotape the 20 specialist physical education teachers working in the same five schools. All 20 teachers agreed to take part in the follow-up phase of the study. Again, 10 of the participants were male and 10 were female. These

teachers had an average of 10.05 years teaching experience ($SD = 7.09$). Three of the teachers who had been videotaped in 1992 had moved on to new employment and been replaced by three new teachers. Therefore, 17 of the teachers were participants in both the summers of 1992 (pre-NCPE) and 1994 (post-NCPE).

During the 1994 academic year, pupil enrollments at the five schools were 841 (school 1), 731 (school 2), 530 (school 3), 1042 (school 4), and 1000 (school 5). As in 1992, two male and two female teachers taught in schools 1 and 2, one male and two female teachers taught in school 3, three male and three female teachers taught in school 4, and one female and two male teachers taught in school 5. In addition, one of the female teachers employed in school 2 taught in school 5 on Mondays.

During the follow-up phase of the study, teachers were again informed that two lessons of their choice, teaching any activity to pupils in years 7, 8, or 9, would be videotaped. Again, they were also asked to use their normal teaching methods and assured that data collected would be confidential.

Of the 40 lessons videotaped during the summer of 1994, 15 were taught to pupils in year 7, 15 to pupils in year 8, and 10 to pupils in year 9. Eight lessons were taught to boys-only classes, 8 were taught to girls-only classes, and 24 were taught to mixed-gender classes. The mean class size videotaped in 1994 was 21.32 pupils ($SD = 10.84$), while the mean length of lessons was 41.98 minutes ($SD = 8.31$).

Activities taught during the summer of 1994 included javelin (1 lesson), shot put (4 lessons), discus (2 lessons), track (6 lessons), high jump (1 lesson), long jump (1 lesson), tennis (6 lessons), swimming (1 lesson), cricket (10 lessons), rounders (5 lessons), striking/fielding games (2 lessons), and softball (1 lesson).

In both 1992 and 1994, each school's physical education department appeared to be well equipped for the activities taught. Each school had outdoor hardcourt areas, well-maintained playing fields, indoor gymnasiums, tennis courts, artificial cricket pitches, and cricket nets. In addition, School 4 made use of a public swimming pool situated in the town centre.

Data Collection Procedures

Lessons were videotaped using a Panasonic AG-450 video camera. The camera was set at a wide angle on a tripod and positioned unobtrusively in order to avoid interference with the activity being taught. Teachers wore a wireless microphone (Realistic FM wireless video camera microphone system transmitter, NO: 32-1226) which fed back to a wireless receiver (Realistic FM video camera microphone receiver, NO: 32-1226) attached to the video camera. Videotaping began when the teacher and at least one pupil arrived on the playing field, tennis courts, at the poolside, or in the gymnasium and continued until pupils were dismissed from these facilities to change clothes.

Systematic Observation Instrument

Lessons were coded with the systematic observation instrument known as the Instrument for Identifying Teaching Styles (IFITS) (Hasty, 1997). IFITS was adapted from an event recording instrument previously developed by Ashworth (1994) and following consultation with, arguably, the two leading physical education teaching styles experts in the world (Personal communication, M. Goldberger, 2nd April, 1995 and S. Ashworth, 2nd April, 1995). Principles outlined by van der Mars (1989b) were followed during the design of the instrument.

IFITS is an interval recording instrument designed to estimate how much time teachers use each of eight teaching styles originally identified by Mosston (1981)¹. The first five of these styles [style A (command), style B (practice), style C (reciprocal), style D (self-check), and style E (inclusion)] are reproductive styles. The final three styles [style F (guided discovery), style G (divergent), and style H (going beyond)] are productive styles. Since when teachers are not using one of the teaching styles they are involved in some type of managerial activity, a ninth category, management, was added to the instrument. Definitions of the eight teaching styles and management together with examples are provided in Figure 1.

Insert Figure 1 about here

When observing a lesson, a coder using IFITS makes a decision every 20 seconds as to which teaching style is being used by the teacher or whether the teacher is engaged in management.

During intervals in which a teaching style is used but in which management also occurs, the teaching style is given preference and recorded. During intervals in which two or more teaching styles are observed, the least didactic style (i.e., the style which is furthest along the spectrum from Style A) is given preference and recorded.

Coding and Intra-Observer Reliability

All 80 videotaped lessons were coded by the second author. Observer training involved prolonged periods of coding both live and videotaped lessons.

Intra-observer reliability was checked using the methods described by van der Mars (1989a). This involved the second author coding and recoding a lesson designated as the "reliability lesson" before the study began. During this reliability check, the second coding of the reliability lesson was compared to the original. Intra-observer agreement was calculated using strict interval by interval comparisons. The reliability percentage resulting from this check was 96% and thus surpassed the acceptable limit of 80% as suggested by van der Mars (1989a).

Additional intra-observer reliability checks were made in order to check for "observer drift" following the coding of lessons 10, 20, 30, 40, 50, 60, 70, and 80. During each check, this involved recoding the reliability lesson and comparing the new coding with the original. Reliability percentages resulting from these checks ranged from 91% to 96%.

Once all 80 lessons had been coded, five lessons were randomly selected, recoded, and checked against the initial codings. Reliability percentages resulting from these checks ranged from 91% to 94%.

Data Analysis

Percentages of intervals for each teaching style and management coded for each lesson using IFITS were entered into an SPSS (Statistical Package for the Social Sciences) programme and descriptive statistics were computed across all 40 lessons for the summer terms of 1992 and 1994. Comparisons of teaching style use during the two summer terms were made by employing independent t-tests. Since multiple t-tests were performed, the Dunn (Bonferroni) method (Glass & Hopkins, 1984) was used to control for inflated type I errors.

Results

The percentages of intervals in which teachers used each of the eight teaching styles and were engaged in management during the summer terms of 1992 and 1994 are shown in Table 1. These data are also shown in graphic form in Figure 2.

Insert Table 1 and Figure 2 about here

Independent t-tests indicated that the percentages of lesson time in which teachers' employed each of the eight teaching styles did not differ significantly during the summers of 1992 and 1994. However, the percentage of time in which teachers engaged in managerial activity was significantly greater during the summer of 1994 following the introduction of NCPE [$t(78) = -5.12, p < .05$].

Examination of the descriptive data indicates that the pattern of teaching style use by this sample of teachers was very similar before and after the introduction of NCPE. During both summer terms, teachers spent the majority of their instructional time employing reproductive styles of teaching (1992 = 71.09%, 1994 = 60.86%). In contrast, productive styles of teaching were used relatively infrequently (1992 = 8.65%, 1994 = 7.86%). Teachers spent most time using the practice style (1992 = 55.97%, 1994 = 50.35%) and the command style (1992 = 11.50%, 1994 = 5.98%). They used the reciprocal (1992 = 1.98%, 1994 = 2.72%), self-check (1992 = 0.00%, 1994 = 0.73%), inclusion (1992 = 1.64%, 1994 = 1.08%), guided discovery (1992 = 4.59%, 1994 = 4.74%), and divergent (1992 = 4.06%, 1994 = 3.12%) styles comparatively rarely both before and after NCPE was implemented, while they did not employ the going beyond style at all.

Discussion and Conclusions

The most important finding of this study was that it indicated that the introduction of NCPE had had little or no influence on teachers' use of different teaching styles. Following the implementation of NCPE, the sample of teachers in this study did not expand the range of teaching styles they used in congruence with the requirements of the new curriculum.

Both before and after NCPE was implemented the predominant teaching style employed by the teachers was the practice style. This finding is congruent with the bulk of descriptive research on the Spectrum which indicates that, regardless of setting, location, and activity, physical

education teachers favour the practice style (Goldberger & Howarth, 1993). Since, the practice style has been shown to be particularly effective when the goal is to teach sports skills (Goldberger & Gerney, 1986, 1990; Goldberger, Gerney, & Chamberlain, 1982), this finding also suggests that these teachers remained almost exclusively committed to developing their pupils' performances.

In congruence with the results of relatively recent reports by the Office for Standards in Education (OFSTED) (cited in Williams, 1997), the present study indicates that teachers showed little interest in developing their pupils' planning or evaluation skills as NCPE documents had suggested they should. Teaching styles which allow pupils to make more planning (styles F, G, and H) and evaluation (styles C, D, E, F, G, and H) decisions were used relatively rarely. In addition, and also in congruence with the OFSTED reports, the sample of teachers in the present study did not provide pupils with any opportunity to work independently (style H) and rarely differentiated the content of their lessons (style E). Collectively, these findings indicate that the pupils taught by this sample of teachers were given little chance to engage in the cognitive processes of goal-setting, comparing and contrasting, judging and reviewing, exploring and selecting outcomes, refining, adapting, improvising, describing, analysing, applying, observing, selecting, and organising as Mawer (1993) and Goldberger and Howarth (1993) had noted the language of NCPE had suggested they should.

On the face of it, the results of this study provide another piece of evidence in support of those who have argued that attempts at large-scale top-down curriculum change do not work (Darling-Hammond, 1990; Evans, et al., 1997; Kirk, 1988, 1990; Locke, 1992; Richardson, 1990; Ruddock, 1986). However, taking what Sparkes (1991a) referred to as a "technological perspective" on curriculum change, deeper analysis suggests that it might not have been the top-down strategy that was at fault but rather the focus of this strategy. Although the teachers in this study were aware of all NCPE requirements, the vast majority perceived that they would only be held accountable for changing curriculum content, pupil evaluation procedures, and administrative documentation (Curtner-Smith, 1996). Moreover, many of the teachers noted that the majority of journal articles written for physical education teachers and inservice courses provided for them immediately before and after NCPE was introduced appeared to focus on these

aspects of teaching (Curtner-Smith, 1996). Possibly these teachers lacked what Sparkes (1991b) referred to as "procedural competence" and did not feel particularly comfortable using styles C to H. Perhaps, if the focus of inservice training and what teachers perceived to be a powerful accountability mechanism (i.e., formal inspections completed by OFSTED) had been on instructional practice, much more would have been achieved in this respect.

In addition, following the completion of her own research, Faucette (1987) pointed out that in order to be effective, top-down interventions need a high level of administrative support for teachers who have problems or questions. In England, this supporting role has traditionally been taken on by the Local Education Authority (LEA) Physical Education Advisor. However, as Evans and his colleagues (Evans & Penney, 1993a, 1993b, 1994) have pointed out previously, ironically, just at the time when teachers needed this kind of help most (i.e., following the introduction of NCPE), the LEA was given a new role which was primarily devoted to inspecting teachers as opposed to working with them.

Taking what Sparkes (1991a) referred to as an "ecological perspective" on curriculum change provides more clues as to why the introduction of NCPE did not lead to teachers expanding the range of teaching styles they employed. In this perspective, change or lack of change by teachers following an intervention is explained in terms of the conditions in which they work, their schools' organisational and political structures, and, in particular, by the absence or presence of "situational constraints" (Sparkes, 1986, 1991a).

The teachers in the present study were certainly not limited by some of the more obvious situational constraints identified by Hargreaves (1984) such as class size, facilities, and equipment. However, they did appear to be adversely affected by the pace of change which was occurring in their schools, the relatively small amount of curriculum time that was allocated for physical education, and the focus on traditional extracurricular school sport (Curtner-Smith, 1996).

Based on his own research of the impact of the National Curriculum in general, Silvermail (1996) noted that "the pace of change has been hectic. . . . The sheer number of changes and false starts have created havoc for teachers" (p. 49). Teachers in the present study also made reference to the pace and number of changes with which they had to deal and some stated that they had got to a point where they were not prepared to implement the most recent requirements because these

would almost certainly be updated or changed again (Curtner-Smith, 1996). In addition, in similar fashion to other groups of classroom (Silvernail, 1996) and physical education teachers (Evans & Penney, 1993a, 1993b), the sample in the present study noted that, following the introduction of NCPE, they had been given much less time to cover more material (Curtner-Smith, 1996). Moreover, many of the teachers in this study clearly believed that their professional status was linked with the results of their school teams (Curtner-Smith, 1996, 1998) and hence saw their lessons as an extra opportunity to produce skilled players². Under these circumstances, perhaps it should be no surprise that teachers continued to spend much of their instructional time employing the practice style of teaching and were not inclined to experiment with other teaching styles.

Finally, taking what Sparkes (1991a) called a "cultural perspective" on curriculum change provides a third layer of possible explanations as to why the introduction of NCPE did not lead to the teachers in the present study using an expanded range of teaching styles. Researchers examining the effects of attempted innovations from this perspective focus on the impact of the teaching culture and, particularly, "what the teacher thinks, what the teacher believes, [and] what the teacher assumes" (Hargreaves, 1989, p. 54). As Sparkes (1991a) noted, from a cultural perspective "real change involves transformations in the ways that people think and feel about the world around them" (p. 3).

A number of scholars who have favoured examining the impact of attempted innovations from the cultural perspective have stressed that the teaching culture is often resistant to change (Gireaux, 1983; Hargreaves, 1989; Sparkes, 1991a, 1991b). Teachers, they suggest, resist changes which are incompatible with their personal and professional goals and which they believe will not be beneficial for their pupils (Jewett et al., 1995). Specifically, teachers are likely to resist changes if they are viewed as not being "practical," if they detract from the rewards they presently get from their work, and if they threaten their control of the teaching environment (Sparkes, 1991b). Such resistance is "part of intelligent action" (Sparkes, 1991b, p. 20) and can involve teachers employing "strategic rhetoric" whereby they change what they say about the curriculum but not what they do (Sparkes, 1987).

Moreover, Sparkes (1991b) explains that when changes take place some teachers' positions are enhanced and other teachers' positions are damaged. Thus, some teachers see themselves as

"winners" in the change process and others view themselves as "losers." In addition, Sparkes (1991b) notes that a third group of teachers can be categorised as "sideliners" (Roskies, Liker, & Roitman, 1988) because they are unsure of whether they will gain or lose if an innovation is implemented or they consider the changes irrelevant. Obviously, teachers who view themselves as winners in the change process are more likely to attempt to implement an innovation, while those who perceive themselves as losers will resist, and those on the sidelines will do nothing.

As we have alluded to already, many of the teachers in the present study were conservative in their orientation towards physical education teaching (Curtner-Smith, 1996, 1998) and worked within what Sparkes (1991b) referred to as a "sporting perspective" of the subject. That is they were mainly concerned with promoting traditional British team sports performance and, specifically, with the production of successful school teams. Given that they held this orientation towards the subject, again, it is unsurprising that they did not embrace the idea of expanding their range of teaching styles, particularly when such a change is more consistent with what Sparkes (1991b) identified as an "idealist perspective" of the subject which "tends to be egalitarian, child-centred, progressive, and concerned with the personal and social development of pupils via self-paced individual activities" (p. 24).

Additionally, it appears unlikely that this group of conservative teachers believed that an emphasis on planning and evaluating movement would be beneficial for their pupils or that an expansion of the range of teaching styles they employed was practical. Moreover, employing less didactic teaching styles would have meant relinquishing control of the teaching environment and use of these styles may have been perceived as threatening the standards of their school teams' performances. The new styles the teachers would have had to have added to their repertoire (i.e., the three productive styles and the less didactic reproductive styles), then, would have detracted from the realisation of their primary goals. In short, based on their previous socialisation, we are suggesting that a large number of teachers in this sample may have perceived themselves to be losers in the change process and, thus, resisted expanding the range of teaching styles they employed.

Since we believe that many of the possible constraints on change we have identified exist in other parts of the country, we are fairly confident that the results of this study will generalise to

other locations and over time. However, descriptive studies using the same or similar methods to our own in other regions of the country and during the winter and spring would help to confirm or refute this assertion. In addition, studies of teachers who, as part of an effort to keep the spirit of NCPE alive, have been specifically trained to use a range of teaching styles during initial teacher education and inservice interventions would obviously be informative.

References

- Ashworth, S. (1994). Identification of classroom teaching styles. Unpublished document, Florida Atlantic University, Boca Raton, FL.
- Borg, W. R., & Gall, M. D. (1989). Educational research: An introduction (5th ed.). New York: Longman.
- Curtner-Smith, M. D. (1996, April). The impact of the National Curriculum on secondary school physical education: A case study in one English town. In Laker, A., Curtner-Smith, M., & Clarke, G. Physical education within the National Curriculum in England and Wales: Some ideas for the United States (Symposium on British National Curriculum Physical Education). National AAHPERD Convention, Atlanta, GA.
- Curtner-Smith, M. D. (1998, February). The impact of occupational socialization on teachers' interpretations of National Curriculum Physical Education. Southern District AAHPERD Convention, Biloxi, MS.
- Curtner-Smith, M. D., Chen, W., & Kerr, I. G. (1995). Health-related fitness in secondary school physical education: A descriptive-analytic study. Educational Studies, *21*(1), 55-66.
- Curtner-Smith, M. D., Kerr, I. G., & Clapp, A. J. (1996). The impact of National Curriculum Physical Education on the teaching of health-related fitness: A case study in one English town. European Journal of Physical Education, *1*(1), 66-83.
- Curtner-Smith, M. D., Kerr, I. G., & Hencken, C. L. (1995a). Influence of British National Curriculum Physical Education on teachers' behaviours related with pupils' psychosocial development: A case study in one English town. Perceptual and Motor Skills, *81*, 967-976.
- Curtner-Smith, M. D., Kerr, I. G., & Hencken, C. L. (1995b). Teacher behaviours related with pupil psychosocial development in physical education: A descriptive-analytic study. Educational Research, *37*(3), 267-277.
- Curtner-Smith, M. D., Kerr, I. G., & Hencken, C. L. (1995c). The Impact of National Curriculum Physical Education on teachers' behaviours related with pupils' skill learning: A case study in one English town. British Journal of Physical Education Research Supplement, *16*, 20-27.

- Curtner-Smith, M. D., Kerr, I. G., Kuesel, K., & Curtner-Smith, M. E. (1995). Pupil behaviours in British physical education classes: A descriptive-analytic study. International Journal of Physical Education, 32(1), 16-23.
- Curtner-Smith, M. D., Kerr, I. G., & Todorovich, J. R. (1996). The impact of National Curriculum Physical Education on pupils' opportunities to learn sport skills: A case study in one English town. Pedagogy in Practice, 2(2), 52-70.
- Darling-Hammond, L. (1990). Instructional policy into practice. The power of the bottom over the top. Educational Evaluation and Policy Analysis, 12, 233-241.
- Department for Education. (1995). Physical education in the National Curriculum. London: Her Majesty's Stationary Office.
- Department of Education and Science. (1992). Circular No. 4/92. London: Her Majesty's Stationary Office.
- Department of Education and Science & the Welsh Office. (1991a). National curriculum physical education working group interim report. London: Her Majesty's Stationary Office.
- Department of Education and Science & the Welsh Office. (1991b). Physical education for ages 5 to 16: Proposals for the Secretary of State for Education and Science and Secretary of State for Wales. London: Her Majesty's Stationary Office.
- Department of Education and Science & the Welsh Office. (1992). Physical education in the national curriculum. London: Her Majesty's Stationary Office.
- Department of National Heritage. (1995). Sport: Raising the game. London: Department of National Heritage.
- Evans, J., Davies, B., & Penney, D. (1997). Making progress? Sport policy, women and innovation in physical education. European Journal of Physical Education, 2(1), 39-50.
- Evans, J., & Penney, D. (1992). Investigating ERA: Qualitative methods and policy oriented research. British Journal of Physical Education Research Supplement, 11, 2-7.
- Evans, J., & Penney, D. (1994). Whatever happened to good advice? Service and inspection after the Education Reform Act. British Educational Research Journal, 20(5), 519-533.
- Evans, J., & Penney, D. (1995a). The politics of pedagogy: Making a national curriculum physical education. Journal of Education Policy, 10(1), 27-44.

- Evans, J., & Penney, D. (1995b). Physical education, restoration and the politics of sport. Curriculum Studies, 3(2), 183-196.
- Evans, J., Penney, D., & Bryant, A. (1993). Improving the quality of physical education? The Education Reform Act, 1988, and physical education in England and Wales. Quest, 45, 321-338.
- Evans, J., & Penney, D. (with Bryant, A.). (1993a). Physical education after ERA? British Journal of Physical Education Research Supplement, 13, 2-5.
- Evans, J., & Penney, D. (with Bryant, A.). (1993b). School contexts and the implementation of the National Curriculum Physical Education. Bulletin of Physical Education, 29(3), 6-13.
- Faucette, N. (1987). Teachers' concerns and participation styles during in-service education. Journal of Teaching in Physical Education, 6, 425-440.
- Fox, K. (1992). Education for exercise and the national curriculum proposals: A step forward or backwards? British Journal of Physical Education, 23(1), 8-11.
- Fullan, M. (1982). The meaning of educational change. New York: Teachers College Press.
- Gilroy, S., & Clarke, G. (1997). Raising the game: Deconstructing the sporting text--From Major to Blair. Pedagogy in Practice, 3(2), 19-37.
- Gireaux, H. A. (1983). Theories of reproduction and resistance in the new sociology of education. Harvard Educational Review, 53, 257-296.
- Glass, G. V., & Hopkins, K. D., (1984). Statistical methods in education and psychology. Englewood Cliffs, NJ: Prentice Hall.
- Goldberger, M., & Gerney, P. (1986). The effects of direct teaching styles on motor skill acquisition of fifth grade children. Research Quarterly for Exercise and Sport, 57, 215-219.
- Goldberger, M., & Gerney, P. (1990). Effects of learner use of practice time on skill acquisition of fifth grade children. Journal of Teaching in Physical Education, 10, 84-95.
- Goldberger, M., Gerney, P., & Chamberlain, J. (1982). The effects of three styles of teaching on the psychomotor performance and social skill development of fifth grade children. Research Quarterly for Exercise and Sport, 53, 116-124.
- Goldberger, M., & Howarth, K. (1993). The National Curriculum in Physical Education and the spectrum of teaching styles. British Journal of Physical Education, 24(1), 23-28.

- Hargreaves, A. (1984). Teaching quality: A sociological analysis. Journal of Curriculum Studies, 20, 211-231.
- Hargreaves, A. (1989). Curriculum and assessment reform. Milton Keynes: Open University Press.
- Hasty, D. L. (1997). The impact of British National Curriculum Physical Education on teachers' use of teaching styles: A case study in one English town. Unpublished doctoral dissertation, The University of Alabama, Tuscaloosa.
- Hellison, D. R., & Templin, T. J. (1991). A reflective approach to teaching physical education. Champaign, IL: Human Kinetics.
- Hord, S. M., Rutherford, W. L., Huling-Austin, L., & Hall, G. E. (1987). Taking charge of change. Alexandria, VA: Association of Supervision and Curriculum Development.
- Jewett, A. E. (1994). Curriculum theory and research in sport pedagogy. Sport Science Review, 3(1), 56-72.
- Jewett, A. E., & Bain, L. L. (1985). The curriculum process in physical education. Dubuque, IA: Wm. C. Brown.
- Jewett, A. E., Bain, L. L., & Ennis, C. D. (1995). The curriculum process in physical education (2nd ed.). Madison, WI: Brown and Benchmark.
- Keighley, P. W. S. (1993). A consideration of the appropriate teaching, learning and assessment strategies in outdoor and adventurous activities. British Journal of Physical Education, 24(1), 18-22.
- Kirk, D. (1988). Ideology and the school-centered innovation: A case study and critique. Journal of Curriculum Studies, 20, 449-464.
- Kirk, D. (1990). School knowledge and the curriculum package-as-text. Journal of Curriculum Studies, 22, 409-425.
- Laws, C., & Aldridge, M. (1995). Magic moments, myth or millstone--The implementation of national curriculum physical education. British Journal of Physical Education Research Supplement, 16, 2-12.
- Locke, L. F. (1992). Changing secondary school physical education. Quest, 44, 361-372.

- Mawer, M. (1993). Editorial: Teaching styles, teaching strategies, and instructional formats in physical education: Total teaching or ideology? British Journal of Physical Education, 24(1), 5-9.
- Melograno, V. J. (1996). Designing the physical education curriculum. Champaign, IL: Human Kinetics.
- Mosston, M. (1981). Teaching physical education. Columbus, OH: Merrill .
- Mosston, M., & Ashworth, S. (1986). Teaching physical education (3rd ed.). Columbus, OH: Merrill.
- Mosston, M., & Ashworth, S. (1990). The spectrum of teaching styles. New York: Longman.
- National Curriculum Council. (1991). National Curriculum Council consultation report: Physical education. York: National Curriculum Council.
- O'Neill, J. (1993). National curriculum athletics--teaching children first. British Journal of Physical Education, 24(1),15-17
- Penney, D., & Evans, J. (1991). The impact of the Education Reform Act (ERA) on the provision of physical education and sport in the 5-16 curriculum of state schools. British Journal of Physical Education, 22(1), 38-42.
- Penney, D., & Evans, J. (1994). It's just not (and not just) cricket. British Journal of Physical Education, 25(3), 9-12.
- Phillips, D, A., Carlisle, C., Steffen, J., & Stroot, S. (1986). The computerized version of the physical education assessment instrument. Unpublished manuscript, University of Northern Colorado, Greeley, CO.
- Read, B. (1993). Practical knowledge and a games education at K.S. 3. British Journal of Physical Education, 24(1), 10-14.
- Richardson, V. (1990). Significant and worthwhile change in teaching practice. Educational Researcher, 19(7), 10-18.
- Roskies, E., Liker, J., & Roitman, D. (1988). Winners and losers: Employee perceptions of their company's technological transformation. Journal of Organizational Behaviour, 19, 123-137
- Ruddock, J. (1986). Understanding curriculum change. Sheffield: USDE Papers in Education.

- Silvernail, D. L. (1996). The impact of England's national curriculum and assessment system on classroom practice: Potential lessons for American reformers. Educational Policy, 10(1), 46-62.
- Smith, M. D. (1993). Physical education in the British National Curriculum. Journal of Physical Education, Recreation, and Dance, 64(9), 21-32.
- Smith, M. D., Kerr, I. G., & Wang, M. Q. (1993). British physical education teacher behaviours: A descriptive-analytic study. British Journal of Physical Education Research Supplement, 13, 15-21.
- Sparkes, A. C. (1986). Strangers and structures in the process of innovation. In J. Evans (Ed.), Physical education, sport and schooling (pp. 183-193). Lewes: Falmer Press.
- Sparkes, A. C. (1987). Strategic rhetoric: A constraint in changing the practice of teachers. British Journal of Sociology of Education, 40, 37-54.
- Sparkes, A. C. (1991a). Curriculum change: On gaining a sense of perspective. In N. Armstrong, & A. Sparkes (Eds.), Issues in physical education (pp. 1-19). London: Cassell.
- Sparkes, A. C. (1991b). Exploring the subjective dimension of curriculum change. In N. Armstrong, & A. Sparkes (Eds.), Issues in physical education (pp. 20-35). London: Cassell.
- Stillwell, J. L. & Willgoose, C. E. (1997). The physical education curriculum (5th ed.). Boston: Allyn and Bacon.
- van der Mars, H. (1989a). Observer reliability: Issues and procedures. In P. W. Darst, D. B. Zakrajsek, & V. H. Mancini (Eds.), Analyzing physical education and sport instruction (2nd ed.) (pp. 53-80). Champaign, IL: Human Kinetics.
- van der Mars, H. (1989b). Systematic observation: An introduction. In P. W. Darst, D. B. Zakrajsek, & V. H. Mancini (Eds.), Analyzing physical education and sport instruction (2nd ed.) (pp. 3-17). Champaign, IL: Human Kinetics.
- Williams, A. (1993). Aspects of teaching and learning in gymnastics. British Journal of Physical Education, 24(1), 29-32.
- Williams, A. (1997). National curriculum gymnastics at key stage 3--Differentiation for planning, performing and evaluating. British Journal of Physical Education, 28(1), 5-8.

Footnotes

¹As alluded to earlier in the paper, more recently Mosstón and Ashworth (1986, 1990) have identified three more productive styles of teaching, essentially by dividing the components of the styles we identify in the present study as guided discovery, divergent, and going beyond. However, since our preliminary review of the videotaped lessons revealed that teachers had used productive styles of teaching infrequently, we decided not to code lessons for these newer productive styles.

²The central government has recently reinforced the perception that physical education teachers should be judged based on their production of successful school teams (see Department of National Heritage, 1995 and Gilroy & Clarke, 1997). Therefore, it seems even more unlikely that teachers will use teaching styles other than the practice style to any great extent in the near future. In particular, it is doubtful whether teachers will employ those styles primarily aimed at achieving objectives other than enhancing physical performance.

Figure Captions

Figure 1. Definitions of the teaching styles and managerial behaviours coded by the Instrument for Identifying Teaching Styles.

Figure 2. Percentage of IFITS intervals for each teaching style and management in 1992 (pre-NCPE) and 1994 (post-NCPE).

Table 1.

Percentage of IFITS intervals for each teaching style and management in 1992 (pre-NCPE) and 1994 (post-NCPE)

Teaching Style	1992 (Pre-NCPE)		1994 (Post-NCPE)	
	M	SD	M	SD
<u>Reproductive Styles</u>				
Style A (Command)	11.50	22.43	5.98	6.39
Style B (Practice)	55.97	30.00	50.35	15.60
Style C (Reciprocal)	1.98	5.09	2.72	6.74
Style D (Self-Check)	0.00	0.00	0.73	4.60
Style E (Inclusion)	1.64	10.34	1.08	4.52
<u>Productive Styles</u>				
Style F (Guided Discovery)	4.59	4.07	4.74	4.91
Style G (Divergent)	4.06	14.40	3.12	9.19
Style H (Going Beyond)	0.00	0.00	0.00	0.00
<u>Management</u>	20.10	9.09	30.94	9.82

Reproductive Styles

Style A (Command): The teacher makes all the decisions. The teacher demonstrates or explains a task for the pupils to emulate, then directs the pupils' practice by giving commands. The pupils react only when told to do so by the teacher. The teacher evaluates pupils' performances in terms of congruence with the prescribed task. Example: Pupils "shadow" the service action demonstrated by the teacher during a tennis lesson.

Style B (Practice): The teacher demonstrates or describes a task and the pupils practice the task at their own pace. The teacher provides pupils with performance feedback. Example: The teacher demonstrates seam bowling during a cricket lesson and then circulates giving feedback to pupils as they practice.

Style C (Reciprocal): The teacher demonstrates or describes a task. The pupils then practice in pairs. One pupil (the doer) practices while the other pupil (the observer) evaluates his/her partner's performance and provides feedback based on criteria supplied by the teacher. During the practice phase, the teacher assists the observer while taking care not to take over the observer's role. Example: The teacher demonstrates correct discus throwing technique. During the practice phase, pupils work in pairs and take turns at throwing and providing feedback.

Style D (Self-Check): The teacher presents a task. Pupils practice at their own pace but are now responsible for analysing their own performances. During practice the teacher does not provide performance feedback. Instead his/her role is to help pupils hone their self-evaluation skills. Example: The teacher demonstrates correct long jumping technique. During the practice phase he/she asks the pupils to evaluate their own performances.

Style E (Inclusion): The teacher models a task with several levels of difficulty. At the beginning of the practice phase the pupils choose the level of difficulty at which they feel most comfortable. During practice they are encouraged by the teacher to evaluate their own performances and decide when to change to a new level of difficulty. Example: The teacher demonstrates high-jumping with the "straddle" technique and allows the pupils to decide the heights they wish to attempt to clear.

Productive Styles

Style F (Guided Discovery): The teacher asks a series of questions or sets a series of physical problems that when answered or solved leads the pupils to discover a desired skill or concept. Examples: (1) During a swimming lesson, the teacher asks a series of questions about water resistance which leads pupils to discover and understand the concept of the streamlined position. (2) The teacher asks the pupils to engage in two conditioned games of tennis, one on a "long thin" court and one on a "short fat" court. Pupils are then asked how they they can best move their opponents around in these conditions so that they discover the drop-shot, the lob, and the concept of using angles.

Style G (Divergent): The teacher asks a question or sets a physical problem to which there are many possible answers or solutions. The pupils then set about finding and evaluating alternative answers and solutions. Examples: (1) The teacher provides the class with an assortment of suitable equipment and asks groups of pupils to design their own striking/fielding game. (2) During a track and field lesson, the teacher asks pupils to come up with different strategies that they might try if engaged in a 1500 metre race.

Style H (Going Beyond): The pupils identify problems and set about finding and evaluating alternative solutions. The teacher assumes the role of facilitator. This involves providing help when it is asked for and asking questions for clarification. Example: During a tennis lesson, pupils are asked to decide which skills or strategies they need to work on, to design and engage in activities which might lead to skill improvement, and to evaluate their own performances.

Management (M): The time the teacher is engaged in activity not related directly to instruction. This includes time spent beginning and ending classes, managing equipment, organising, dealing with pupil behaviour, and any other tasks other than instruction or class management. Example: The teacher gives out floats to pupils participating in a swimming lesson.

NOTE: Definitions of teaching styles are based on descriptions provided by Jewett and Bain (1985) and the definition of management is based on descriptions provided by Phillips, Carlisle, Steffen, and Stroot (1986).

