

TEACHING STYLES AND LEARNING-RESEARCH AND APPLICATIONS

教學風格及學習研究與應用

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摘要

本文作者簡單介紹『摩斯登體育教學光譜』的理論，指出不同教學風格取決於教師給予學生多少決策權。作者亦綜合過往十年有關光譜理論之研究及應用，列舉生產群集的三項教學風格例子，希望體育教師於啟發學生思考及創造力為教學目標的課堂上，能夠嘗試採用。

Abstract

The author summarizes the theory of the Mosston's Spectrum of Teaching styles which is based on the amount of decisions given to students. Researches in the past ten years on the Spectrum are then reviewed. The author presents practical examples on three teaching styles of the production cluster. The intent of this article is to stimulate physical education teachers to adopt teaching styles for those goals gearing for developing students' cognitive thinking and problem solving ability.

Introduction

Researches in teaching of physical education have found that physical education teachers would tend to adopt teaching approaches and teaching styles that they themselves experienced when they were students (see Lawson, 1983's model on recruitment; Schempp, 1989). Traditionally, teachers of physical education in Hong Kong use "skill approach" when teaching games and sports in primary and secondary schools. Simply, "skill approach" requires teachers to break down skill into components and teach accordingly with demonstrations, practice with partners or small groups and then progress into game playing. From my own experience as a student

teacher trainee in College of Education and a lecturer in physical education for Diploma of Education and Bachelor of Education courses, I have noticed that physical education teachers find it comfortable to use command style of teaching. That is teachers take control of class and students are not given opportunities to make decisions on what to learn and how to learn. Of course, there is no one "best teaching style". A teacher uses a teacher style that suits his/her personal skills and preference, or suits best within the school environment and other contextual constraints, e.g. learners' characteristics, their skill levels and nature of content being taught etc.

Theory

The most best known model of teaching styles is undoubtedly the Mosston's Spectrum of Teaching styles (referred to as the Spectrum in this article). Dr. Muska Mosston first proposed the Spectrum in a book titled "Teaching physical education from command to discovery" (1966). Subsequently, the model was revised and books co-authored with Dr. Ashworth were published in 1981, 1986, 1990 and 1994. The model can serve as a knowledge base and a reflection point for student teachers and teachers themselves. In the January 1992 issue of the Journal of Physical Education, Recreation and Dance, eight feature articles focused on this model for its 25th anniversary. The Spectrum was adopted in Canada and Great Britain (Mellor, 1992) and Finland (Telama, 1992).

The original Spectrum proposed seven teaching styles: command, task, reciprocal teaching, small-group teaching, individualized teaching, guided discover, and

problem solving (Mosston, 1966). The fundamental proposition of the Spectrum is that teaching is governed by a chain of decision making process. The most current expanded Spectrum contains 11 teaching styles named from styles A to K (see Figure 1 for the full model, Mosston & Ashworth, 1994). Table 1 listed a brief description for each style. The structure of the Spectrum contains two clusters; with styles A to E having the function of reproduction and styles F to K sharing the characteristics of production. The former cluster contains styles that are suitable for concrete subject matter with

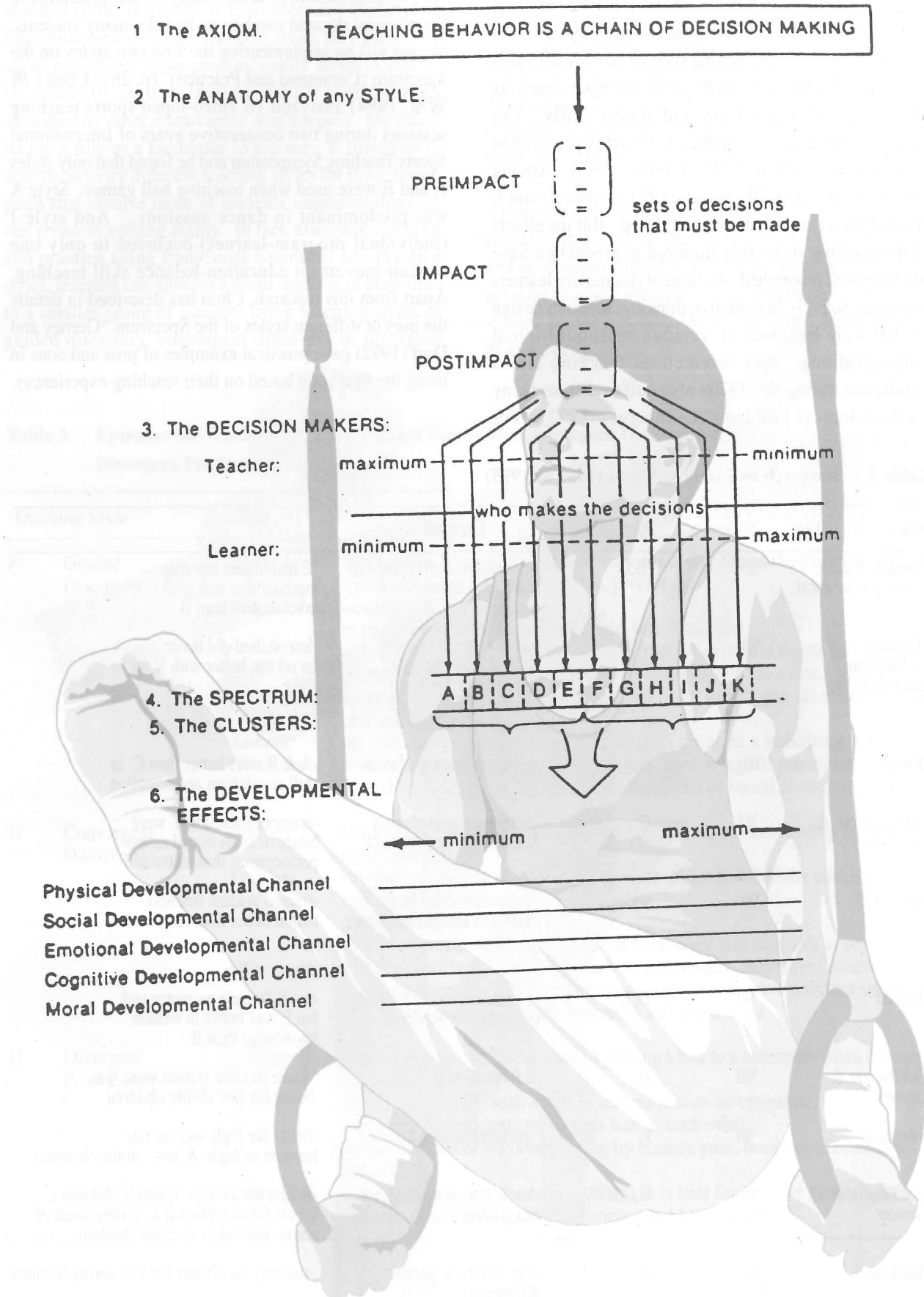
one correct way of doing the task while the latter cluster contains styles that work best with variable subject matter which require cognitive and problem solving ability. Moving along the Spectrum from style A (command style) to style K (self-teaching style), the degree of decision making allocated to the learners becomes greater for each subsequent style. Thus, teachers of style A make all decisions about what to teach and how to teach. For style K, teachers allow maximum decisions for a learner about his/her learning experience.

Table 1. Descriptions for Mosston's Spectrum of Teaching Styles

Style Name	Description ^a
A Command	Purpose is to learn to do task accurately and within a short period of time. All decisions are made by teacher.
B Practice	Time is provided for learner to work individually and privately. Teacher has time to provide feedback to all learners.
C Reciprocal	Learners work with a partner and offer feedback based on criteria prepared by teacher. Socialization skills can be developed.
D Self-check	Purpose is to learn a task and to check one's own work based on teacher's criteria.
E Inclusion	Teacher provides different degrees of difficulty for same task. Learner selects a level of a task to perform and check one's own work.
F Guided Discovery	Purpose is to discover a concept by answering a sequence of questions presented by teacher.
G Convergent Discovery	Teacher presents question with a single correct answer. Learners engage in reasoning to discover the answer.
H Divergent Production	Question with multiple answers. Learners engage in producing divergent responses.
I Learner's Individual Designed Program	Learners design, develop, and perform series of tasks consulted with teacher.
J Learner-Initiated	Learners initiate a learning style, design, develop and evaluate the task.
K Self-teaching	Learners have maximum decisions about learning experiences. Learners decide how much teacher involvement to use.

^aDescriptions were extracted from Mosston (1992).

Figure 1. The Spectrum of Teaching Styles (Mosston, 1992)



Research on Teaching Styles

Which teaching style works best under what conditions? A review of literature from 1985 onwards came up with at least 10 research articles (see Table 2). The effects of various teaching styles were studied under contexts of different sport skill learning, such as volleyball, hockey, riflery and soccer skills. The Spectrum has also been applied for teacher preparation programs (Ashworth, 1992; Telama, 1992). Among various styles, styles B (practice), C (reciprocal) and E (inclusion) were most commonly tested. But the effects of the teaching styles that clustered as production have not been well researched. As these styles require learners to engage actively in cognitive thinking, research design is difficult because of various methodological considerations. And research on teaching styles conducted during the 1970s also suffered from many methodological problems (Goldberger, 1992). For

example, the length of training was inefficient to produce the intended learning outcomes. On the other hand, among all the teaching styles, Mosston (1992) stated that "in physical education tasks, many of the objectives in the physical domain can be reached (by many students, but not all) by implementing the first two styles on the Spectrum (Command and Practice)" (p. 28). Chou (周宏室, 1994) analyzed 16 video-taped sports teaching sessions during two consecutive years of International Sports Teaching Symposium and he found that only styles A and B were used when teaching ball games. Style A was predominant in dance sessions. And style I (individual program-learner) occurred in only one session-movement education-balance skill teaching. Apart from this research, Chou has described in details the uses of different styles of the Spectrum. Gerney and Dort (1992) gave practical examples of pros and cons in using the Spectrum based on their teaching experiences.

Table 2 Research in Teaching Styles (1985 to 1995)

Researcher	Year	Styles	Purpose	Conclusion
Goudas, Biddle, Fox & Underwood	'95	B,E	-motivational effect on track & field for 10 weeks on 24 girls	-E had higher intrinsic motivation & task goal involvement than B
Harrison, Fellingham, Buck & Pellett	'95	A,B	-set & spike volleyball skills & task-specific, self efficacy for high-, medium-, low-skilled university students	-low-skilled did better with A on set but better with B on spike.
Boyce	'92	A,B,C	-riflery university classes	-A & B were better than C in skill acquisition and retention
Gerney, Dort & Goldberger	'91	C	-difference in analyzing & assessing performance	-learners trained in C were better to analyze and assess performance than untrained
Ashworth	'90	styles	-compare trained & untrained student teachers	-trained student teachers taught better than untrained
Beckett	'90	B, E	-30-minute soccer juggling on university students	-no difference on motor task but E was better in written knowledge than B
Goldberger & Gerney	'90	B	-2 formats of B	-more flexible station work was better for low ability children
Silverman	'90	E	-performance on practice	-better for high success rate learners or high- & low- ability learners
Goldberger & Gerney	'86	B,C,E	-hockey accuracy task on 5th graders	-B best for average aptitude children ; E best for exceptional & combination of above and below average children
Blackmore	'86	B	-low ability & gender difference	-mastery was better for low ability learners

Applications

When the author of this paper asked in-service primary and secondary physical education teachers enrolled in the Bachelor of Education and Diploma of Education courses which teaching styles they used, they all responded of using predominantly styles A and B. Occasionally style C (reciprocal) [or peer teaching identified by other researchers] was adopted. My intent taking a role as a facilitator to learners, is therefore to urge them to try different teaching styles for those lesson goals that involve more of students' cognitive thinking and problem solving ability. In fact, after skill teaching and practice using traditional command and practice styles, teachers can allocate a small segment of class time to a smaller group of students using teaching styles of guided discovery, convergent discovery or divergent

production etc. During coaching, teacher may find the production cluster of styles (styles F to K) suitable in reinforcing athletes' knowledge on team strategies. With the consideration of relatively large physical education class size in Hong Kong, the examples for guided discovery, convergent discovery and divergent production are designed by the author (see Table 3). The intent of the present author is to stimulate local physical education teachers to adopt appropriate teaching styles that meet those goals gearing for more cognitive thinking. In fact, these examples can be incorporated as a small segment (or an episode) within a regular physical education lesson. But these episodes are characterized with non-traditional and production cluster of teaching styles. Readers can get more practical examples on the Spectrum from articles written by Gerney and Dort (1992) and Mueller and Mueller (1992).

Table 3. Episodes for Teaching Styles of Guided Discovery, Convergent Discovery, and Divergent Production

Teaching Style		Class	Goal
F	Guided Discovery	Form 3	From series of guided questions, students comprehend the purpose of spinning objects like balls, discus, javelin etc.
		Sequence of Questions:	<ul style="list-style-type: none"> -when you play Frisbee, how should you release it? -when you make a chest pass in basketball, how should the basketball go? -similarly, when you release the discus, how should the discus go? -example of non-sport situation, a bullet firing from a gun also exhibits this characteristic
		Answer:	i.e. spinning an object can make the object going in a stabilizing path
		Other uses:	best for explanation of sports techniques, kinesiological principles, revision of past knowledge on movement, and analysis of social aspects of sports
G	Convergent Discovery	Primary 1	Students engage in a gymnastic task to solve a problem leading to one right solution.
		Problem	<ul style="list-style-type: none"> -try different ways of rolling the body on a mat and find the easiest way to make the body roll -teacher then asks why -answer: body shaped like a ball and keep body size as small as possible
		Other uses:	best for creative games/sports such as gymnastics, movement education, dance, co-operative games, adventure games that involve problem solving and understanding of sports principles and knowledge
H	Divergent Production	Primary 5	Student explores different ways of passing a ball to a teammate when blocked by an opponent.
		Drills	<ul style="list-style-type: none"> -small groups of 3 with a ball, 1 student acts as an opponent. -the other two students try to pass ball to each other. -explore different ways of passing by bounce pass, hook pass, overhead pass etc.
		Other Uses:	same as convergent discovery, this style is best for creative games/sports and understanding of sports principles and knowledge

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