AN INTERNATIONAL SYMPOSIUM ON TEACHING STYLES

Dominique Banville, Ph.D.
George Mason University
Virginia, USA

Chantal Amade-Escot, Ph.D.
Université Paul Sabatier
Toulouse, France

Jean-François Richard, Ph.D.
Université de Moncton
New-Brunswick, Canada

Doune Macdonald
University of Queensland
Brisbane, Australia

Pedro Sarmento
University of Lisbon
Portugal
INTRODUCTION

After 25 years, the Spectrum of Teaching Styles developed and refined by Mosston and Ashworth (1994) continue to be an important part of the conceptualization of teaching (Kulinna, Cothran, & Zhu, 2000). However, very few studies have been conducted to determine the use of those styles by physical education (PE) teachers. Kulinna, Cothran, and Zhu (2000) conducted a study in the United States to determine PE teachers' use and perception of the various styles and drew interesting results. The results were presented at a conference attended by colleagues from different countries. Drs. Donetta Cothran and Pam Kulinna asked if some of us we would be interested in participating in an international research team in order to determine teaching styles of teachers around the world. Thus far, Australia, Canada, China, England, France, Portugal are part of the team.

REVIEW OF LITERATURE

Quality of teaching is an important factor in student learning. More specifically, one aspect of teaching, teaching style(s) used by teachers, has been the focus of numerous studies. The studies generated various theoretical models aimed at describing the different teaching styles found. Fenstermacher, and Soltis (1992), Grasha (1994), Joyce, Weil, and Showers (1986), Mosston and Ashworth (1990), and Trigwell, and Prosser (1996) were among the theoretical frameworks we found.

Some of the results from a number of studies show that "student-centered" teaching styles (rather than "teacher-centered") promote learning (Rothenberg, McDermott, & Martin, 1998; Ramsay, & Oliver, 1995) and motivate learners (Bujold, & Saint-Pierre, 1996, Noels, Clément, & Pelletier, 1999, Rothenberg, McDermott, & Martin, 1998). However, many authors underline the importance of being able to use the most appropriate style for a specific learning experience (Grasha, 1994, Joyce, Weil, & Showers, 1992, Mosston, & Ashworth 1990). In physical education, Mosston's Spectrum of Teaching Styles was introduced in 1966.
At the time, Nixon, and Locke (1973, p.1227) qualified the Spectrum as being "the most significant advance in the theory of physical education pedagogy in recent history". Based on findings from different studies using the Spectrum, the framework was revised in 1994 by Mosston and Ashworth. It comprises the following 11 styles: (A) command, (B) practice, (C) reciprocal, (D) self check, (E) inclusion, (F) guided discovery, (G) convergent discovery, (H) divergent production, (I) learner's individual design program, (J) learner initiated, and (K) self-teaching. The styles are grouped into two different clusters, the reproductive styles (A-E), and the productive styles (F-K).

In a recent review of the literature on teaching styles, Byra (2000) indicates that the Practice style is the style most often studied, followed by Reciprocal and Inclusion. When compared, the Practice, Reciprocal and Inclusion styles all lead to learning. However, without being significant, students taught by the Practice style produced a higher level of learning than the other groups (Goldberger, & Gerney, 1986; Goldberger, Gerney, & Chamberlain, 1982).

In regard to the Reciprocal style, Byra and Marks (1993) found that students paired with a friend gave more specific feedback and were more comfortable receiving feedback.

Ciothran, Kulina and Ward (1999) asked college students to identify styles used by their teachers. Using a questionnaire that included scenarios describing each style, participants were asked to indicate on a 5-level Likert scale if their teachers had used the different styles, and if they thought the use of the various styles would make learning fun, motivating, and effective. Participants reported that teachers used, in average, five styles, with dominance for reproductive styles (A-E). On the other hand, students judged that productive styles (F-K) would be more fun and motivating, but less effective to learn.

Using a modified version of the questionnaire, Kulina, Ciothran, Zhu (2000) asked teachers at the elementary and secondary level their use of the styles. They found that teachers use, on average, eight of the 11 styles, the most frequently used being Command, Practice, and
Divergent, all Productive styles. Teachers tend to better perceive the styles they use more frequently (practice and inclusion) and believe that the practice and reciprocal styles are those in which students will learn the most and be the most motivated. Reproductive styles (A-E) are more frequently used than Productive styles (F-K) because, according to the authors, of a lack of knowledge.

Since we are becoming a more global society, is there any difference in the way teaching styles are used and perceived among PE teachers in other countries? Comparing educational research in different countries was performed previously, however it focused mainly on the comparison of curriculum or educational systems and their function (e.g. MacAdam, 1993). This research will focus on comparing a didactical aspect of teaching physical education, more specifically, comparing the process that transmits content to students (Amade-Escot, 1998). The significance of this study relies on the information teachers receive regarding students from different cultural backgrounds to better understand schooling experiences.

METHODOLOGY

Instrument

The instrument used by all countries is the questionnaire developed by Kulina, Cothran, Zhu (2000), comprised of 11 scenarios representing the teaching styles. Each scenario is followed by the same four questions, all related to a 5-level Likert Scale. Figure 1 shows an example of a scenario with the questions.

The content validity was established by experts and the reliability (Cronbach alpha) scores for teachers’ perceptions on the individual teaching styles ranged from 0.82 to 0.93, and for the overall instrument, 0.90 (Kulina, Cothran, & Zhu, 2000).
Translation Protocol

A cross-cultural protocol to translate and validate the instrument was established based on suggested technique by Banville, Desrosiers, and Genet-Volet (2000). This cross-cultural technique requires researchers in all countries, including English speaking, to establish the cultural relevance of terms and expressions used in the questionnaire. For the English speaking countries, researchers made sure that the terms and expressions were appropriate for the targeted population. For the non-English speaking countries, a back-translation technique was used. More specifically, two bilingual people translate the questionnaire in the desired language; from those translations, one version is created and given to two other bilingual people unfamiliar with the original instrument. Their task is to translate the questionnaire back into English. Throughout the translation process, translators are asked to translate the significance of the statement rather than looking for word for word translation. The two translated copies are then combined into one.

All countries were then asked to send their version to a Mosston Spectrum experts committee formed by the team leaders (Cochran & Kulina). The committee evaluated all versions making sure that statements on all questionnaires had the same significance as the original version.

Data Collection

Each researcher was in charge of collecting the data in their country. Different means were used to collect the data.

Australia

Questionnaires were mailed with pre-paid returned envelopes to all 411 state government schools (primary and secondary) and 89 non-government schools (secondary) in the state of Queensland. From the questionnaires mailed, 145 questionnaires were returned.
Canada

Quebec: 1050 questionnaires and pre-paid return envelopes were mailed to a random sample of primary and secondary physical education teachers (one third of the total population). Two weeks later these teachers received a post card reminding them to complete the questionnaire. Three hundred and fifty eight questionnaires were returned (rate of 34%).

New Brunswick: 30 questionnaires were distributed and completed during a workshop. This represents 22% of French-speaking PE teachers.

France

The questionnaire was distributed through interns in schools and via mail to 500 teachers in the region of Toulouse. One hundred and thirty-five were returned for a return rate of 27%.

Portugal

The sample (N=207) was localized in the central southern party of the country.

Data Analysis

Data was sent to the leaders of the research team (Cothran and Kulinna) in order to build a common international database. When all data is entered in the data bank, tests will be performed to statistically establish differences. In the meantime, each country received a file containing their individual data, allowing them to perform individual data analysis.

RESULTS

Data from Australia, Canada, France, and Portugal will be presented. The data presented will focus on the styles teachers say they use, and their perceptions of these styles.

Participants

Demographic aspects of the participants from the different countries are presented in Table 1. From the data gathered, we can see that in all four countries, the majority of participants were male, over 30 years of age. In all countries other than Portugal, the majority
had at least 10 years of experience and a bachelors degree. Finally, except for Canada,
teachers were mainly teaching at the secondary level.

**Teachers use of the different styles**

Using a 5-pt Likert scale, teachers had to indicate how often they used the different
teaching styles. Figure 2 shows how teachers from the four countries scored the various styles.

**Australia**

The Command style (M=3.65) was used significantly more often than all other teaching
style but Practice. Practice ranked second (3.53), followed by Reciprocal (3.26), and Inclusion
(3.09). Self-teaching (1.54) and Learner-initiated (1.60) were used the least. Overall, the
teaching styles on the reproductive end of the reproductive-productive continuum were used
the most frequently, whereas teaching styles on the other end of the continuum were used less
frequently. Looking at the figure, however, we see that Australian physical education teachers
had the highest averages among the different countries for those end-of-the-Spectrum styles
(Individual Program, Learner-Initiated, and Self-Teaching).

**Canada**

This figure shows that the Practice style is the used most often with an average of 3.68.
It is followed by the Command style (3.17), Guided Discovery (3.03), and Reciprocal Style
(2.96). The least used styles are these at the end of the spectrum: Individual program, Learner
initiated, and Self-Teaching all with an average well below two. Further inquiry demonstrated
that participating teachers confirmed using an average of eight styles. Ninety-eight (98) percent
confirmed using up to five different styles.
France

In France, as in Canada, the style use most often is the Practice style, with an average of 3.5. The next most popular styles differ from other countries however, with Inclusion averaging 3.39, Reciprocal (3.15), and Divergent Discovery (3.06). The Command style places in eighth with an average of 2.25. It is necessary to indicate at this point that the result for this style shows a high level of variance (10.86) and significant differences where found among the most and least experienced teachers. Styles at the end of the Spectrum are, as with the two previously analyzed countries, are the least popular with averages below two.

Portugal

Very strong averages are found in the first two styles of the Spectrum, with Command averaging 3.68, and Practice averaging 3.62. They are followed by Inclusion (2.86) and Reciprocal (2.74). The first productive-type style appears in fifth place with Guided Discovery with an average of 2.67. Although the last three styles on the Spectrum are also the least popular among Portuguese physical education teachers, the averages found are not as low as those found in France.

Teacher perception of the different styles

Using a 5-pt Likert scale, teachers had to indicate their agreement or disagreement to three statements related to their perceptions of the various styles: a) this way of teaching would make class fun for my students, b) this way of teaching would help students learn skills and concepts, and c) this way of teaching would motivate students to learn. Figure 3 shows the sum of answers given to the three questions by teachers from the four countries presented.

INSERT FIGURE 3 HERE

Australia

The most well perceived styles by Australian physical education teachers are Reciprocal (11.24), Practice (11.17), and Inclusion (11.15). The least well perceived are
Learner-Initiated and Self-Teaching at the further end of the Spectrum. Even if the Command style is used the most in Australia, teachers have perceptions toward the styles that are not quite as strong as one might expect, ranking it sixth overall. Looking more in-depth at the data, teachers perceive the style as being one of the most effective (3.78), but not as much fun (3.15) or motivating (3.26) as Reciprocal (fun=3.66, motivating=3.91), and Practice (fun=3.86, motivating=3.60).

Canada

Teachers in Canada perceive the Practice style (11.42) as being the most fun (3.90), motivating (3.77) and effective for learning (3.76). These results are congruent with the use of the style, showing Practice being used more often than any of the others. The styles most well perceived following the Practice style are Inclusion (10.59), Reciprocal (10.37), and Divergent style (10.62). The Command style, as in Australian data presented above, is not perceived as well as other styles, and not used as often (8.76). Teachers think that it is an effective style to learn (3.11) but not as fun (2.82) or motivating (2.82) as the other styles.

France

In France, the Inclusion style is the most well perceived style averaging 11.87. Teachers rank it the most effective (4.13), the most motivating (3.93) and the second most fun (3.96). It is followed by the Reciprocal style (11.29), the Practice style (11.18), and the Divergent Production (10.62). Physical education teachers in France perceived the Command style as the worst with an average of 6.71. Among the different styles, teachers consider it the least fun (2.08), and not very motivating (2.19), but the most effective to learn (2.42).

Portugal

The most well perceived style in Portugal, as in other countries, is the Practice style (11.05), teachers perceiving it as the most fun (3.67), motivating (3.70) and second to the Command style for learning effectiveness (3.68). Teachers' perceptions of the Command style
are the highest among the different countries with a total score of 10.33, the second in rank for
this country. The least well perceived styles are, once again, the ones at the end of Spectrum,
respectively Individual Learner (7.9), Learner-Initiated (6.71), and Self-Teaching (5.41).

Overview

In order to report an overview of the results, Table 2 was created to highlight the top
four styles for each country, their usage and perceptions. The first observation is related to the
number of reproductive-type styles vs productive-type styles present in the top four in both
categories. Guided Discovery in the Use category, and Guided and Divergent Discovery in the
Perceptions category are the only two reproductive-type styles that made it to the top four. The
Practice and Command styles made it to the top two in all countries except France in the usage
of the styles. Finally, the Practice, Inclusion, and Reciprocal styles are those best perceived by
all countries, making the top four in each one.

INSERT TABLE 2 HERE

DISCUSSION

When looking at the various data sets, we realize that except for France, the Command
style is one used most often among teachers, ranking first in Australia and Portugal, and
second in Canada. This is congruent with the results found by Kulinna, Cothran, and Zhu
(2000) that showed Americans teachers used the Command style the most often with an
average of 3.62. The Practice style shows the greatest consensus of all, ranking either first or
second in all the countries presented in this study. It is also very popular among American
physical education teachers, ranking second with an average of 3.59. The least used styles in
all countries are those at the end of the Spectrum: the Reproductive-type styles of Individual
Program, Learner-Initiated, and Self-Teaching. These findings are also congruent with the
American findings.
As for teachers' perceptions of the different styles, teachers are consistent, using the style they think are the most fun and motivating (Practice), and the one they think is the most effective to learn (Command). Again, France differs with other countries with the best-perceived style being Inclusion.

France results

Since the results from France are very different from the other countries, including the results previously found in the United States, a cultural hypothesis will be introduced to try to explain the differences found. In the last fifteen years, important changes in the official physical education curriculum have been implemented in France, promoting a new constructivist type of physical education linked with the French didactic paradigm (Amade-Escot, 2000). This new National curriculum tries to implement a new approach of content — from a linear and hierarchical model that divides the content into units to be reproduced, to a systemic model centered on the connections between the various elements of the content and the meaning they have for students. Emphasis is put on individualization, students' autonomy, differentiation of tasks, a problem solving approach, and reflexive thinking. One last comment about the curriculum is that in France, physical education is mandatory and as important as any other subject mater to graduate.

Therefore, the choice of the four most well perceived styles can be interpreted through the conception of physical education with the Inclusion and Reciprocal styles promoting the concept of autonomy, and individualization; the Practice style promoting a type of student autonomy; and Divergent Discovery promoting a problem-solving approach to learning through reflexive thinking and discovery. However, the results showed a high variance on the Command Style and significant differences regarding "Teacher experience ", leading us to believe that teacher's responses might be mixed with what they really used as teaching styles,
and how they perceive the styles, as well as the answers they are "expected" to provide according to the new curriculum.

CONCLUSION

In the future, further work will be done by the leaders of the research team, to analyze and combine the various data sets into one large data set, and perform various statistical sets to determine significant differences among countries. A questionnaire provides access to what teachers say they are doing. Since what teachers perceive they are doing (perceive curriculum) compared to what is really happening in the gymnasium (operational curriculum) is often different (Goodlad, Klein, & Tye, 1979), it would be interesting to go in gymnasias around the world to assess teachers' use of the different styles.

In the meantime, teacher educators around the world should continue to promote the Spectrum of Teaching styles in order to provide teachers with a wide range of styles that can be used at the most appropriate time during the learning experience. The results of this study show a greater use and positive perception of Reproductive styles. It would be useful to look more closely at the Individual Program, Learner Initiated, and Self-teaching to learn why they are less popular. One hypothesis may be that schools are simply not conducive to those styles, or that the school environment, with all its constraints, makes it difficult for teachers to use them. Finally, it seems necessary to take an in-depth look into the practicality of this theoretical framework.
REFERENCE


B. The teacher makes several stations in the gym where students work on different parts of a skill or different skills. Students rotate around the stations and do the tasks at their own pace. The teacher moves around and helps students when needed.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. I have used this way to teach physical education.</td>
<td>1</td>
<td>2</td>
<td>3  4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Okay</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I think this way of teaching would make class fun for my students.</td>
<td>1</td>
<td>2</td>
<td>3  4  5</td>
</tr>
<tr>
<td>7. I think this way of teaching would help students learn skills and concepts.</td>
<td>1</td>
<td>2</td>
<td>3  4  5</td>
</tr>
<tr>
<td>8. I think this way of teaching would motivate students to learn.</td>
<td>1</td>
<td>2</td>
<td>3  4  5</td>
</tr>
</tbody>
</table>

**Figure 1.** Example of scenario with the accompanying questions.
| Demographic characteristics of participants from the different countries in percentages. |
|---------------------------------|-------------------------------|-----------------|-----------------|------------------|
|                                | Australia (N = 130)           | Canada (N = 372) | France (N = 131)| Portugal (N = 125) |
| Teaching experience            |                               |                 |                 |                   |
| 0-3                            | 18.5                          | 3.0             | 30.4            |                   |
| 4-10                           | 33.8                          | 19.9            | 17.0            |                   |
| 11-20                          | 25.4                          | 25.3            | 18.5            |                   |
| > 20                           | 22.3                          | 51.8            | 31.1            |                   |
| Gender                         |                               |                 |                 |                   |
| Male                           | 52.0                          | 72.4            | 54.8            | 57.6              |
| Female                         | 48.0                          | 27.6            | 44.4            | 34.8              |
| Age                            |                               |                 |                 |                   |
| 20-30                          | 42.2                          | 9.4             | 32.0            |                   |
| 31-40                          | 32.8                          | 26.6            | 34.3            |                   |
| 41-50                          | 20.3                          | 39.8            | 24.7            |                   |
| 51-60                          | 6.3                           | 24.2            | 9.0             |                   |
| > 60                           | 0.0                           | 0.0             | 0.0             |                   |
| Educational level attained     |                               |                 |                 |                   |
| Diploma                        | 13.3                          | 0.0             | 8.2             |                   |
| Bachelors                      | 70.0                          | 86.6            | 64.7            |                   |
| Postgraduate                   | 18.7                          | 13.4            | 16.7            |                   |
| Level of teaching              |                               |                 |                 |                   |
| Primary                        | 49.4                          | 54.0            | 4.4             | 4.8               |
| Secondary                      |                               |                 |                 |                   |
| Lower                          | 67.0                          |                 | 54.1            | 92.6              |
| Upper                          | 59.6                          |                 | 36.3            | 2.4               |
**Figure 2.** Profile of teachers' use with Mosston's teaching styles (on a 5-point Likert scale)
Figure 3. Teachers' perceptions of teaching styles
Table 2

Overview of teachers' usage and perceptions of teaching styles across countries.

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>Canada</th>
<th>France</th>
<th>Portugal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use</strong></td>
<td>Command (R)</td>
<td>Practice (R)</td>
<td>Practice (R)</td>
<td>Command (R)</td>
</tr>
<tr>
<td></td>
<td>Practice (R)</td>
<td>Command (R)</td>
<td>Reciprocal (R)</td>
<td>Practice (R)</td>
</tr>
<tr>
<td></td>
<td>Reciprocal (R)</td>
<td><em>Guided Discovery (P)</em></td>
<td><em>Guided Discovery (P)</em></td>
<td>Reciprocal (R)</td>
</tr>
<tr>
<td></td>
<td>Inclusion (R)</td>
<td>Reciprocal (R)</td>
<td>Inclusion (R)</td>
<td>Self-Check (R)</td>
</tr>
<tr>
<td><strong>Perceptions</strong></td>
<td>Reciprocal (R)</td>
<td>Practice (R)</td>
<td>Inclusion (R)</td>
<td>Practice (R)</td>
</tr>
<tr>
<td></td>
<td>Practice (R)</td>
<td>Inclusion (R)</td>
<td>Reciprocal (R)</td>
<td>Command (R)</td>
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<td></td>
<td>Inclusion (R)</td>
<td>Reciprocal (R)</td>
<td>Practice (R)</td>
<td>Inclusion (R)</td>
</tr>
<tr>
<td></td>
<td><em>Guided Discovery (P)</em></td>
<td><em>Divergent Discovery (P)</em></td>
<td><em>Divergent Discovery (P)</em></td>
<td>Reciprocal (R)</td>
</tr>
</tbody>
</table>