Stretching the Rubric

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Introduction: "You can't improve what you don't measure"

Assessment is becoming even more necessary in physical education (P.E.), both to demonstrate students achieving certain goals and objectives in addition to the overall effectiveness of the program's instruction. There are several assessments available to measure student progress in physical education such as scoring rubrics, checklists, record sheets, self-assessment, logs, written tests and fitness tests. In this article we will address the more popular scoring rubric.

Physical Education professionals have been designing and using scoring rubrics to assess students for several years, however, the extent to which these assessment tools are appropriate to evaluate every student who may be participating, in particular students with disabilities, is questionable. It seems with more P.E. classes becoming inclusive, the tools to assess students with varying abilities have fallen behind their rapid transition into the mainstream P.E. classroom. Professionals have to recreate assessment tools to include students with all levels of abilities and they are experiencing difficulty developing ways to do so in a valid and reliable way (Seaman, 2000). The purpose of this article is to offer suggestions for designing a more inclusive scoring rubric that will evaluate all students, including those with disabilities. A scoring rubric is a guideline for making scoring decisions based upon detailed descriptions of performance (Leiberman & Houston-Wilson, 2002). There are many types of scoring rubrics that are used in the P.E. field. For instance, following is a list of different types of scoring rubrics and their advantages and disadvantages.

Overhand Throw

Name _____

Check to indicate which of the critical elements are PRESENT.

	YES	NO
1. Elbow flexed away from body	_____	_____
2. Arm extended on backswing	_____	_____
3. Contralateral step	_____	_____
4. Trunk rotation	_____	_____
5. Follow-through across body	_____	_____

Figure 1. Checklist rubric (adapted from "Sample Rubrics", n.d.)

Types of Rubrics

Checklist rubrics contain a list of desirable characteristics and a means for describing whether or not they are present. The advantages to checklist rubrics are that they serve well as formative assessment tools and they are simple to design. One disadvantage is that no attempt is made to determine the degree of the quality of the behavior (see Figure 1).

Point system rubrics assign points to various criteria, however there is no attempt made to determine the degree of the quality of the criteria. The point system rubric like the checklist rubric is a good formative assessment tool and rather simple to design (see Figure 2).

Analytic rubrics require the scorer to make a judgment about the quality of the criteria and the extent to which each dimension is present. This type of rubric identifies and describes three or more levels of performance. Words or numbers can be used to evaluate performance. The advantage to an analytic rubric is that areas of strength and weakness can be pinpointed as the skill components are broken down for evaluation. A disadvantage would be that this type of rubric is more time-consuming to develop (see Figure 3).

Holistic rubrics require the scorer to consider all of the descriptors simultaneously while evaluating a student's performance. Three or more levels of performance are described with great detail. Each level includes not only the characteristics that should be present, but also the degree of quality sufficient for a particular level. Holistic rubrics are often used in martial arts to designate belt levels by color. Two disadvantages of the holistic rubric are (1) it is time-consuming to develop, and (2) it requires the evaluator to become extremely well acquainted with the criteria in advance. An advantage to the holistic rubric is that judgments can

Fitness Testing

Name_____

Check to indicate which of the tasks are COMPLETE.

1. PACER (20 m)	(5 points)	_____
2. BMI	(2 points)	_____
3. Sit & Reach	(3 points)	_____
4. Trunk lift	(3 points)	_____
5. Dominant grip	(3 points)	_____
6. Flexed arm hang	(3 points)	_____
7. Modified curl-up	(3 points)	_____
TOTAL POINTS		_____

Figure 2. Point system rubric

(adapted from "Sample Rubrics", n.d.)

be made rather quickly and accurately regarding the level of performance of an individual (see Figure 4).

Advantages of Using Rubrics

There are several advantages to utilizing rubrics in physical education. First, a rubric can serve as a motivational tool as students document their individual progress by keeping track of skill improvements. Second, a certain level of safety is assured as students do not progress to a more difficult skill level until they have mastered basic skills at a previous level. Finally, due to the wide range of abilities in a typical physical education class, a rubric can be designed to encompass the full continuum of skill levels.

Rubrics can be used in evaluating students' progress as well as identifying specific, individual skill weaknesses and/or inadequate lesson structure (Olrich, 2002). Olrich emphasizes that using a well designed rubric is great for peer evaluations as it can serve to augment student learning and recognition of specific skill components. Rubrics can also be used to evaluate the process of the skill being performed, the product, or outcome of a skill sequence and the limitations involved.

In terms of motivation, students can document their individual progress by keeping track of skill improvements in each of these areas based on their own rubric scoring. In an achievement domain such as physical education, motivation can be a key component to a student's desire and effort to master certain skills. Motivation theories such as Harter's (1988) competence motivation theory and Deci and Ryan's (1985) self-determination theory highlight the importance of demonstrating competence. Students who experience success on a physical task will typically have higher enjoyment and increased motivation to try related and/or new skills. Through well-designed, extended rubrics, many more students have the potential for success on any given skill which should positively impact motivation for physical activities.

Another asset to using rubrics is the assurance of safety in certain situations. Since students are not able to move to the next level until they have achieved the previous one, chances of students engaging in skills they have not yet mastered is reduced. This is particularly germane to curriculum blocks that have high levels of safety concerns (e.g., tumbling, gymnastics, wall climbing).

Bicycling Skills

Name_____

Check to indicate level of performance met.

	Seldom	Sometimes	Frequently	Most
1. Rides independently a distance of 30'	_____	_____	_____	_____
2. Engages brakes at the appropriate time and with sufficient force	_____	_____	_____	_____
3. Mounts and dismounts bike independently	_____	_____	_____	_____
4. Rides independently a distance of 60' or more	_____	_____	_____	_____
5. Self-starts bike independently	_____	_____	_____	_____

Levels of Performance

Most – Criterion demonstrated 3 out of 4 trials
Frequently – Criterion demonstrated MORE than half of the time
Sometimes – Criterion demonstrated LESS than half of the time
Seldom – Criterion is not demonstrated

Figure 3. Analytic rubric

Level Four

Student executes all shots taught with good form, using near flawless shot selection. Shot and serve selections are mixed to avoid anticipation by the opponent. Shots are placed away from the opponent. Anticipates opponent's shot when possible. Student moves to cover the entire court, consistently trying to return to a "home" position. Weight is balanced equally on the balls of the feet to allow for a quick movement. Student uses correct footwork to move to all shots, arriving in time and in control. Communication with partner is evident. Efforts between the two are coordinated and appropriate. Both cover own court area with no attempt to play the other's position. Student thoroughly knows and understands all rules of the game, using them in strategic ways. Can answer any question when asked. Calls shots honestly and fairly. Recognizes good play from others, both partner and opponent.

Level Three

Student utilized most shots (presented in class at appropriate times with good form). Uses correct footwork and is usually in position to play shots. Shows some anticipation of the opponent's shot. Student covers the court, generally attempting to return to a "home" position. Weight is usually on the balls of the feet so student can move quickly. Uses both short and long serves with some variation to avoid anticipation by the opponent. Use of strategy to defeat the opponent is evident as shots are hit to open places on the court. Communicates with partner, working with him/her to cover the court while not dominating it. Shows evidence of cooperation and teamwork. Student generally shows evidence of knowing and applying the rules. Serving order and rotation are correct. Usually employs rules to his/her advantage and can answer most questions when asked. Recognizes good play by others. Calls shots honestly and fairly.

Level Two

Student uses several of the shots presented, but not always at the appropriate time. Some form breaks are apparent; however, form is mostly correct. Student covers court but occasionally finds him/herself out of position. Shifting weight to the balls of the feet may be necessary before he/she can move to the shot. Students attempt to return to a "home" position but may not always get there. Limited attempts to anticipate opponent's return shot. Student demonstrates several elements of correct form to execute both long and short serves but does commit some errors. Student varies the use of serves, giving some attention to where the opponent is positioned. Uses some strategy to defeat an opponent, hitting shots to open places on the court. Communicates with partner and demonstrates some evidence of working with partner to cover the court. May occasionally dominate the court rather than working harmoniously with partner. Student shows evidence of knowing the rules; however, does make some errors when answering questions. Tries to congratulate others on good play. Calls shots honestly and fairly.

Level One

Student relies on 1 or 2 shots for the entire game. Incorrect form causes shots to be misplaced or ineffective. Does not move following a shot, making it difficult to be in a position to play an opponent's return. Parts of the court are left uncovered at times. Weight is back on the heels, making it difficult to reach opponent's shot. "Reaches" to play shots rather than moving into proper position. Uses predominately one serve and occasionally may have form breaks. Does not look at opponent when deciding which type of serve or shot to use. Hits shots directly back to opponent so that they are easy to return. Little communication with partner and little evidence of teamwork. At times, both may attempt to play the shot. Student is unfamiliar with rules. Depends on opponents or partner to tell him/her what to do. Is unsure of serving order and rotation. Incorrect calls may result from incomplete knowledge of the rules or poor etiquette.

Figure 4. Holistic rubric ("Sample Rubric", n.d.)

Suggestions for Alternative Rubric Designs

Using rubrics for assessment of skills seems logical for those typically developing students, however, for those children with disabilities, modifications to the assessment tool are necessary for valid evaluation. In addition, due to inclusion a rubric designed to be utilized for the full continuum of skill levels would offer a more accurate, reliable, and time efficient process for teachers.

Block, Lieberman, and Conner-Kuntz (1998) published adaptations for typical rubrics for accurate and reliable evaluation including the idea for success among all students. For example, Block et. al., describe various rubrics that are more flexible for children with disabilities. First, a "rubric within a rubric" allows for a child with a disability to work on individual goals while attempting to achieve general class goals. Block et. al., mention the use of an individual rubric where goals and objectives don't match general P.E. goals. For example, a student with Down Syndrome is working to increase his endurance fitness levels while at the same time participating in the class soccer unit (see Figure 5).

Another type of alternative rubric is the "extended rubric". A concept of rubric extensions works to include students with disabilities and higher skilled students. In many cases, rubrics start at a level that is too difficult for some and not challenging enough for others. For example, scooter board relays can be used in this particular assessment situation (see Figure 6). Highlighted sections demonstrate more appropriate levels for students with disabilities. Note that students who are more highly skilled are also challenged to complete additional lengths and to improve their times.

Lastly, there is a "rubric analysis". This rubric breaks down a skill into the very basic elements following a child's progress over time. The skill is broken down into step by step progressions of a particular skill. Initially the skill may require a child to bend his/her knees such as in shooting a foul shot in basketball. If he/she are able to perform this beginning component of the skill he/she has successfully achieved the first item on the rubric. Following is an example of the foul shooting rubric (see Figure 7).

Creating Rubrics for All Students

When creating a rubric, the instructor should visualize student performance or the expected product, depending on their level of ability, understand key points/criteria/descriptors, identify levels of performance, and specify standards and

Level Earned	Cardiovascular Endurance	Soccer Skills
Level 4: Professional	Student actively participates in 10 consecutive minutes of game play	◆ Shooting foot extended at ankle ◆ Shooting knee over ball & head down ◆ Strikes ball with laces & follows through
Level 3: Collegiate	Student actively participates in 10 cumulative minutes of game play	◆ Shooting foot extended at ankle ◆ Planting foot parallel to ball ◆ Shooting knee over ball & head up ◆ Does not strike ball with laces & no follow through
Level 2: Varsity	Student actively participates for 5 consecutive minutes of game play	◆ Shooting foot extended at ankle ◆ Planting foot parallel to ball ◆ Does not keep shooting knee over ball & head up ◆ Does not strike ball with laces & no follow through
Level 1: Recreational	Student actively participates for 5 cumulative minutes of game play	◆ Shooting foot is not extended at ankle ◆ Planting foot parallel to ball ◆ Does not keep shooting knee over ball & head up ◆ Does not strike ball with laces & no follow through

Figure 5. Rubric within a rubric

Scooter Board Relays

Instructions: Place the abbreviated letter(s) next to the statement which best describes the child's performance.

TA = Total assistance
PA = Partial assistance
I = Independently

Slick rider

__ Student lies on scooter while teacher, aide, or peer pulls across gym, 1 time

Hammer hold

__ Student sits or lies on scooter while teacher, aide, or peer pulls across gym, 1 time, by holding on to a hula hoop or jump rope.

Speedster

__ Student sits on scooter and pushes self across gym, 1 time, with the legs, demonstrating control.
__ Student lies on scooter and pulls self across gym, 1 time, with arms, demonstrating control.

Roadrunner

__ Student sits on scooter and pushes self across gym, 2 to 5 times, with the legs, demonstrating control.
__ Student lies on scooter and pulls self across gym, 2 to 5 times, with arms, demonstrating control.
__ Student lies on scooter while teacher, aide, or peer pulls across gym, 2 to 5 times.
__ Student sits or lies on scooter while a teacher, aide, or peer pulls across gym, 2 to 5 times, by holding on to a hula hoop or jump rope.

Quicksilver

__ Student sits on scooter and pushes self across gym, 6 to 10 times, with the legs, demonstrating control.
__ Student lies on scooter and pulls self across gym, 6 to 10 times, with arms, demonstrating control.
__ Student lies on scooter while teacher, aide, or peer pulls across gym, 6 to 10 times.
__ Student sits or lies on scooter while teacher, aide, or peer pulls across gym, 6 to 10 times, by holding on to a hula hoop or jump rope.

Blast-off

__ Students ride scooters across gym, demonstrating control, and try to break their own speed records for 1, 2, and 3 times across.

Figure 6. Extended rubric

(Leiberman and Houston-Wilson, 2002)

benchmarks. In instances where an individual rubric is ideal, reference to the students IEP is always recommended. Once these have been developed and validation and reliability have been established, the rubric should be practiced with the students during the specific activity to be measured. Lund (2000) provides six steps as guidelines for writing rubrics in her text, "Creating Rubrics for Physical Education". She emphasizes that rubrics should at least contain 3 levels of evaluation, expected performance, least acceptable performance, and unacceptable performance. However, if the instructor is using a traditional letter grading system (A, B, C, D, F) there needs to be five levels.

Lund (2000) suggests when writing a rubric for physical education it should begin with process (correct form) first then product (level of performance). An exception to this emphasis on process would occur when assessing students with physical or orthopedic disabilities. In many instances, the outcome or product is more important and functional to the student, as "correct" form may be modified to accommodate a specific physical disability (i.e., amputation, limb spasticity). An emphasis on product is essential in the shift toward the assessment of functional movement skills (Burton & Miller, 1998).

Reliability and Validity of Rubrics

Reliability and validity can and should be established through a variety of methods. When developing rubrics, teachers should have a solid rationale for the purpose of their assessment (Baumgartner, Jackson, Mahar, & Rowe, 2006; Morrow, Jackson, Disch, & Mood, 2005; Moskal & Leydens, 2000). Moskal and Leydens warn that without instructors understanding *what* they want to know about a student's competence and *how* the student will demonstrate said competence, validity of the assessment tool is compromised. To address validity concerns teachers are encouraged to utilize developmentally appropriate skill resources (e.g., textbooks, websites, skill manuals) and compare and contrast two or more resources for specific skill proficiencies. This method can assist in verifying important skill components and more importantly, extending the scoring rubric. Another method is to employ colleagues and coaches in rubric development as this can reduce individual bias and enhance kinesthetic knowledge of a specific skill or skill set.

Following implementation with students, it is always recommended to refine the rubric scale based on the results. Teachers should be reminded that even though a rubric may be both reliable and valid, they do not account for the unique characteristics of a student's performance (Moskal & Leydens, 2000).

Summary

Scoring rubrics help clarify student learning and evaluate program teaching. Feedback is then presented to the students and the data can be used to assess whether they have met the

Basketball Shooting

	>75%	>50%	<25%
Minnesota Lynx			
1. Knees bent	❑	❑	❑
Charlotte Sting			
1. Knees bent	❑	❑	❑
2. Eyes on basket	❑	❑	❑
Cleveland Rocker			
1. Knees bent	❑	❑	❑
2. Eyes on basket	❑	❑	❑
3. Body extends upward	❑	❑	❑
New York Liberty			
1. Knees bent	❑	❑	❑
2. Eyes on basket			
3. Body extends upward	❑	❑	❑
4. Correct hand position on ball	❑	❑	❑
a. Non-shooting hand supports ball held in shooting hand			
b. Shooting hand is palm up, fingers facing shooter			
c. Wrist flexed forward			
Houston Comet			
1. Knees bent	❑	❑	❑
2. Eyes on basket	❑	❑	❑
3. Body extends upward	❑	❑	❑
4. Correct hand position on ball	❑	❑	❑
a. Non-shooting hand supports ball held in shooting hand			
b. Shooting hand is palm up, fingers facing shooter			
c. Wrist flexed forward			
5. Shooting arm extends up and forward	❑	❑	❑
6. Follow through by fully extending arm toward basket and reaching with shooting hand	❑	❑	❑

Figure 7. Rubric analysis (Adapted from Block, M.E., Leiberman, L.J., and Connor-Kuntz, F., 1998)

final objectives of a particular unit. It is without a doubt that developing scoring rubrics are time intensive. However they do assist with setting clear expectations for the students and offer less bias by instructors. Each class that involves students with disabilities should incorporate an appropriate rubric to meet each student's objectives and at the same time allow for success. Utilizing these rubric designs will help P.E. teachers include all children with and without disabilities to participate fully in their classes and at the same time achieve specific learning objectives established in the curriculum for the class overall.

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