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THE USE OF CRITICAL THINKING IN PHYSICAL EDUCATION: A MATTER OF STYLE

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Abstract: This paper will focus on the role of teaching styles in determining the amount of critical thinking that students are required to engage in within physical education classes. The foundation of this paper is Muska Mosston's spectrum of teaching styles, which suggests that a teacher have 11 teaching styles to choose from when conducting lessons. These styles can be further broken down into two clusters: one that contains styles that illicit production (discovery or creativity); while the other contains styles that foster reproduction or replication. Discussion will focus on styles that empower students to utilize critical thinking skills to complete tasks given to them by the teacher.

One of the critical decisions that teachers make whenever they teach pertains to the style they choose to use. Muska Mosston introduced his *Spectrum of Teaching Styles* over 30 years ago (Mosston, 1966). While the original Spectrum contained seven different styles, he eventually expanded his list to encompass 11 styles (Mosston & Ashworth, 1994). The Spectrum suggested that teaching styles range from totally teacher dominated to totally student dominated. In between, of course, are many styles that fall somewhere between total domination by either party. Mosston pointed out that when teachers decide what style to use on a given day, or even a particular moment in a lesson, consideration should be given to the teachers' abilities, the students' needs and abilities, and the objectives of the lesson. While Mosston was a physical educator (as is my specialisation), the Spectrum has implications for educators of all subjects and disciplines. There has been a steady stream of research on the use of the Spectrum within the physical education context (see Goldberger, 1992, for a review), but as the audience for this paper is of a generalist nature, these specific findings will not be featured here.

The Spectrum

The Spectrum has been defined in terms of two separate clusters. The first involves styles that seek reproduction or replication of knowledge and/or skills and are dominated by the teacher. As students are given more responsibility for their learning along the Spectrum, a cognitive barrier, as Mosston (1966) originally called it, is crossed which forms a cluster of styles that allow for production, discovery and/or creativity. In this cluster, students play a very active, prominent role in the teaching/learning process and are forced to think for themselves instead of replicating information from the teacher.

Reproductive Cluster

First, in the Spectrum of Teaching Styles, is the command (or lecture) style. The teacher dominates the lesson and the students do what they are told. Mosston and Ashworth (1994) defined all of their styles by categorizing decisions that have to be made regarding the preimpact stage (planning), the impact stage (implementation or action) and the postimpact stage (evaluation). In this first style the teacher plays the dominant role in all three stages. Several objectives are met when this style is used, including; efficient use of time, safety, uniformity, conformity, replication, and group togetherness. Potential drawbacks to this style (depending on how it is implemented) could be: a

lack of cognitive processing as memory is usually all that is required, potential student boredom and/or resentment of the teacher.

The command style is followed by the practice style. Within this style, students are directed to participate in certain activities that the teacher has chosen. The teacher still plays the dominant role in the preimpact and postimpact stages but the learner is given the opportunity to make decisions pertaining to the impact stage. Perhaps the most important objective met within this style is the opportunity for students to 'learn by doing'. Teachers still have control of the learning environment but there is a shift towards some independence for students, as teachers must trust them to perform the activities planned out for them. Teachers in this style roam throughout the physical environment and offer feedback to students pertaining to their performance. A potential drawback to this style is teachers cannot work with all of their students at once. Particularly if the class size is large, it may take a long time before a teacher can offer valuable feedback to students. Some may therefore be doing a task incorrectly, which will impact negatively on their learning.

The third style in the Spectrum is the reciprocal style. This style is similar to the practice style except students provide feedback to partners during the impact stage. It is therefore important for the teacher to explain specifically what the criteria for the given task are. One student (the doer) performs the task, while the other (the observer) observes and offers feedback on the performance. The teacher's role during the impact stage is to interact with the various observers in the class. They should not interact with the doers, as this would undermine the role of the observers. We can see that students are progressively taking on a greater role in the learning process, compared to the first or command style of the Spectrum. Perhaps the most significant objective in this style is an affective one - that of socialisation. Students are forced to interact with each other. There are also cognitive benefits as the observer is asked to analyze the performance of the doer. A popular axiom in education states that if you really want someone to learn something, make him or her teach it! A potential drawback to reciprocal teaching is that students may not interact in an appropriate and positive manner. It is up to the teacher to monitor the student pairs closely.

The fourth style in the Spectrum is referred to as the self-check style. If students have had experience with criteria-based feedback from the previous style, then a natural extension is to allow them to assess their own performance. Students involved in this style often perform tasks similar to their involvement in the practice style. Instead of relying on the teacher for feedback on their ability to complete an activity, they would provide it for themselves, however. Task cards are often used with this style, which enables students to not only read what to do, but be reminded of the set criteria involved for each activity. Teachers are still responsible for monitoring students during active participation, but any interaction would be in the form of questions, so as not to directly undermine the students' role of checking themselves. Teachers often have to work hard to get students to be honest and accurate in their self-assessment capabilities. Another possible negative to this style is that socialisation opportunities with other students and the teacher are limited.

The fifth and last style within the reproductive cluster is the inclusion style. It is at this stage that the learner can choose the difficulty level of a particular task. This is a major departure from the four previous styles as there was always a single standard to achieve. Having this opportunity to choose provides students even more independence from the teacher. Another outcome of this style is that it does not exclude any students who cannot meet a particular standard. Because they have options, there should always be an opportunity for them to succeed. Teachers must still monitor the class closely and gently inquire about student choices if they are not being successful, or if they have chosen to stay at a 'comfortable' level for a long period of time. For this style to be successful it is important that students make appropriate decisions, which they do not always make. Teachers, therefore, need to intervene with sensitivity so as not to compromise student decision-making.

Production Cluster

Throughout the 11 styles of the Spectrum, the most significant step occurs between style five and six. Mosston spoke of the cognitive barrier and later (Mosston & Ashworth, 1994) referred to a demarcation point between the fifth and sixth style, as the discovery threshold. For the first five styles mentioned, students for the most part are asked to engage in cognitive operations of memory and recall only. Starting with the sixth style (guided discovery) students will be asked to engage in intellectual activities such as problem solving, creating, and critical thinking. This is considered a major shift in the teacher/student relationship and allows the student to become even more responsible for their learning.

Guided discovery demands that the teacher still be very active in the learning process, however. Teachers utilizing this style guide the learners through a series of questions and cues that help students discover information for themselves, without the teacher providing the information directly. The teacher knows the potential final destination but the learner does not - hence their discovery. This style is not easy for teachers, as they must have a clear sequence design to allow students to progress successfully through the process. This style also demands a great deal of patience, as the teacher should never give an answer to students. When students are 'stuck' then teachers need to rephrase their questions or cues. A style such as this obviously takes more time than the command style of teaching. The greatest benefit to guided discovery teaching is the opportunity for students to discover for themselves. Students are no longer asked to memorize or regurgitate information. They are now expected to think on their own. As students experience success in this discovery process, they often experience a greater sense of well being, an increased self-concept. Also, as they take more ownership for their learning, students often become more motivated to be engaged in the subject matter.

The seventh style in the Spectrum is called the convergent discovery style. This style is similar to guided discovery except that the teacher no longer guides the student, step-by-step, through the learning process. The teacher instead, provides a question or problem for students, and then steps aside. Students, therefore, determine for themselves the progression required to discover the answer. As this style refers to convergent discovery, there should be only one answer to the question, or solution to the problem. The teacher is expected to observe the students as they progress through the discovery process, but they should not intervene. Discovery takes time, patience, and often a period of trial and error. Once students have completed the task, they should analyze their performance for themselves. At this point the teacher may interact with the student by asking them pertinent questions to help with the discovery process, if they feel it is necessary. The major benefit to this style is allowing the students to formulate their own thought processes and progressions to discover a single solution. As the Spectrum progresses, it allows students to take increasing steps towards independence as a learner.

As teachers enter the eighth style (divergent production), another important milestone is possible for their students. For the first time, students will move beyond replication and/or discovery and they will have the opportunity for production. In the previous style, students were asked to discover a single solution. In divergent production their task will be to come up with multiple solutions. This style was initially referred to by Mosston (1966), as problem solving. One of the exciting features of this style is that teachers may observe students producing solutions that they themselves have never seen or thought of before. The teachers' role is similar to the previous style in that they should observe their students throughout the learning process. Again, they should not intervene except perhaps for some encouraging words if any students appear discouraged. Any feedback given during this phase is usually more group-oriented than individualized. Students typically will be able to evaluate their production successes on their own, but gentle inquisitive teacher

intervention may be helpful and warranted as well. Students who are not experienced in having to produce solutions often find this process difficult at first. Patience and encouragement on the part of the teacher will often breed more confidence in their students.

Style number nine is referred to as the individual program - learner's design. As in all of the styles described up till now, the teacher still decides on the major subject content area of the lesson. The student, however, now achieves a greater role in the content decision-making process, as they can choose what specific area within the broader content area they wish to explore. Students are then expected to carry on in a fashion similar to the previous style. This stage of the Spectrum places the student on the verge of total independence as a learner. It must be stated that it is not often in education that students are given the opportunities that are allowed in this style. For this style to be successful students should have experienced the previous styles, and in particular, been successful with styles that fall beyond the discovery threshold.

Finally in style ten (the learner-initiated style), the learner gets to make all of the decisions that affect their learning in school. While this style is very similar to the previous style, the big difference is that the students approach the teacher with the request to initiate the style itself. Students within a given class are typically not ready for this style all at the same time. Therefore, teachers must decide on an individual basis whether a student is ready or not. It is a huge step for students to be able to make all the decisions pertaining to the content of the lesson. There is one hitch to the content chosen, however. It must be content that the teacher deems appropriate for the educational setting they are in. It is not an anything-goes approach. The teacher is still expected to monitor the students' activity and will ask appropriate questions about the content if necessary. To complete the Spectrum of Teaching Styles, there is still one style left that is not used in school.

The final and eleventh style of the Spectrum is the self-teaching style. The learner in this style also fulfills the role of the teacher. This style would occur if a person decides to take up a hobby, for example. This style completes the journey of a student who begins at the style called command, and slowly is allowed more responsibility in the decision-making process that surrounds their learning. While this style is not seen in a structured way within curriculum time in schools, it really could happen at any time, anywhere. This style celebrates the possibilities of the human potential to teach, to learn and to grow (Mosston & Ashworth, 1994).

Implications for Critical Thinking

Whether the curricular content area is physical education, or some other subject, the teaching style used by the teacher will have an impact on their students. When it comes to 'teasing' out more critical thinking from students, then it should be obvious that the production cluster of the Spectrum of Teaching Styles should be utilized more fully. A consequence of education that has been dominated by standardized test scores, is the overemphasis on the command style of teaching. It is in many ways the easiest style for the teacher. It also allows the teacher to cover a lot of content in a short period of time. Standardized tests typically involve memory and recall cognitive functions for the students, and therefore, the command and perhaps practice styles make sense.

If a major goal of education becomes the discovery and production of knowledge, then administrators who determine the assessment tools related to learning must adjust these tools as well. It would be unfair and unrealistic to ask teachers to promote more critical thinking in their students and then assess them through standardized tests. If the goal is production then the assessment needs to be of that nature as well. Furthermore, teachers need to be freed from the time pressures that formal testing demands. Use of production styles of teaching, by their very nature, take more time than reproduction styles do. Administration, therefore, needs to work closely with

teachers to make sure that objectives, goals and means of assessment are all in sync. Otherwise, teachers, and perhaps more importantly, students will be in a no-win situation which will cause disdain for the very thinking that we are trying to create.

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