

# Self-identified and Observed Teaching Styles of Senior Physical Education Teachers in Queensland Schools.

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## **Abstract**

*The research undertaken has reviewed teaching styles used in Senior Physical Education within Queensland schools. Teaching styles, or its equivalent terms such as methods, models or strategies, are valued for what they claim they can achieve. While numerous definitions exist for teaching styles during this chapter they will be defined as “decision patterns that define the teacher’s and learners’ actions so that a prescribed set of objectives can be accomplished” (Mosston & Ashworth, 2002, p. 1). In undertaking research in the area of teaching styles the researchers not only set out with specific research questions to explore but also some beliefs about what to expect of teachers. The findings of the study challenged the assumptions of the study questions and the ‘truth’ about teaching styles actually used by teachers. In recent times curriculum documents by governments in places such as Scotland, England and Queensland (Australia) have called for a range of teaching styles or approaches to meet the variety of learner differences and allow students to make more independent decision making in physical education (Hardy and Mawer, 1999). Prior to 2005, no research had been conducted on the teaching styles that teachers of physical education use in Queensland. Cothran, Kulinna, Banville, Choi, Amade-Escot, MacPhail, Macdonald, Richard, Sarmiento, and Kirk (2005) completed a study titled A Cross-Cultural Investigation of the Use of Teaching Styles, which presented a questionnaire to teachers (including in Queensland) with scenarios of teaching styles based on the 11 styles identified by Mosston and Ashworth (2002). The study outlined here was designed to identify which teaching styles (based on the work of Mosston & Ashworth, 2002) that 110 teachers of Queensland Senior Physical Education believed they used and then sought to confirm the use of these teaching styles by observation of the lessons of nine volunteer participants across three of their lessons of Senior Physical Education in a unit of work. The research investigated whether the level of congruence between what teaching styles teachers believe that they use to teach physical education and what they actually do is accurate or a misrepresentation of actual practice. According to Jaakkola and Watt (2011), “until now, there have been no studies where self-reported and observed teaching styles have been compared” (p. 261). When nine volunteer participants were observed teaching three times over a nine week unit of work, the claims about the type and number of teaching styles used were challenged. Results indicated considerable discrepancies between perception and reality. These discrepancies indicate that myths exist about the range of teaching styles being used within senior physical education and as observed in this study. Similarly myths may also exist with regards to the implementation and understanding of syllabus documents. While the study did not seek to examine in detail why this incongruence occurred, the findings have implications for syllabus writers and educators who perhaps presume that the range of teaching styles suggested are both understood and used effectively to meet subject requirements. Considering these results, and with particular regard to the Queensland Senior Physical Education Syllabus (2004), it would seem that this syllabus document was not being*

*implemented as desired as the specific teaching styles it suggested to be used were not observed. Equally, it would appear from this research, in spite of teachers claiming that there is a wide range of teaching styles being used, it is in fact a myth that a wide range is being used.*

## **Introduction**

Research, as with many facets of life, does not always result in a manner which was anticipated. When people investigate a particular subject or issue, they do not always end up finding what they initially expected, wanted or predicted they would. Whether this is because (a) individuals are so inaccurate at making predictions (mostly due to not knowing all the factors which would affect the outcome) or (b) merely because our expectations are too high, or (c) our thoughts are romanticised and unrealistic about the outcome, it is hard to know. This paper is one such example of this situation.

The initial impetus for this research was partially based on a desire to confirm if teachers of Queensland Senior Physical Education were using the teaching styles that the Queensland Senior Physical Education Syllabus (implemented in 2004) specifically indicated that they should use. Senior Physical Education is an elective subject taught to years 11 and 12 (where students are usually 16 and 17 years of age) and contributes to a university entry score. The researchers clearly had some preconceived ideas about what would be seen, however, many of these preconceptions were challenged.

## **Background**

In 1998 the Board of Senior Secondary School Studies published the Queensland Senior Physical Education Syllabus (QSPES). The QSPES integrated theoretical knowledge and practical performance and assessed higher order thinking in physical activity. It has been stated in the QSPES (2004) that one of its aims is to develop through an integrated approach of practical and theoretical information “intelligent performers” (Queensland Studies Authority, 2004, p. 1). This integration of physical activity and theoretical knowledge learning experiences is “central to the construction of meaning in physical education” (Queensland Studies Authority, 2004, p. 2). At the time of publication it was credited with being ‘unique’ and it was suggested that “there is very little else currently underway in the English- speaking world to match developments in Queensland” (Penney & Kirk, 1998, p. 43). Besides the integration of selected aspects from ‘theory’ (*Focus Areas*) with performance (*Physical Activities*) the QSPES also stated specific teaching styles that should be used such as “guided discovery, inquiry, cooperative learning, individualised instruction, games for understanding and sport education” (QSA, 2004, p. 28).<sup>1</sup>

The subject matter of the QSPES (2004) is broken into three *Focus Areas*. These three *Focus Areas* are as follows. *Focus area A: Learning physical skills*. This *Focus Area* covers motor learning theory, sports psychology and biomechanics. *Focus Area B: Processes and effects of training and exercise* is the second area. This *Focus Area* covers such topics as “how can an understanding of physiology of exercise, training and program development improve team and individual performance?” (QSA, 2004, p. 12). The final *Focus Area*, *Focus Area C: Sport, physical activity and exercise in the context of Australian society*, requires students to examine the question, “how do sociocultural understandings of sport, physical activity and exercise influence personal, team and community participation, appreciation and values, within Australian society?” (QSA, 2004, p. 12).

The amount of time, or a “balance of time and emphasis of study is given to the three *Focus Areas* across the course, although these do not need to be equal” (QSA, 2004, p. 20). The integration of subject matter occurs when one *Focus Area* is taught with a Physical Activity. The four Physical Activity Areas of the QSPES (2004) are; Direct Interceptive (e.g., touch football), Indirect Interceptive (e.g., volleyball), Aesthetic (e.g., ballroom dancing), and Performance (e.g., orienteering).

The *General Objectives (Acquiring, Applying and Evaluating)* of the QSPES (2004) are the same for both the physical activity assessment and associated written or oral mode assessment. A final grade or mark is awarded by adding the 50% weighting for the written or oral assessment with the 50% weighting for the physical activity assessment.

### ***Research Design***

An understanding of teaching styles and their use would appear to be fundamental to understanding the effectiveness of the way that physical education is taught and the syllabus effectively implemented. The focus on Senior Physical Education for this study was undertaken because it was believed that this is where ‘best practice’ with regards to a range of teaching styles and adherence to syllabus requirements was most likely to occur. This assumption was based on the fact that, since Senior Physical Education contributes to a university entrance score, teachers of the subject would be motivated by the desire to allow students to achieve to the best of their ability and the presumption of professionalism amongst teachers. Another factor which led the authors to this conclusion is due to the QSPES (2004) specifically stating that the earlier mentioned six teaching styles (guided discovery,

inquiry, cooperative learning, individualised instruction, games for understanding and sport education) should be used.

### **Research questions guiding this study:**

1. What teaching styles do teachers of Senior Physical Education (Years 11 and 12) in Queensland believe they use to teach Senior Physical Education?
2. Do teachers of Senior Physical Education in Queensland use a range of teaching styles or is there a dominant style being used?
3. If Mosston and Ashworth's (2002) Spectrum of Teaching Styles are used to categorise styles observed during the teaching of Senior Physical Education, are the styles being used providing opportunities for students to use Higher Order Thinking skills (HOTS) and produce new knowledge (*evaluating*) as described in the QSPES (2004)?

The third research question will not be addressed here as it was part of a larger doctoral study (undertaken by the lead author) but the first two questions will be.

### **Research Methods**

The research methods employed for this study were non-experimental which is "typified by observations or descriptions of the status of a condition or situation" (Berg & Latin, 2004, p. 197). This method was chosen based on the nature of the research questions, as the research was attempting to ascertain what is happening in the classroom and whether teachers were doing what the QSPES (2004) stated they should be doing. This research method allowed for the recording of what was happening in a sample of Queensland Senior Physical Education classes, with little or minimal influence on what usually happened as possible. It should be noted that the goal of the research was not to attempt to explain why specific things are happening or to describe power structures between individuals or groups.

### **Subjectivity and Objectivity**

This study sought to record events that would have occurred whether there were researchers there or not. The research undertaken did not attempt to manipulate variables or make 'something' happen. It had been originally intended to complete comparative research, using the QSPES (2004) as the foundation document. However, due to the fact that no study had been completed on self-reported and observed teaching styles (Jaakkola & Watt, 2011), this was outcome was unachievable.

During the study the researchers was also able to consult with Professor Sara Ashworth extensively regarding the coding process employed and to clarify some teaching style scenarios. To do this, the researchers sent descriptions of the episode in question, and the exact words used by the teacher during the episode. Ashworth would then describe the decision the teacher was making or the ones the teacher was asking the learner/s to make. The ability to consult with a person with exceptional knowledge of the Spectrum (2002) – Ashworth is the ‘mother’ of the Spectrum of Teaching Styles – was invaluable to the coders and contributed greatly to the accuracy of the coded lessons.

### **Data Collection Tools**

The study involved two parts – **Part A** and **Part B** – for collecting data. **Part A** of the study involved a questionnaire to determine which teaching styles Queensland (a state in Australia) teachers of Senior Physical Education reported using, and how often they reported using them. From the respondents to the questionnaire a group of willing participants for observation of their teaching was identified (for **Part B** of the study).

Initial approval to conduct the study was obtained through the Ethics Approval process at QUT. Approval to conduct research in schools was also sought and gained from various educational authorities. Specific consent to conduct research for **Part B** of the study (observation of teaching) was obtained from Education Queensland, Catholic Education and the specific Principals from the Government and Private schools involved. Informed consent was also sought from each participant who indicated a willingness to be part of the study. Each participant was guaranteed anonymity through an assigned number. This step was taken so that participants could be identifiable after **Part A** so that they could be contacted for **Part B** if they expressed interest. Similarly, and in line with set procedures and ethics committee regulations, informed consent was obtained from parents of the students in classes that would be observed.

### ***Part A-Nature of the Questionnaire***

Mosston and Ashworth’s *Teaching Physical Education* (2002) was always the point of reference for the definitions of teaching styles although consistency with a 2008 online version of this work was used to monitor any revisions or corrections. The use of the Spectrum of Teaching Styles (2002) and personal communication with

Prof. Ashworth provided particularly accurate foundations to construct the definitions for the questionnaire and enabled the questionnaire to most accurately reflect the *Spectrum of Teaching Styles*. The *Spectrum of Teaching Styles* are identified as:

**Reproduction Cluster:**

Style A – Command  
Style B – Practice  
Style C – Reciprocal  
Style D – Self Check  
Style E – Inclusion

**Production Cluster:**

Style F – Guided Discovery  
Style G – Convergent Discovery  
Style H – Divergent Discovery  
Style I – Learner Designed Individual Program  
Style J – Learner Initiated Program  
Style K – Self Teaching

Styles from the reproduction cluster (Styles A-E) are clustered by their cognitive focus and require the use of memory as the conscious thought process (Mosston & Ashworth, 2002). They will require a student to replicate, apply or recall a movement pattern, skill or concept that they have been taught or know (Mosston & Ashworth, 2002). Styles from the production cluster (Styles F-K) require students to “serve the human capacity for production (discovery)” (Mosston & Ashworth, 2002, p. 20). In the production cluster the behaviour of teachers must shift and requires the student to produce knowledge (or movement) new to the student through the conscious thought process of discovery or creativity. Therefore, the teacher must design a learning experience which requires the student(s) to use discovery or creativity as the dominant cognitive operation.

The *Spectrum of Teaching Styles* has had almost fifty years of research and refinement conducted on it. Cothran et al. (2005) describe the Spectrum of Teaching Styles (Mosston & Ashworth, 2002) as “arguably the most pervasive influence on the international field of physical education pedagogy” (p. 194). Similarly, Arti (1995) suggested that “No single book has been translated into more languages, been used by more teachers and teacher educators, and endured so long in our field” (p. 421). Within the field of physical education no other model of teaching styles has been so thoroughly researched or has been scrutinised as intensively or for as long. It now has widespread acceptance in field of physical education and it allows for a conciseness in defining the differences in the anatomy of every teaching style outlined. The differences are determined by "who makes which decision about what and when" (Mosston & Ashworth, 2002, p. 20).

As part of a questionnaire this study used a *Spectrum Inventory* instrument which was collaboratively developed for **researchers** and **teachers** to identify *which teaching styles* from the *Spectrum of Teaching Styles* were being utilised by secondary school physical education teachers. The *Instrument for collecting teachers' beliefs about their teaching styles in physical education* (SueSee, Ashworth & Edwards, 2006) consisted of 11 scenarios that “provide a mutually exclusive image with the essential factors of the different teaching styles” (Ashworth, 2008, p. 2). The participants were asked to read a scenario and answer the question “*How frequently do I use this description to teach my senior physical education lessons throughout the year?*”? They were then required to circle the number on the Likert scale (1-5) which most accurately represented their answer (*see example in Table 1*).

Scenario Style	Scenario Descriptor				
<b>A</b>	The students perform the task, selected by the teacher, in a unison, choreographed, or precision performance image following the exact pacing (cues) set by the teacher.				
How frequently do I use this description to teach my senior physical education lessons throughout the year?	<b>Not at all</b>	<b>Minimally</b>	<b>Here &amp; there</b>	<b>Often</b>	<b>Most of the time</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**Table 1:** An example of one scenario from the *Spectrum Inventory* (2005) which shows different *Likert Scale Descriptors* and focusing on measuring how often a teaching style was used.

### **Research Method-Part A**

The study questionnaires developed for **Part A** were sent out to an estimated 286 specialist physical education teachers in 77 Queensland schools, across all regions of the state. A list of all schools teaching Senior Physical Education in 2005 was obtained from Education Queensland. Based on this list at least one school was

chosen – randomly and some selectively – from all educational districts in the state of Queensland. Schools within a one hour drive of Brisbane were more represented in the list because they were more accessible for research purposes. The schools included both Government schools (known as State or Government schools due to their management being administered by the State Government of Queensland) and Private or Independent Schools. Questionnaires were sent out to a representative sample of all of the 346 schools who had reported to relevant authority – the Queensland Studies Authority (QSA) – that they were teaching Senior Physical Education in the year prior. These schools surveyed represented schools from all the designated Education Queensland (EQ) regions throughout the state. The 37 schools that responded represent close to just over 10% of schools teaching Senior Physical Education in the state of Queensland. There were a total of 110 individual teacher respondents (from the 37 schools) to the questionnaire. From the respondents (n=110) 27 teachers stated that they would be interested in participating in **Part B** of the research which would involve having three lessons over the time of a unit of work being videotaped and coded according to an instrument developed. Coincidentally, the number of participants who expressed interest in participating in **Part B** was also close to a quarter (24.5%) of total questionnaire respondents.

### ***Part A-Teacher’s Self-Reported Usage of Teaching Styles***

The table below (**Table 2**) shows the breakdown of the total number of reported usage of styles by respondents for each scenario outlined in the questionnaire tool for **Part A** of the research project. The teaching styles from the *Spectrum of Teaching Styles* are listed in the first column. Respondents to the questionnaire had been asked to first read a given scenario that described a teaching style and then indicate how often they used this teaching style to teach their Senior Physical Education class during the year.

	<b>Reported Usage of Styles by Respondents After Reading Scenarios.</b>					
<b>Teaching Style</b>	<i>Not at All</i>	<i>Minimally</i>	<i>Here &amp; There</i>	<i>Often</i>	<i>Most of the Time</i>	<b>%</b>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
<b>Command</b>	<b>6</b>	<b>19</b>	<b>38</b>	<b>40</b>	<b>6</b>	<b>100</b>
<b>Practice</b>	<b>0</b>	<b>6</b>	<b>26</b>	<b>68</b>	<b>10</b>	<b>100</b>



<b>Reciprocal</b>	<b>5</b>	<b>32</b>	<b>56</b>	<b>17</b>	<b>0</b>	<b>100</b>
<b>Self Check</b>	<b>16</b>	<b>36</b>	<b>39</b>	<b>15</b>	<b>4</b>	<b>100</b>
<b>Inclusion</b>	<b>23</b>	<b>35</b>	<b>36</b>	<b>16</b>	<b>0</b>	<b>100</b>
<b>Guided Discovery</b>	<b>17</b>	<b>30</b>	<b>24</b>	<b>35</b>	<b>4</b>	<b>100</b>
<b>Convergent Discovery</b>	<b>8</b>	<b>25</b>	<b>38</b>	<b>37</b>	<b>2</b>	<b>100</b>
<b>Divergent Discovery</b>	<b>4</b>	<b>25</b>	<b>35</b>	<b>44</b>	<b>2</b>	<b>100</b>
<b>Learner Designed Individual Program</b>	<b>29</b>	<b>19</b>	<b>37</b>	<b>19</b>	<b>6</b>	<b>100</b>
<b>Learner Initiated Program</b>	<b>53</b>	<b>33</b>	<b>16</b>	<b>6</b>	<b>2</b>	<b>100</b>
<b>Self Teaching</b>	<b>69</b>	<b>26</b>	<b>9</b>	<b>6</b>	<b>0</b>	<b>100</b>

**Table 2:** The total breakdown of teachers (n=110) reported usage of teaching styles.

The table (**Table 3**) presented below allows a comparison of reported teaching styles from Cothran et al. (2005) and the data collected from this research. Five of the teaching styles show little (less than 5%) difference in their reported usage by teachers when the data of these two studies are compared. The largest difference between these two studies involves the reported usage of the *Inclusion Style-Style E*.

<b>Teaching Styles</b>	<b>SueSee 2006 Percentage of Teachers Reported Using This Style 'Here &amp; There to Most of the Time'</b>	<b>Cothran et al. 2005 Percentage of Teachers Indicating Use of 'Sometimes to Always' for Each Style</b>
<b>Command - A</b>	77%	93.1%
<b>Practice - B</b>	94.5%	92.1%
<b>Reciprocal – C</b>	66.3%	85%
<b>Self Check – D</b>	52.7%	46.9%
<b>Inclusion – E</b>	47.2%	78.6%
<b>Guided Discovery – F</b>	57.2%	70.6%
<b>Convergent Discovery – G</b>	70%	73.6%
<b>Divergent Discovery – H</b>	73.6%	73.7%
<b>Learner Designed Individual Program – I</b>	56.3%	40.4%
<b>Learner Initiated Program – J</b>	21.8%	13.5%
<b>Self Teaching – K</b>	13.6%	11.9%

**Table 3:** A comparison with Cothran et al. (2005) and the percentage of teachers who reported using the eleven teaching styles 'Here & There' to 'Most of the Time' from this research.

### **Part B-Participants**

The 27 questionnaire respondents who volunteered to be involved in **Part B** of the study came from different regions across the state of Queensland and was not confined to the Brisbane metropolitan area or large cities. From the group of people

who volunteered for **Part B** four came from outside of Brisbane and 23 from the Brisbane area. The final observation group of nine participants included eight teachers from the Brisbane area and one from a rural area. The characteristics of the final group were:

- Female Teacher from a girls only private school (11 years or more teaching)
- Male Teacher at a government\* school (5-10 years teaching)
- Male Teacher at a rural government school (5-10 years teaching)
- Female Teacher at a government school (5-10 years teaching)
- Female Teacher at a government school (0-4 years teaching)
- Male Teacher from a co-ed private school (11 years or more teaching)
- Male Teacher from a boys only private school (11 years or more teaching)
- Male Teacher at a government school (0-4 years teaching but had a 15 year career in another field)
- Male teacher at a government school (11 years or more teaching)

(\* All government schools are co-educational.)

In keeping with non-experimental research ideology the sample group were not randomised but were chosen by characteristics which they possessed. This means that “subjects are usually identified by some predetermined criteria and are grouped in that fashion” (Berg & Latin, 2004, p. 198). These criteria or characteristics will be outlined later. If the sample had been randomly selected then the data could be biased as the sample may have contained subjects who displayed a narrow range of characteristics (e.g., all males with 0-4 years teaching experiences at all-boys’ schools). While it may be argued that there is a gender imbalance in the sample (six males and three females) it was presumed that this would have little effect for two main reasons. Firstly, the QSPES (2004) suggests the teaching styles to be used and it was presumed that male and female teachers of the QSPES are equally professional in their approach to implementation of it. The second reason is based on research by Jaakkola and Watt (2011) whose research analysed teaching styles used by Finnish physical education teachers. Mosston and Ashworth’s spectrum of teaching styles (2002) was also used to define each style. While they did find that female teachers used the practice style of teaching more than the male physical education teachers, “no other gender differences were found in the rest of the teaching styles “(p. 254).

The criteria for selecting the volunteering participants (n=27) for **Part B** of the study involved analysing the volunteering sample (from those who had completed the questionnaire) and looking for characteristics that would be representative of the characteristics of teachers of Senior Physical Education across Queensland. Those

who displayed many of the ‘typical’ characteristics, and reflected a cross-section of backgrounds of teachers of Senior Physical Education in Queensland, were then selected. In the case of this study, the criteria used to select the group of teachers to be observed teaching were:

- Teaching experience (number of years: 0-4, 5-10 and 11 years and over)
- Gender
- Geographical location of schools (focused on Brisbane and near area for travel/access purposes)
- Profile of the students at schools (girls, boys or co-educational)
- Nature of school (Government or Private)
- The physical activities being taught in a school (activities to reflect all the areas of physical activity outlined in the syllabus).<sup>7</sup>

From these respondents nine participants were ‘randomly’ selected based on a consideration of the criteria outlined above. The randomisation process was only applied when there was a choice between two or more volunteers who met the same criteria. It should be noted that there was *no randomisation* at all with regards to geographical location. Volunteers from areas well away from Brisbane were not considered due to time and travel constraints and the inability of the researchers and a research assistant to cover such large distances to complete the requirements of the study.

Though the randomisation outlined may appear to be a limited process the effort to ensure a cross-section of teachers was consciously attempted as a lack of randomisation “raises many threats to internal validity” (Berg & Latin, 2004, p. 198). The fundamental principle influencing the choice of participants to be observed was always to keep the characteristics of the sample as wide and representative of teachers of Senior Physical Education as possible.

It could be suggested that the 27 teachers who volunteered to be participants in **Part B** of the research and have their classes videotaped were confident in their ability as teachers because they were willing to have a researcher in their classes. The nine individuals who were finally selected as participants for **Part B** of this research had a variety of characteristics representative of teachers of Senior Physical Education. There were six males and three females in the observed group. State school teachers comprised six of the group and three were from private schools.

The participants chosen for **Part B** of the study could also be perceived as being high quality and dedicated teachers. Evidence for this view could be found in some of the extra duties that these teachers undertook outside of their usual roles or duties of teaching and their involvement in professional associations and other committees. All the teachers had good reputations within their schools and the physical education community. Three of the participants were part-time university level tutors, and three were on Panels or Panel Chairs (as part of an Education Queensland course monitoring process for all subjects in all schools that contribute to a university entrance score and to ensure consistency of standards). Three of the participants were also Heads of Departments (HODs). This HOD role means that they were involved in middle management or managerial tasks (such as curriculum aspects including work programs) for the subject area of Health and Physical Education within their school. With regards to the variety of school settings six of the schools were State/Government (or Public) co-educational schools, with one of these being in a rural area. Of the three private schools there was one single sex boys, one single sex females and one co-educational.

Senior Physical Education is a program of study conducted over Year 11 and Year 12 within Queensland. Of the 27 lessons that were videotaped, five of the classes observed were Year 11 (students approximately 16 years old), and four were Year 12 classes (approximately 17 years old). In total 15 lessons were taught to Year 11 classes and 12 lessons were taught to Year 12 classes. Twenty-one of the lessons videotaped were co-educational classes while three lessons involved only boys in classes and three were only for girls. Classes ranged in number from 12 to 40. The lesson length ranged from 42 minutes to 60 minutes. All lessons observed, except for the Aerobics lessons, were in an outside setting such as on an oval/pitch/grass playing area or court. In total 4465 separate coding examples of teaching behaviours (or 24 hours 48 minutes and 20 seconds) were completed.

Physical activities being taught included Touch Football – a non-tackle version of Rugby League – (6 lessons), Netball (6), Gaelic Football (3), Softball (3), Competitive Aerobics (3), Archery (3) and Orienteering (3). The difference in the number of lessons observed for some physical activities was due to the fact that this is what the volunteers were teaching. More importantly the overall the sample of

physical activities observed included content from the four Physical Activity Areas outlined in the QSPES (2004). The four Physical Activity Areas of the QSPES (2004) are; Direct Interceptive, Indirect Interceptive, Aesthetic, and Performance.

### ***Part B-Observations***

**Part B** of the research involved the videotaping of lessons taught by the nine teachers. All the lessons were required to be observed and recorded during the same weeks of a teaching unit of work. If this had not occurred then the validity of the data could be questioned.

Teachers were observed and videotaped teaching Senior Physical Education classes in weeks two, five and seven of a designated 10 week period (usually one term of a four term and two semester academic year). Each Senior Physical Education unit of work or physical activity was – in most cases – usually ends up with around nine weeks of actual teaching time. This length of time for a subject area could be virtually guaranteed due to the Queensland Senior Physical Education Syllabus (2004) stipulating the total time physical activity units of work being 55 hours per semester or usually two school terms.

The observation of lessons provided the information necessary to analyse the congruency between the participants' survey questionnaire and the teaching behaviour observed. Put simply, the observation and coding of their teaching performance would determine if teaching styles that participants reported using on the survey questionnaire were observed doing in the classroom. The basis of determining the teaching styles used by participants was based on the work of Mosston and Ashworth (2002).

### ***Part B-Systematic Observation Instrument***

The videotaped recordings of lessons were reviewed and coded using Ashworth's *Identification of Classroom Teaching Learning Styles* (2004). This instrument was obtained from Professor Ashworth and chosen to ensure that the descriptions of the teaching styles being coded were an accurate reflection of Mosston and Ashworth's (2002) definitions. The instrument was able to identify *nine* out of the 11 possible teaching styles being used by the participants and how often each one

was used. The instrument describes the *subject matter expectations for the observed teaching styles* and the *behaviour expectations of the students* when they are participating in a learning experience or episode.

In conjunction with Ashworth's *Identification of Classroom Teaching Learning Styles* (2004) it was decided that the *Instrument For Identifying Teaching Styles* (IFITS) coding sheet would also be used in the observation and coding process. This tool was used in a study by Hasty (1997) to ascertain the amount of time teachers spent using different teaching styles. Although the coding sheet from IFITS was used the descriptors associated with it were not due to the author's belief that the descriptors were not detailed enough.

The *coding procedure* involved in using IFITS involved a 10 second observation followed by a 10 second recording of this observation. This meant that when observing a lesson the coder made a decision every 20 seconds. The decision the coders were making involved determining which teaching style was being used in the previous 10 second period. During an interval of time where two or more teaching styles were employed, the style would be coded as the style closest to the production end of the *Spectrum of Teaching Styles*. For example, if *Practice Style-Style B* and the *Reciprocal Style-Style C* were both seen in a 10 second period, then the trained coders would record *Reciprocal Style-Style C*. This decision was made – again based on the Hasty's work – where “the least didactic (i.e., more student centred) teaching style is given preference and recorded” (Hasty, 1997, p. 45). This procedure was used as literature suggests that production styles are the least used or “likely to be used sparingly” (ibid, 1997, p. 46). This would ensure that if there was any bias in the coding, it would be to the production cluster end of the *Spectrum of Teaching Styles*. Again, this decision was based on Hasty's research which noted that “the time teachers spent using productive teaching styles was overestimated” (ibid, 1997, p. 46). While Hasty's (1997) instrument (an adaption of Ashworth's 1994 instrument) included eight categories of teaching styles (A-H), this study involved all 11 (teaching styles A-K) categories from the most recent version of the *Spectrum of Teaching Styles* (2002 and 2008).

Two coders were used to code the videotaped lessons. The first coder was a researcher who was a four year trained teacher with 12 years' of teaching experience

and held two postgraduate qualifications. The second coder was also a four year trained specialist physical education teacher who had been teaching for three years. The second coder had studied *Spectrum of Teaching Styles* literature and theory during their degree program and was also trained by a researcher for nine hours in the operation of the coding instrument.

To increase inter-observer reliability, to become familiar with identifying teaching styles and to become competent with the using of the coding sheet, both coders had practice coding live and recorded physical education lessons. The fact that all lessons had been videotaped meant that the coders were able to stop the lessons at any time to consult notes or texts to clear up any confusion.

The researchers were also able to consult with Professor Ashworth extensively during the coding process to clarify some teaching episodes. Descriptions of the episode in question, and the exact words used by the teacher during the episode were sent to Professor Ashworth. Using her expert knowledge of the *Spectrum of Teaching Styles* Professor Ashworth would then describe as objectively as could be determined from the supplied information the decision the teacher was making or the ones the teacher was asking the learner/s to make. This was invaluable to the coders and contributed to the accuracy of the coded lessons.

### ***Part B –Observations***

The teaching styles used by the nine participants observed when teaching Senior Physical Education is listed in **Table 4** below. The far right column displays the reported usage of the entire sample of respondents (n=110) to allow comparison. While most of the nine participants reported usage of teaching styles was similar to the overall number of questionnaire it is relevant to note that respondent differences of greater than 10% can be seen for styles C-F. Given the small size of groups there is no significance in this observation.

Teaching Style	Not at All	Minimally	Here & There	Often	Most of the Time	Observed Participants (Part B) Who Claimed to use this style "Here & There- Most of the Time" (n=9)	% "Here & There- Most of the Time"- All Participants Questionnaire (Part A) (n=110)
Command	0	2	2	5	0	7	77%
Practice	0	1	2	5	1	8	94.5%
Reciprocal	0	4	2	3	0	5	66.3%
Self Check	0	3	3	2	1	6	52.7%
Inclusion	2	1	3	3	0	6	47.2%
Guided Discovery	1	5	0	3	0	3	57.2%
Convergent Discovery	1	2	5	1	0	6	70%
Divergent Discovery	0	2	2	5	0	7	73.6%
Learner Designed Individual Program	1	3	2	2	1	5	56.3%
Learner Initiated Program	1	6	2	0	0	2	21.8%
Self Teaching	6	1	2	0	0	2	13.6%

**Table 4:** The reported usage of the nine participants compared against the total number of questionnaire respondents (n=110).

Based on the reported usage of teaching styles by the nine participants the observations and coding revealed some discrepancies between what teaching styles the participants believed they were using and the styles that were observed using. These results can be seen below in **Table 5**.



<b>Participant</b>	<b>Styles Used</b>	<b>Number of Styles Used</b>
<b>Participant 1</b>	<b>B</b>	<b>1</b>
<b>Participant 2</b>	<b>B</b>	<b>1</b>
<b>Participant 3</b>	<b>B, C</b>	<b>2</b>
<b>Participant 4</b>	<b>B, D</b>	<b>2</b>
<b>Participant 5</b>	<b>B, C</b>	<b>2</b>
<b>Participant 6</b>	<b>B</b>	<b>1</b>
<b>Participant 7</b>	<b>A, B &amp; G</b>	<b>3</b>
<b>Participant 8</b>	<b>B</b>	<b>1</b>
<b>Participant 9</b>	<b>B</b>	<b>1</b>

**Table 5:** Participant breakdown of the range of styles observed being used during each teacher’s three by one hour lessons (total lessons =27).

When the time spent using different teaching styles is converted to a percentage of the total amount of time of teaching that was observed then a more accurate picture is obtained of the variety of teaching styles used by the participants in the study. This information is displayed below in **Table 6**.

<b>Teaching Style</b>	<b>% of Observations Teaching Styles Were Observed From Total Lessons (<i>n</i>=4465)</b>	<b>Observed participants who claimed to use this Style “Here &amp; There-Most of the Time”(<i>n</i>=9)</b>
<b>Command- Style A</b>	<b>3.65%</b>	<b>7</b>
<b>Practice-Style B</b>	<b>69.87%</b>	<b>8</b>
<b>Reciprocal-Style C</b>	<b>2.55%</b>	<b>5</b>
<b>Self Check-Style D</b>	<b>.55%</b>	<b>6</b>
<b>Inclusion-Style E</b>	<b>0%</b>	<b>6</b>
<b>Guided Discovery-Style F</b>	<b>0%</b>	<b>3</b>
<b>Convergent Discovery-Style G</b>	<b>.78%</b>	<b>6</b>
<b>Divergent Discovery-Style H</b>	<b>0%</b>	<b>7</b>
<b>Learner Designed Individual Program-Style I</b>	<b>0%</b>	<b>5</b>

<b>Learner Initiated Program-Style J</b>	<b>0%</b>	<b>2</b>
<b>Self Teaching-Style K</b>	<b>0%</b>	<b>2</b>
<b>Management (such as placing markers)</b>	<b>22.57%</b>	<b>NA</b>

**Table 6:** The percentage of all observations (n=4465) participants were observed using styles and the number (n=9) of observed participants who claimed to use the style (*Here & There-Most of the Time*).

By including the total number of times each teaching style was coded and the time in hours and minutes that this represented it further highlights the dominance of *Practice Style-Style B* even more (**Table 7**). It also puts into perspective that, even though two participants were recorded using *Reciprocal Style-Style C*, it amounted to 38 minutes or 114 times out of 4465 coding. While the claim can be made that four teaching styles were observed during this research, and is therefore a variety, it is the amount of time that some of these styles were used for that does not represent a great deal of diversification in teaching styles.

<b>Teaching Style</b>	<b>% of Time Teaching Styles Were Observed From Total Lessons</b>	<b>No of Coding's n=4465</b>	<b>Time Recorded Using this Style n=24hr:48min:20 secs</b>	<b>Observed participants who claimed to use this Style "Here &amp; There-Most of the Time"(n=9)</b>
<b>Command- Style A</b>	<b>3.65%</b>	<b>163</b>	<b>54min 20 sec</b>	<b>7</b>
<b>Practice-Style B</b>	<b>69.87%</b>	<b>3120</b>	<b>17hrs 20 min</b>	<b>8</b>
<b>Reciprocal-Style C</b>	<b>2.55%</b>	<b>114</b>	<b>38min</b>	<b>5</b>
<b>Self-Check-Style D</b>	<b>.55%</b>	<b>25</b>	<b>8min 20 sec</b>	<b>6</b>
<b>Inclusion-Style E</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>6</b>
<b>Guided Discovery-Style F</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>Convergent Discovery-Style G</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>6</b>
<b>Divergent Discovery-Style H</b>	<b>.78%</b>	<b>35</b>	<b>11min 40sec</b>	<b>7</b>
<b>Learner Designed Individual Program-Style I</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>5</b>
<b>Learner Initiated Program-Style J</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Self-Teaching-Style</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>2</b>

<b>K</b>				
<b>Management</b>	<b>22.57%</b>	<b>1008</b>	<b>5hrs 36min</b>	<b>NA</b>

**Table 7:** Time Participants (n=9) were Observed Using Styles (**Part B**) and Reported Usage (**Part A**)

### *Discussion*

The results indicate that teachers of Senior Physical Education in Queensland do not use a wide variety of styles. These results reflect those from similar studies in other countries (Hasty, 1997). When considering research on teaching, Mosston and Ashworth (2002), also in support of the findings of this study, indicate that “research on classroom teaching-learning behaviours indicates that, although teachers believe they use a wide variety of alternative behaviours in the classroom, they are, in fact, significantly uniform in their teaching behaviour” (p. 293). Similarly, Metzler (2005) contends that “the vast majority of physical education teachers today probably use some recognizable version of what is known as direct instruction” (p. 187). Additionally, Hasty (1997) found in a comparison of teaching styles pre-the National Curriculum Physical Education (NCPE) for state schools in England and Wales and post-NCPE that “teachers spent the vast majority of their time using the reproductive style termed “practice” in Mosston’s Spectrum” (p. 69). Therefore, when this research is considered, the results of this study are not surprising.

This outline does not undertake a detailed discussion for the reasons why incongruence was found between self-reported and observed teaching styles. However, Davis and Sumara (2003) found that teachers will adopt specific language yet they will continue to teach in ways that are informed or influenced by a traditional objectivist approach to learning. While this could be the case, others (Cothran et al., 2005, Hasty, 1997, and Thorburn, 2007) have found that high stakes curriculum (or curriculum that contributes to university entrance scores) may lead to the use of teaching styles from the *reproduction* cluster.

The difference between teacher’s perceptions of their use of teaching styles, their understanding of various teaching styles (based on the *Spectrum of Teaching Styles*) and their observed use of teaching styles is central to a major myth that emerged out of this research. It was presumed that teachers know and consciously use a variety of teaching styles to meet effective teaching and learning requirements.

Syllabus documents invariably indicate the use of a range of teaching styles. It is often presumed that it is the use of certain teaching styles which may require students to utilise what is sometimes termed Higher Order Thinking Skills (HOTS) such as evaluation, synthesis or creativity which are best to help meet syllabus requirements and for students to achieve to their potential. This view is reinforced by the fact that syllabus documents such as the QSPES (2004) assesses under criteria such as evaluating. Although syllabus writers and education theorists advocate the use of a wide variety of teaching styles this research quite clearly demonstrates that this is not occurring. This poses questions unexplored here which relate to the syllabus, knowledge of teachers, the practice of teaching and assessment processes.

Further myths can be considered in light of these discrepancies between self-reported-teaching styles and observed teaching styles. Firstly, the myth that the QSPES (2004) writers produced a document which stated a requirement for teachers to use specific teaching styles to meet syllabus objectives, when the named teaching styles were not necessary, and the objectives could still be achieved. It is contended that the QSPES suggests that it is assessing HOTS (i.e., thought that is producing new knowledge to the learner or creative thought) based on three tenets. The first of these is the implication that evaluating is always a HOTS skill which requires creativity or the production of new knowledge. The second factor highlighting the QSPES assumptions with regards to evaluating (always producing new knowledge or using creativity) is that it speaks of intelligent performance involving “creative thought at a high level of cognitive functioning” (QSA, 2004, p. 5). The final aspect is that the QSPES describes ‘A’ level students implementing “physical responses through reflection and decision making in new or unrehearsed contexts within complex performance environment” (QSA, 2004, p. 55). However, evaluating is not always a HOTS skill (which requires creative thought or the production of new knowledge) and the concepts that the QSPES describe do not have to be completed in this way alone. A student can be asked to reflect or evaluate a situation – which they have seen previously – and will therefore draw on memory of what was successful then. Therefore, creativity is not always required when evaluating (nor for that matters is discovery) if the principle or facts are known. This claim is suggested as an individual cannot discover or create (i.e., new knowledge) something twice.

Considering these points, there would appear to be no real need for the teachers to assess the term of evaluating as a higher order thinking skill (HOTS) as

described by the QSPES (QSA, 2004) because it is not always producing new knowledge or does not require the student to use creative thought. The QSPES (QSA, pp. 48-51) provides numerous examples of what it suggests are complex performance environments and therefore requiring evaluating. Students would be required to perform in such environments and be filmed doing so. This film would then be sent to a District Panel for the mandated process of moderation to ensure a level of consistency of schools in that district with regards to exit levels of achievement awarded to students. The QSPES required teachers to submit video evidence of a student displaying an 'A' standard (as described above) yet suggest that such drills for videotaping and submission (to support proposed levels of achievement) should "allow the students time to become familiar with the demands of the task you will use on the video" (QSA, 2004, p. 68). This is quite clearly a contradiction of what constitutes a new or unrehearsed context. From the evidence available from the study it would appear that teachers are not using all the specific teaching styles required by the syllabus document. Therefore, it is a myth to assume that teachers are fulfilling the core syllabus requirement with regards to teaching styles. The result of this behaviour – as a 'compliance myth' – means that teachers are not assessing *evaluating* in the manner which the QSPES (2004) defines it in the Exit Criteria matrix.

At this point in the discussion it would be quite easy to assume that teachers of the QSPES (2004) are deliberately not using numerous teaching styles deliberately. This conclusion would not be taking into consideration the influence of other factors. In recent times in the state of Queensland (Australia) there has been an increased emphasis on the use of data to inform and improve teaching practices and student results. Much of this data is published in national papers along with university entrance scores (O.P. or Overall Positions) from schools. This practice has been shown to have many negative impacts, some of which have been reported in this research. For example the QSA published a paper in 2009 arguing that:

Full-cohort tests encourage methods of teaching that promote shallow and superficial learning rather than deep conceptual understanding and the kinds of complex knowledge and skills needed in modern, information-based societies (Assessment Reform Group 2006; Shepard 2000, 2008; Pellegrino, Chudowsky & Glaser 2001). Teachers adopt transmission styles of teaching and highly structured activities (Harlen & Deakin Crick 2002). In order to secure higher test results for their students, teachers "teach to the test" and

train students to pass the test, with consequent narrowing of the curriculum to what is tested and what can be tested (Harlen & Deakin Crick 2002; Herman, Baker & Linn 2006; Jennings & Rentner 2006; Koretz 1988; Linn 1998, 2000; Popham 2001; Shepard, 2008). (QSA, 2009, p. 5).

All of these outcomes seem to be influenced by the fact that no school or teacher wants to perform poorly and have it reported in the paper. In the case of this research, it can be argued that the teachers were trying to get the best possible results for their students, and since the QSPES did not require the specific teaching styles mentioned to be used to achieve high outcomes they were not used.

Goldberger, Ashworth and Byra (2012) suggest that they had colleagues “who studied and implemented Spectrum teaching styles for over 30 years and both only used three styles” (pp. 274-275). They suggest that this had more to do with the curriculum that they were following rather than their personal philosophy. The teachers chose these three styles as “the major goal of their programs was limited to performing a specific set of sports/movement skills. To do this, they mainly used the practice style, with some episodes in command and reciprocal used on occasions” (2012, p. 275). While Goldberger et al. (2012) have anecdotally indicated this use of the practice style of teaching this research has highlighted a similar use amongst those observed.

The styles that the nine participants were observed using were *Command Style-Style A*, *Practice Style-Style B*, *Reciprocal Style-Style C*, *Self-Check Style-Style D* and *Convergent Discovery Style-Style G*. At first glance this may appear like a range of styles, but it is when the total time using these styles is presented as a percentage of total observed time (**Table 6**) that a more precise claim can be made about the range of teaching styles observed. As a percentage of total time observed, only 7.5% was observed using a teaching style other than the *Practice Style-Style B*. If Participant 7 was removed from the sample, only around 3% of the time can be classified as using teaching styles other than the *Practice Style-Style B*. Therefore, in answer to the research question, ‘What is the dominant teaching style for teacher’s of Senior Physical Education in Queensland?’ – the answer is *Practice Style-Style B*.

However, the use of *Practice Style-Style B* as the predominant style is not necessarily compatible with the expectations and approaches outlined in the QSPES (2004). This study suggests the need for further investigation of a range of issues

related to syllabus intent, design and implementation as well as the type and level of information on teaching styles that teachers have and/or gain during teacher preparation, practice and in-service opportunities, and the influence of high stakes curriculum. There could be some concern in the fact that the syllabus is not being taught using a variety of styles as prescribed/indicated by the document or being taught according to the pedagogical underpinnings of the syllabus. Any disconnect between a school program and a student work review system which expects to see work produced as a result of certain teaching styles and what and how it is produced was not considered in this study.

### ***Conclusion***

This paper has outlined the research findings of a study on teaching styles (teaching styles as identified by Mosston & Ashworth, 2002) self-reported as being used and observed actually being used by teachers of Senior Physical Education in the Australian state of Queensland. The study was in two parts. The first part (**Part A**) was a questionnaire completed by 110 teachers of Queensland Senior Physical Education in which they indicated what teaching styles they believed they used. Teachers indicated in the questionnaire that they used a range of teaching styles. In the second part of the study (**Part B**) a group of nine volunteer participants were observed teaching across three one hour lessons of Senior Physical Education and the videotaping undertaken were coded using a reliable recording instrument. The results of the observed group indicate that the dominant teaching style used by teachers of Senior Physical Education in Queensland was the *Practice Style-Style B* and that a range of teaching styles was not employed even though the QSPES (2004) specifically suggested the use of a range of pedagogical approaches (p. 28).

Various myths also emerged during this research. One myth, already mentioned, is that teachers used a variety of teaching styles to teach senior physical education in Queensland. Another myth identified was that the QSPES (2004) had clear definitions of what it was assessing – and was being implemented in the manner set out by the authors of the syllabus document. It may also be suggested that a myth is created when there is an expectation or assumption that the publication of the syllabus document (with its outline of certain information) will initiate, inform or improve teaching practice. There appeared to be no reasonable mechanism which required teachers to heed the advice provided in the syllabus with regards to the pedagogical approaches suggested. It may be argued that the syllabus writers needed

to make the teachers aware that if they did not use a pedagogical approach which required the students to use creativity or discovery (as the dominant cognitive operation) then the student could not meet the Exit Criteria descriptor for an 'A' or 'B' standard as defined by the QSPES (2004). Perhaps the syllabus writers had not noticed this link between pedagogical approach and Exit Criteria descriptors themselves and therefore it has contributed to the situation. The ultimate outcome of the myths outlined is a variation in standards between teachers and schools which can undermine the comparability of results between cohorts and challenge the integrity of the subject as a rigorous academic endeavour. Although not explored in this study the validity of assessment judgments was also raised by Hay (2008) when he argued that when comparing some physical activities being assessed by the QSPES (2004) "the validity of any judgement of a students' evaluative capacity is inherently questionable" (p. 165).

Most significantly, the results of the study indicate that teachers are not using the teaching styles required by the syllabus document although they may believe that they are doing so. This has implications for the teaching of the syllabus and the assessment process – based as it is on the assumptions associated with the use and benefits of clearly articulated teaching styles. The pedagogical underpinnings of the QSPES do not seem to be adhered to as has been outlined in the syllabus. If a variety of teaching styles are not being used then it would seem reasonable to assume that the learning experiences described by the QSPES are unlikely to occur. A logical assumption would be that the four *General Objectives* (Acquiring, Applying, Evaluating and Appreciating) of the syllabus are not being effectively taught or assessed as outlined by the QSPES (2004). While explaining this concept in greater detail (along with offering explanations for why this has occurred) is not the focus of this paper, it has been examined in a doctoral study undertaken by one of the researchers and lead author of this paper. Despite the implications of the study it is hoped that some of the information outlined here will highlight the need for teachers to have greater knowledge of, and expertise in, a range of teaching styles. Further, it would be expected that teachers would be able to implement the intent of the syllabus by using required teaching styles in an appropriate way. It is a myth to assume that teachers of Senior Physical Education in Queensland schools actually know and understand all the specific pedagogical approaches that the QSPES (2004) mentions and are able to implement these approaches in the required manner in the appropriate



context. The fact that teachers do not appear to meet syllabus requirements has significant ramifications within regards to the conduct of the subject and more widely at various levels in education in Queensland. The situation highlighted is more than likely due to a lack of insufficient clarity on behalf of syllabus writers as it is on the lack of direction and provision of appropriate and ongoing in-service of teachers with regards to pedagogical approaches. Ultimately it should be the aim of all those involved in developing subjects and syllabus documents for schools to ensure that teachers have the knowledge and skills to undertake their responsibilities, meet syllabus requirements and ensure educationally just outcomes for students. Failure to do so will not only result in myths such as the ones highlighted here but also teacher frustration at attempting to implement and assess the ‘un-assessable’ resulting in a lack of equity of student outcomes.

This study outlined has explored various aspects related to Senior Physical Education in schools and in doing so has outlined some myths that have emerged. No syllabus document is ‘perfect’ and diligence and professional scrutiny are important to ensure that any failings which result in myths are identified and addressed by the relevant education authorities. If attentiveness to detail is followed (and myths are addressed) then it should increase the chance that well-informed teachers can deliver a quality syllabus document with confidence.

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