

1 AN INTERNATIONAL SYMPOSIUM ON TEACHING STYLES

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23 INTRODUCTION

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

34 REVIEW OF LITERATURE

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

41 Some of the results from a number of studies show that "student-centered" teaching
42 styles (rather than "teacher-centered") promote learning (Rothenberg, McDermott, & Martin,
43 1998; Ramsay, & Oliver, 1995) and motivate learners (Bujold, & Saint-Pierre, 1996, Noels,
44 Clément, & Pelletier, 1999, Rothenberg, McDermott, & Martin, 1998). However, many
45 authors underline the importance of being able to use the most appropriate style for a specific
46 learning experience (Grasha, 1994, Joyce, Weil, & Showers, 1992, Mosston, & Ashworth
47 1990). In physical education, Mosston's Spectrum of Teaching Styles was introduced in 1966.

48 At the time, Nixon, and Locke (1973, p.1227) qualified the Spectrum as being "the most
49 significant advance in the theory of physical education pedagogy in recent history". Based on
50 findings from different studies using the Spectrum, the framework was revised in 1994 by
51 Mosston and Ashworth. It comprises the following 11 styles: (A) command, (B) practice, (C)
52 reciprocal, (D) self check, (E) inclusion, (F) guided discovery, (G) convergent discovery, (H)
53 divergent production, (I) learner's individual design program, (J) learner initiated, and (K) self-
54 teaching. The styles are grouped into two different clusters, the reproductive styles (A-E), and
55 the productive styles (F-K).

56 In a recent review of the literature on teaching styles, Byra (2000) indicates that the
57 Practice style is the style most often studied, followed by Reciprocal and Inclusion. When
58 compared, the Practice, Reciprocal and Inclusion styles all lead to learning. However, without
59 being significant, students taught by the Practice style produced a higher level of learning than
60 the other groups (Goldberger, & Gerney, 1986; Goldberger, Gerney, & Chamberlain, 1982).
61 In regard to the Reciprocal style, Byra and Marks (1993) found that students paired with a
62 friend gave more specific feedback and were more comfortable receiving feedback.

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

70 Using a modified version of the questionnaire, Kulinna, Cothran, Zhu (2000) asked
71 teachers at the elementary and secondary level their use of the styles. They found that teachers
72 use, on average, eight of the 11 styles, the most frequently used being Command, Practice, and

97 Translation Protocol

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

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

114 Data Collection

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

117 *Australia*

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

121 *Canada*

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

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

128 *France*

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

132 *Portugal*

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

134 Data Analysis

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

139 **RESULTS**

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

142 Participants

143 Demographic aspects of the participants from the different countries are presented in
144 Table 1. From the data gathered, we can see that in all four countries, the majority of
145 participants were male, over 30 years of age. In all countries other than Portugal, the majority

146 had at least 10 years of experience and a bachelors degree. Finally, except for Canada,
147 teachers were mainly teaching at the secondary level.

148 **INSERT TABLE 1 HERE**

149 Teachers use of the different styles

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

152 **INSERT FIGURE 2 HERE**

153 *Australia*

154 The Command style (M=3.65) was used significantly more often than all other teaching
155 style but Practice. Practice ranked second (3.53), followed by Reciprocal (3.26), and Inclusion
156 (3.09). Self-teaching (1.54) and Learner-initiated (1.60) were used the least. Overall, the
157 teaching styles on the reproductive end of the reproductive-productive continuum were used
158 the most frequently, whereas teaching styles on the other end of the continuum were used less
159 frequently. Looking at the figure, however, we see that Australian physical education teachers
160 had the highest averages among the different countries for those end-of-the-Spectrum styles
161 (Individual Program, Learner-Initiated, and Self-Teaching).

162 *Canada*

163 This figure shows that the Practice style is the used most often with an average of 3.68.
164 It is followed by the Command style (3.17), Guided Discovery (3.03), and Reciprocal Style
165 (2.96). The least used styles are these at the end of the spectrum: Individual program, Learner
166 initiated, and Self-Teaching all with an average well below two. Further inquiry demonstrated
167 that participating teachers confirmed using an average of eight styles. Ninety-eight (98) percent
168 confirmed using up to five different styles.

169 *France*

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

177 *Portugal*

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

184 Teacher perception of the different styles

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

190 INSERT FIGURE 3 HERE

191 *Australia*

192 The most well perceived styles by Australian physical education teachers are
193 Reciprocal (11.24), Practice (11.17), and Inclusion (11.15). The least well perceived are

194 Learner-Initiated and Self-Teaching at the further end of the Spectrum. Even if the Command
195 style is used the most in Australia, teachers have perceptions toward the styles that are not
196 quite as strong as one might expect, ranking it sixth overall. Looking more in-depth at the
197 data, teachers perceive the style as being one of the most effective (3.78), but not as much fun
198 (3.15) or motivating (3.26) as Reciprocal (fun=3.66, motivating=3.91), and Practice (fun=3.86,
199 motivating=3.60).

200 *Canada*

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

208 *France*

209 In France, the Inclusion style is the most well perceived style averaging 11.87.
210 Teachers rank it the most effective (4.13), the most motivating (3.93) and the second most fun
211 (3.96). It is followed by the Reciprocal style (11.29), the Practice style (11.18), and the
212 Divergent Production (10.62). Physical education teachers in France perceived the Command
213 style as the worst with an average of 6.71. Among the different styles, teachers consider it the
214 least fun (2.08), and not very motivating (2.19), but the most effective to learn (2.42).

215 *Portugal*

216 The most well perceived style in Portugal, as in other countries, is the Practice style
217 (11.05), teachers perceiving it as the most fun (3.67), motivating (3.70) and second to the
218 Command style for learning effectiveness (3.68). Teachers' perceptions of the Command style

219 are the highest among the different countries with a total score of 10.33, the second in rank for
220 this country. The least well perceived styles are, once again, the ones at the end of Spectrum,
221 respectively Individual Learner (7.9), Learner-Initiated (6.71), and Self-Teaching (5.41).

222 Overview

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

231 INSERT TABLE 2 HERE

232 DISCUSSION

233 When looking at the various data sets, we realize that except for France, the Command
234 style is one used most often among teachers, ranking first in Australia and Portugal, and
235 second in Canada. This is congruent with the results found by Kulinna, Cothran, and Zhu
236 (2000) that showed American teachers used the Command style the most often with an
237 average of 3.62. The Practice style shows the greatest consensus of all, ranking either first or
238 second in all the countries presented in this study. It is also very popular among American
239 physical education teachers, ranking second with an average of 3.59. The least used styles in
240 all countries are those at the end of the Spectrum: the Reproductive-type styles of Individual
241 Program, Learner-Initiated, and Self-Teaching. These findings are also congruent with the
242 American findings.

243 As for teachers' perceptions of the different styles, teachers are consistent, using the
244 style they think are the most fun and motivating (Practice), and the one they think is the most
245 effective to learn (Command). Again, France differs with other countries with the best-
246 perceived style being Inclusion.

247 France results

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

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

267 and how they perceive the styles, as well as the answers they are "expected" to provide
268 according to the new curriculum.

269 **CONCLUSION**

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

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

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