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PEDAGOGY

Using the Personalized System of Instruction to Differentiate Instruction in Fitness

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Abstract

The purpose of this article is to provide an overview of how PE teachers can personalize learning to meet a variety of student needs. Differentiated instruction (DI) is a term frequently used in classroom-based learning to describe a method of personalization for individual students. The term can also describe a theoretical model for teaching and research, an instructional model, and a philosophy. Teachers must have a firm understanding of student readiness, interest, and learning profile to differentiate four areas of instruction: content, process, product, and the environment. Students in PE can benefit from DI, but there is a lack of formal methods to differentiate PE content. The Personalized System of Instruction (PSI) is an instructional model that provides a complete framework for PE teachers to personalize learning for all students. Fitness-related content such as resistance, plyometric, and agility training provides a context for applying the PSI model to DI in the secondary school setting.

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Differentiated instruction (DI) is a term used to describe a theoretical model for teaching and research, an instructional model, and a philosophy (Tomlinson & Imbeau, 2010). This type of instruction has primarily been applied to the classroom-based instruction, combining many common instructional strategies that focus on flexibility and personalization of learning (Tomlinson, 2014). Specifically, DI requires teachers to use their knowledge of student readiness, interest, and learning profile to differentiate four areas of instruction: content, process, product, and the environment (Santangelo & Tomlinson, 2012).

To gain this knowledge of students, teachers must adopt this philosophy and teach in a way to gain understanding of their students and how they learn. Student readiness includes not only a student's current skill level, but also a student's prior learning experiences, attitudes, and knowledge (Santangelo & Tomlinson, 2012). While striving to promote learning in the psychomotor, cognitive, and affective domains, physical education (PE) teachers must also consider students' prior learning in these domains. These prior experiences have also likely shaped student interest. In DI, the role of the teacher when selecting content is to grow and foster new student interests rather than consider current interests (Santangelo & Tomlinson, 2012). By providing students with developmentally appropriate instruction and opportunities for success, teachers can effectively grow student interest in a variety of content areas (Garn, Cothran, & Jenkins, 2011).

Teachers can further enhance instruction by differentiating according to a student's learning profile, which consists of four elements: learning style, intelligence preference, gender, and culture (Tomlinson et al., 2003). Learning style denotes a student's preferred context for learning, such as grouping methods, modes and presentation, and their interaction with the environment. Intelligence preference refers to a student's learning strengths (e.g., reading, singing, or reasoning), mode (e.g., touch, sing, work along, or with a group), and medium (e.g., sharing, working in nature, moving, or reflecting) within Gardner's (2011) eight areas of intelligence: visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, verbal-linguistic, logical-mathematical, and naturalistic.

In PE, the implications of gender and culture must be carefully considered. Gender perceptions can negatively affect girls' partici-

pation in a variety of physical activity settings (Oliver & Hamzeh, 2010). PE teachers should consider these perceptions and use pedagogical practices that promote concepts such as gender equity and foster effective interpersonal relationships (Hills & Croston, 2012). Culture is also an important consideration because it can mediate differing preferences for activity and motivational patterns (Nishida & Isogai, 2007). PE teachers can use sport as a medium to foster cultural appreciation and mediate these activity preferences (Salter, 2003). However, many cultures have strong affinities toward specific sports, and indeed sport can play a large role in the larger culture of a society. Like gender, culture should be viewed as a personal characteristic of learning. Teachers who follow a philosophy of differentiation view gender and culture as small components that make each learner unique, and they take them into account when creating experiences that personalize learning.

Despite a strong understanding of students, teachers still find the task of personalizing content, processes, products, and the environment arduous. Each one of these four categories is interdependent, is interrelated, and overlaps each other (Tomlinson & Imbeau, 2010). The "content" is not changed in DI, but rather instruction is formatted in a way that students have multiple ways to access the content. "Process" is the activities or tasks students complete while developing and acquiring the knowledge, skills, and understanding. "Products" are the means by which students show the degree to which they have learned new content through diverse processes. The environment is the emotional and physical context where this occurs. Differentiation and personalizing one area, such as the content, may also affect the processes by which students interact with the content.

Implementing DI in PE provides teachers with many challenges with the diverse skills levels in a class and the limited time and space in the environment (Whipp, Taggart, & Jackson, 2014). Teachers have primarily applied DI in PE as an instructional strategy to meet the needs of students with disabilities (Lieberman & Houston-Wilson, 2009). However, many PE teachers possess the skills to differentiate. For example, teachers can modify the requirements of a task (i.e., process) using intratask variation (Graham, 2008). Despite possessing these pedagogical skills, teachers still struggle translating this into practice (Whipp et al., 2014).

These difficulties are perhaps the result of a clear lack of concrete examples of DI in the PE literature and models for DI in the PE setting. Instructional models provide PE teachers with a framework for DI and perhaps promote the transfer of DI into mainstream PE. Instructional models are a "plan or pattern that can be used to shape curriculums (long-term courses of studies), to design instructional materials, and to guide instruction in the classroom or other settings" (Joyce & Weil, 1980, p. 1). In PE, instructional models serve as a framework to guide teachers in planning, teaching, and assessing within an instructional unit (Metzler, 2011).

Because the primary goal of DI is personalization of content, the Personalized System of Instruction (PSI) is an instructional model that provides a framework with rich potential for differentiation. The PSI is an instructional model that was originally developed to personalize the process of learning in a large university psychology course (Keller, 1968). The PSI model has since been incorporated into PE with success (Prewitt et al., 2015a, 2015b; Pritchard, Penix, Colquitt, & McCollum, 2012). The PSI and DI focus on the individual nature of learning. When differentiating instruction, teachers must be guided by the following central tenets described by Tomlinson and Imbeau (2010): (a) Numerous individual differences make each learner unique, (b) all students learn differently and need different types of support to be successful, and (c) teachers should ensure that all students become proficient. The key features of the PSI clearly align with these tenets: (a) Student learning is self-paced, (b) student learning occurs in a mastery-based climate, (c) content is communicated to learners via written text, (d) "proctors" provide additional support and assess students on individual components of the course, and (e) lectures and demonstrations serve to increase student motivation rather than communicate course content (Keller, 1968; Keller & Sherman, 1974).

Recently, the PSI has primarily been implemented in the area of personal fitness such as the use of assessment to create and achieve personal fitness goals as students learn key concepts and skills (Colquitt, Pritchard, & McCollum, 2011; Prewitt et al., 2015b; Pritchard et al., 2012). The purpose of this article is to present a modification of the PSI to serve as a framework for DI. Specifically, teachers will use assessment to gain a better understanding of students with a focus on readiness, interest, and learning profile within

a PSI unit that differentiates content, process, and products within an environment that fosters personal learning. For our examples of implementing PSI as a framework for DI, the context will be a high school personal fitness unit.

Using the PSI to Differentiate Instruction in a High School Personal Fitness Unit

A primary challenge teachers face when implementing DI in PE is the diverse set of skills within a single classroom (Whipp et al., 2014). Personal fitness is a content area in which students are likely to have varying levels of skill, knowledge, and values. One third of the class likely possesses low levels of "proficiency" because they are overweight or obese (Ogden, Carroll, Kit, & Flegal, 2014). In terms of differentiation in personal fitness, the most challenging aspect is gaining understanding and differentiating according to student readiness. The self-pacing feature of the PSI can help teachers make this accommodation. Typically, a PSI workbook is created prior to the unit. The workbook places an emphasis on the written word, providing all instruction including management, tasks, and assessment. The advantage is the instructor is able to provide more feedback and increase meaningful instructional interactions because less time is spent demonstrating or lecturing. Each workbook contains modules that focus on the skills of the unit. The modules contain a written description of the skill, pictures, practice tasks, and a criterion task. Typically, the sequence progression of these modules or skills is developmentally appropriate. Students work at their own pace while they progress from one module to the next. Students read the information and practice the skill until they are able to complete the criterion task at a level that indicates "mastery."

When teachers are teaching fitness education using PSI, it is important that modules contain key concepts and skills that will enable students to change behavior and that will translate to positive changes outside the PE classroom (Colquitt et al., 2011). Because high school students are likely to have already mastered skills associated with cardiovascular exercise such as running, jogging, or cycling, the skills taught in the unit will primarily focus on new movement skills such as resistance training and plyometric and agility exercises when appropriate.

The levels of difficulty of resistance training exercises vary greatly, just as student fitness levels vary. This poses a challenge for those developing a PSI fitness workbook that is developmentally appropriate. The National Strength and Conditioning Association's (NSCA) classification scheme for resistance training status provides clear recommendations on the types of exercises that are appropriate based on current training program, training age, frequency, stress, and experience (see Table 1; Baechle & Earle, 2008).

Table 1
Classification of Resistance Training Status

Training status	Current program	Training age	Frequency (per week)	Training stress	Technique experience/ skill
Beginner (untrained)	Not training or just began training	< 2 months	≤ 1–2	None or low	None or minimal
Intermediate (moderately trained)	Currently training	2–6 months	≤ 2–3	Medium	Basic
Advanced (well trained)	Currently training	1+ years	3–4+	High	High

Gaining Understanding of Students Through Assessment

PE teachers can use assessment to determine a student's current level of readiness, which they would assess periodically prior to workbook assignment and after workbook completion. Based on assessment results, the teacher assigns a workbook to the student. In this manner, assessment serves the purpose of diagnostic assessment, which is appropriate for use when differentiating instruction for students (Tomlinson & Imbeau, 2010). The example assessment contains three distinct components and provides students with a PSI workbook in one of three tracks: beginner, intermediate, or advanced. One part of the assessment process is the use of the

aforementioned NSCA's classification scheme for resistance training status (see Table 1; Baechle & Earle, 2008). The teacher uses this to determine student readiness for resistance training. Although the primary purpose of the scheme is to provide guidelines for appropriate frequency and training stress based on the current program, training age, and skill level, it will serve as the first of three components of an assessment to evaluate readiness. Based on this scheme, a student must meet all criteria to progress from the beginner level. For example, a student who is currently training and has been training for 3 months would not be able to progress to the intermediate level until developing at least a basic level of technique experience.

The next section of the assessment contains fitness criteria from the Fitnessgram Healthy Fitness Zones (HFZ; see Table 2; Meredith & Welk, 2010). In the original PSI model, 90% was considered "mastery" (Keller, 1968) and 80% has been considered mastery when PSI has been implemented in PE (Colquitt et al., 2011; Pritchard et al., 2012). If a student meets the appropriate criteria to progress from a lower level based on resistance training status, the student then has to meet the criteria for the HFZ associated with each level. A student could progress from a beginner to intermediate workbook if currently training and having completed a training program of approximately two months at a low training stress and having developed a minimal level of technique experience. The goal for the student at the completion of the beginner workbook is not only to meet these criteria, but also to achieve a level of fitness within the HFZ in at least three fitness components. As students progress from the intermediate to advanced level, they would be required to meet criteria of advanced training status and to achieve scores within the HFZ in at least five areas. The inclusion of plyometrics and sport-specific training requires the application of additional criteria. The NSCA has specific criteria, including strength, speed, and balance, to evaluate the readiness of an individual to begin a plyometric training program (see Table 3; Baechle & Earle, 2008).

After determining student readiness, the teacher would then need to assess student interest and learning profile. Teachers can assess student interest in sport and PE through a less formal process. They can administer short surveys, ask questions, and engage in informal conversations with students to determine their interests.

Table 2
Health-Related Fitness Component Assessment

Fitness component	Fitness test	Healthy Fitness Zone (HFZ)	My score	Healthy Fitness Zone met (Y/N)
Body composition	Body Fat %			
	Body Mass Index			
Aerobic capacity	PACER			
	1-Mile Run			
	Walk Test			
Abdominal strength and endurance	Curl-Up			
Trunk extensor strength and flexibility	Trunk Lift			
Upper body strength and endurance	90° Push-Up			
	Modified Pull-Up			
	Flexed Arm Hang			
Flexibility	Shoulder Stretch			
	Back-Saver Sit and Reach			

Note. Beginner = 2 or less HFZ met; Intermediate = 3–4 HFZ met; Advanced = 5–6 HFZ met.

Teachers often gain such understanding through the instructional process. It is important that teachers remember that the purpose of gaining understanding of student interest is to connect new content to these interests and diversify student interest in various forms of physical activity and sport. Teachers can gain an understanding of the four elements of student learning profile through a combination of informal and formal assessment. Teachers can gain a firm understanding of student gender and cultural identity through observation and conversation. Dunn and Dunn (2014) provided examples of gaining understanding of student learning styles and

Table 3
Evaluation of Readiness for Advanced Conditioning and Sport-Specific Training

Component	Fitness test	Criteria	My score	Criteria met (Y/N)
Lower Body Strength	1RM Squat	1.5 × BW		
Upper Body Strength	1RM Bench	1.5 × BW (< 220 lb)		
		1 × BW (≥ 220 lb)		
	Clap Push-Ups	5 consecutive		
Lower Body Speed	Squat	5 reps with 60% BW in < 5 seconds		
Upper Body Speed	Bench Press	5 reps with 60% BW in < 5 seconds		
[a]Balance	Standing (Single Leg)	30 seconds without falling		

Note. BW = body weight.

[a]Additional balance tests may be required to advance within the plyometrics training module.

have since developed a website with online resources for assessment (http://www.learningstyles.net/). McKenzie (1999) developed resources to assess intelligence preference based on Gardner's (1983) theory (http://surfaquarium.com/MI/inventory.htm). In addition, Martin and Morris (2013) presented an overview of how to incorporate multiple intelligence theory into instructional models.

Differentiation of Content, Process, Products, and the Environment

After gaining a detailed understanding of the student through assessment, the teacher can use this knowledge and information to differentiate instruction according to the content, process, products, and the environment. The teacher completes differentiation by making

two modifications of the typical PSI course while maintaining the core elements of the model. First, the teacher incorporates flexibility into each module. Students must be able to choose which exercises to complete, how they practice and prepare for criterion tasks, and how to demonstrate mastery. Second, the teacher creates three separate workbooks, which are assigned based on the categories of training status and assessment results. The three levels of training status provide a basis from which to vary tasks and skills according to the readiness of the individual. In this manner, the teacher expands the typical PSI workbook to account for the different types and difficulty levels of fitness concepts and skills.

The beginner workbook focuses on rudimentary fitness concepts and fosters the development of basic fitness skills such as balance, flexibility, aerobic capacity, and muscular strength and endurance. The modules within this workbook require mastery of basic bodyweight exercises and the use of selectorized equipment (see Module Examples section, Push-Up). The intermediate workbook focuses on skills that require more coordination and strength and place a greater training stress on the body. This workbook contains skills and concepts such as free weight exercises and concepts that are more advanced such as cardiovascular endurance (see Module Examples section, Bench Press). The advanced workbook is for students with a sound conditioning base and a high level of skill and experience (see Module Examples section, Power Clean). This course focuses on more advanced fitness concepts such as sport-specific training, power training, functional anatomy, speed/agility, and plyometrics. Many free and reputable online resources are available for teachers to use to create modules for these content areas (see www.exrx.net).

Distinctions between these levels of readiness are important because many high school PE programs offer courses based on prerequisites and course sequencing. For example, students could take Personal Fitness, Introductory Weight Training, and Advanced Weight Training in three consecutive terms. As in other PE courses, students enter each of these with significant variations in readiness. The final module in each workbook focuses on the development and completion of a personal fitness program, the length of which is determined by the level and the focus of which is based on individual goals based on assessment prior to workbook assignment.

The selection of exercises and the scope and sequence of the modules provides flexibility for the student and the teacher. The teacher can select content to include in a workbook based on the equipment available or allow students to choose which modules to complete in each section of the workbook. The key for teachers to differentiate instruction successfully is first seeking to understand students through assessment. The teacher must accomplish this prior to developing PSI workbooks. Because of the nature of instruction in the PSI, this understanding allows the teacher to fulfill many requirements of DI prior to the first class in the fitness unit through the creation of workbooks. During class, the teacher can take advantage of the benefits of PSI instruction such as reduced lecture time and increased individual feedback to differentiate content, process, products, and the environment.

The instructional format of the PSI allows teachers to differentiate the content, the "content" being the methods students use to access key fitness concepts and skills. Table 4 presents examples of differentiation options, many of which have been modified from Tomlinson and Imbeau (2010) and specifically for the PSI in fitness. It is important to consider that in DI "there are instances, however, when some students need to go back to prerequisite content in order to move ahead, when advanced learners need to move ahead before their classmates are ready to do so . . ." (Tomlinson & Imbeau, 2010, p. 15). The workbook provides this opportunity, allowing the teacher to emphasize the written word and to use lectures and verbal instructions to motivate rather than convey content (Keller & Sherman, 1974). The workbook also allows the teacher to provide feedback and instruction to students who need it most. An increase in teacher–student interactions also means that teachers spend more time making fitness content relevant to students by connecting the content to their interests. Teachers can provide examples of how variations of exercises can be performed outside the school setting or how the exercise relates to sports or similar activities. They can further differentiate content by using technology to expand the various modes in which the "written" word is communicated. A teacher could set up a laptop for students to access free online video demonstrations of exercises (e.g., see www.exrx.net). Different types of readiness drills and practice tasks also ensure that students have multiple ways to engage content.

Table 4
Examples of Differentiation Options Within the PSI

Area of instruction	Readiness	Interest	Learning profile
Content	Pictures, videos, and active demonstration Small group instruction Partner/proctor checks Emphasis on the written word	Teacher interactions based on student interests Scaffolding of modules Application of fitness components to sport and other physical activity settings	Varied modes of "written" word (video, audio, and written) Multiple practice tasks and readiness drills
Process	Tasks of varied levels of difficulty Independent practice and progression Self-pacing Mastery-based learning	Use of technology to assist in workbook completion Supplementary activities based on student interest Students serving as experts (proctors)	Choice of interactions (i.e., partner or individually) Intratask variations for practice tasks based on learning preference
Product	Personal goal setting based on assessment results Personal fitness plan based on personal goals	Inclusion of interests in personal goals and fitness plan Flexible selection of exercises to complete within modules	Varied presentations of personal goals and workout plan Complex and varied criterion tasks

Table 4 (cont.)

Area of instruction	Readiness	Interest	Learning profile
Environment	Partner checks/ tasks with a focus on collegiality Varied equipment options Individual feedback based on student needs	Individual feedback based on student interest Varied options for individual versus group interactions Student choice of exercises and equipment	Optional modes of student–student and teacher–student interactions Flexible modes of dress for various fitness activities

The process is also differentiated by the creation of three workbooks. Students follow a predetermined, developmentally appropriate progression based on their current level of readiness. Students also have the option to work with a partner or independently while they complete modules. The presence of criterion tasks also ensures that students have mastered key content before proceeding to the next module. The use of technology also provides opportunities for differentiation of the process by student interest. Students could create an online fitness portfolio using Google Sites, uploading pictures and videos of themselves completing their favorite exercises to demonstrate competence. The teacher can also provide supplementary activities based on student interest. The teacher can include this in the workbook or as an activity outside the normal class structure. For supplementary activities, the teacher could require students to connect or relate fitness content to other physical activity or sport preferences. The nature of the PSI model also presents options for the teacher to differentiate the process according to the learning profile of each student. Students with either interpersonal or intrapersonal preferences can choose to work with a partner or independently. Teachers can also provide variations on practice tasks and readiness drills that personalize these tasks based on learning style and intelligence preference.

Products are perhaps the most personalized element of DI because students create personal goals based on their personal fitness assessment results. Because students are creating their own goals, the teacher should provide guidance while ensuring students select goals that reflect their current level of readiness and interests. Students learn the skills and concepts based on their current status and then complete a personal fitness plan to meet those goals. Student progress while completing the workbook. Students can develop and complete a personal fitness plan with flexibility, working in a way that reflects their learning style and intelligence preferences. The teacher also has many options regarding presenting and tracking the goals and workout plan. The teacher can provide students with multiple ways of presenting and creating their workout plans to differentiate products and ensure they have achieved mastery.

Creating flexible workbooks within the PSI creates an environment that fosters differentiation. An emphasis on the written word and partner checks presents students with options regarding student-to-teacher and student-to-student interactions. The environment is built around the personal nature and progress of student learning. In the PSI, students "progress as fast as they can or as slowly as they need" (Metzler, 2011). Students who need increased support and instruction from the teacher can have this need met because the teacher is functioning as a facilitator for the entire lesson while providing high rates of quality feedback.

Module Examples

PSI Module for Push-Ups

The Push-Up is an exercise for the chest muscles. It is important to work these muscles for many activities in which you may participate throughout your life. Be familiar with the following muscles (Figure 1) and cues (Table 5) when performing the Push-Up.

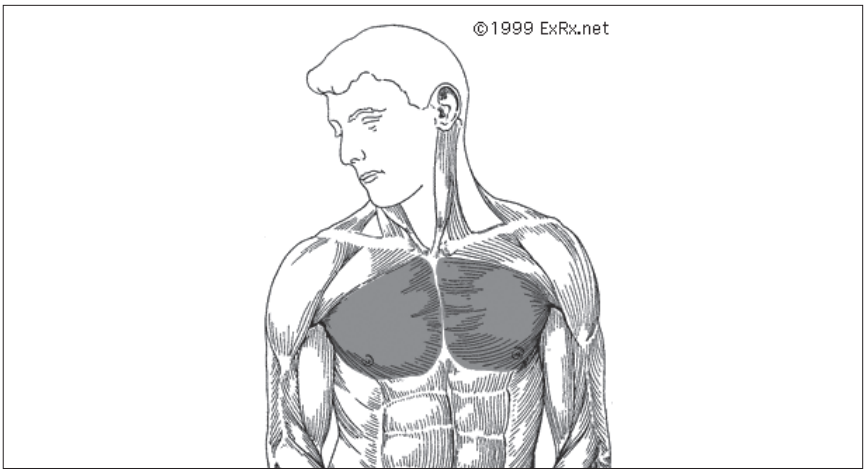

Figure 1. Pectoralis major: Sternal head. Image used with permission of ExRx.net.

Table 5
Push-Up Technique and Performance Cues Checklist

Performance cues	Picture
☐ 1. Lie prone on floor with hands slightly wider than shoulder width. ☐ 2. Raise body up off floor by extending arms with body straight.	
☐ 3. Keeping body straight, lower body to floor by bending arms.	
☐ 4. Push body up until arms are extended. ☐ 5. Repeat.	

Comprehension task/readiness drill. Find a partner and demonstrate to each other the proper performance cues for the Push-Up with only your body weight. Be able to identify the muscles being activated during this exercise. Be sure to provide feedback to each other for correct and incorrect (Table 6) performance cues until both of you can correctly execute the Push-Up. Perform Push-Up using proper form for at least 5 repetitions.

Learning tips.

- Breathe out during the Upward Phase and breathe in on the Downward Phase.

If you experience difficulty with this readiness drill, refer to the Performance Cues and review each cue as presented. If you still have difficulty, ask your course instructor to assist you in applying these techniques.

Table 6

Common Errors and Corrections

Error	Correction
Your back is not straight.	Concentrate on keeping core muscles contracted.
You are not bending elbows enough for correct push-up.	Elbows should be at a 90° angle at the down position. May need to have hands wider at the starting position.

Criterion task for push-up. Get with a partner and have your partner check off the criteria that you performed correctly for the Push-Up.

Criterion task 1.

Partner Checked

1. Target: Correct form
2. Criterion: Score 5 out of 5 on the Push-Up Technique and Performance Cues Checklist

Perform the Push-Up with correct form while a partner checks your **Push-Up Technique and Performance Cues Checklist** (Table 5). You must score 5 out of 5 on the Push-Up Technique and Performance Cues Checklist to go to the next task. Write down your score for each set (Table 7). Note that we are concerned with correct form!

Table 7
Personal Recording Form

Set	1	2	3	4	5
Push-Up Checklist Score					

Partner initials _____ Date completed _____

Criterion task 2.

Partner Checked

1. Target: Correct form
2. Criterion: Complete as many Push-Ups consecutively with correct form

Perform the Push-Up as many times possible with CORRECT form for three sets. Write down the number of Push-Ups you completed in each set (Table 8). You may rest 2 to 3 minutes between sets.

Table 8
Personal Recording Form

Set	1	2	3
Repetitions			

Partner initials _____ Date completed _____

Once you have completed as many Push-Ups consecutively with correct form, write the exercise performed along with the total number repetitions for all three sets on your Exercise Checklist.

PSI Module for Bench Press

The Bench Press is an exercise for the chest muscles. Be familiar with the following muscles (Figure 2) and cues (Table 9) when performing the Bench Press.

Facts to know . . .

- A wider grip focuses mainly on the chest muscles and a narrow grip adds more shoulder muscles.
- If you are just getting started estimating how much you should lift, it is recommended that you start with 60% of your body weight.

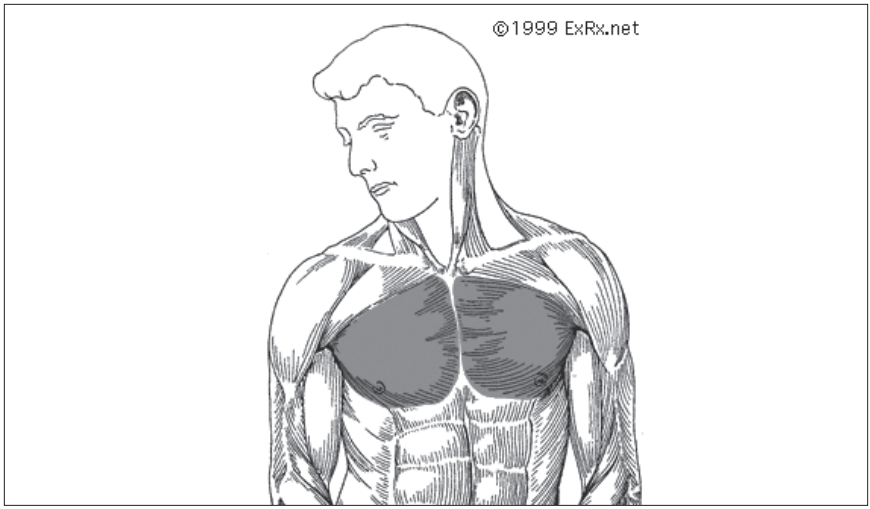

Figure 2. Pectoralis major: Sternal head. Image used with permission of ExRx.net.

Table 9
Bench Press Performance Cues Checklist

Performance cues	Picture
☐ 1. Lie on bench using 5-point body contact position. ☐ a. Back of the head on bench ☐ b. Upper back/shoulders on bench ☐ c. Lower back/buttocks on bench ☐ d. Right foot on floor ☐ e. Left foot on floor ☐ 2. Dismount barbell from rack over upper chest using wide pronated grip or common pronated grip.	

Table 9 (cont.)

Performance cues	Picture
☐ 3. Lower weight to upper chest.	
☐ 4. Press bar until arms are extended.	
☐ 5. Repeat until you have completed the correct number of repetitions and then rack the bar.	

Comprehension task/readiness drill. Get into a group of three and demonstrate to each other the proper performance cues for the Bench Press with very little weight. You will have a performer, a spotter, and a recorder. Be able to identify the muscles being acti-

vated during this exercise. Be sure to provide feedback to each other for correct and incorrect (Table 10) performance cues until all three correctly execute the Bench Press. Perform the Bench Press using proper form with a weight you can lift at least 10 repetitions.

Learning tips.

- Make sure you breathe out during the Upward Phase and breathe in on the Downward Phase.
- Do not lock out your elbows on full extension.
- Control the weight during the lift so you have a smooth motion.

If you experience difficulty with this readiness drill, refer to the Performance Cues (Table 9) and review each cue as presented. If you still have difficulty, ask your course instructor to assist you in applying these techniques.

Table 10

Common Errors and Corrections

Error	Correction
You cannot control the weight.	• Choose a weight that you can not only lift but also control. • Make sure the weight is moving slowly.
Your grip is not evenly spaced.	• Adjust the hands so they are equal distance from the plates. • After the weight is lowered, your wrists should be directly over your elbows.
Your elbows extend unevenly.	• Concentrate on the arm that lags behind. • Choose an object straight ahead to focus on instead of looking at your arms.
Your back and/or buttocks lifts off the pad.	• Lighten the load. • Concentrate on keeping your back and buttocks against the bench or pad.

Criterion task 1.
Partner Checked

1. Target: Correct form
2. Criterion: Score 5 out of 5 on the Bench Press Performance Cues Checklist

Get into a group of three. Perform the Bench Press with a weight that you think you can lift with correct form while a partner checks your **Bench Press Performance Cues Checklist** (Table 9). The third person will be a spotter. You must score 5 out of 5 on the Bench Press Performance Cues Checklist to go to the next task. Write down your the weight lifted and your score for each set (Table 11). Note that you are not concerned with weight but with correct form! Spotters, make sure you do your job correctly.

Table 11
Personal Recording Form

Set	1	2	3	4	5
Weight					
Bench Press Checklist Score					

Partner initials _____ Date completed _____

Criterion task 2.
Partner checked

1. Target: Correct form
2. Criterion: Lift as much weight as possible for 10 repetitions

Perform the Bench Press with a weight that you think you can lift at least 10 repetitions. If you are unable to lift the weight 10 repetitions, then you have too much weight. Let your partners go and then try again after approximately 1.5 to 2 minutes of rest. If you are able to lift 10 repetitions with ease, then the weight is not heavy

enough. Let your partners go and then add some weight during your turn after your rest period. Keep doing this until you have reached a weight that you can lift at least 10 repetitions with CORRECT form. Write down the weight lifted and number of repetitions for each set (Table 12). *Note:* You may not do 9 sets.

Table 12
Personal Recording Form

Set	1	2	3	4	5	6	7	8	9
Weight									
Repetitions									

Partner initials _____ Date completed _____

Criterion task 3.
Partner Checked

1. Target: Calculate 1RM
2. Criterion: Determine 1RM of Bench Press

To calculate your 1RM, take the maximum amount you lifted 10 RM and divide it by 75%. Your answer should rounded up or down based on 5 lb. Calculate your 1RM. Have your partner check off the criteria that you performed correctly for the Bench Press.

PSI Module for Power Clean

The Power Clean is a power exercise for multiple muscles. It is important to work these muscles for many activities in which you may participate throughout your life.

Be familiar with the following muscles (Figures 3 to 8) and cues (Table 13) when performing the Power Clean.

Facts to know. . .

- There is NO Spotter for this exercise.

Figure 3. Gluteus maximus. Back view of leg. Image used with permission of ExRx.net.

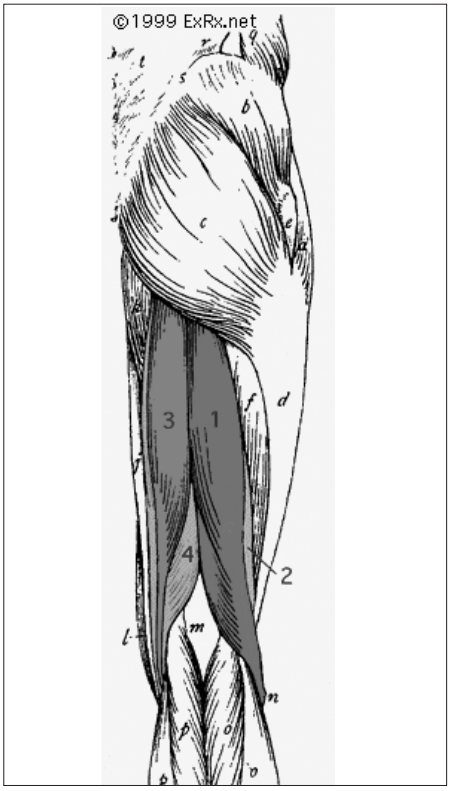

Figure 4. Hamstrings: (1) Biceps femoris, long head; (2) biceps femoris, short head; (3) semitendinosus; (4) semimembranosus. Back view of leg. Image used with permission of ExRx.net.

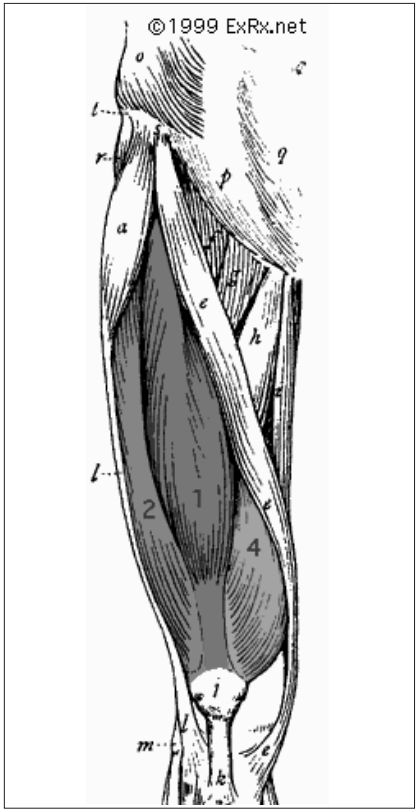

Figure 5. Quadriceps: (1) Rectus femoris, (2) vastus lateralis (externus), (3) vastus intermedius, (5) vastus medialis (internus). Front view of leg. Image used with permission of ExRx.net.

Figure 6. Gastrocnemius: (1) Medial head, (2) lateral head. Image used with permission of ExRx.net.

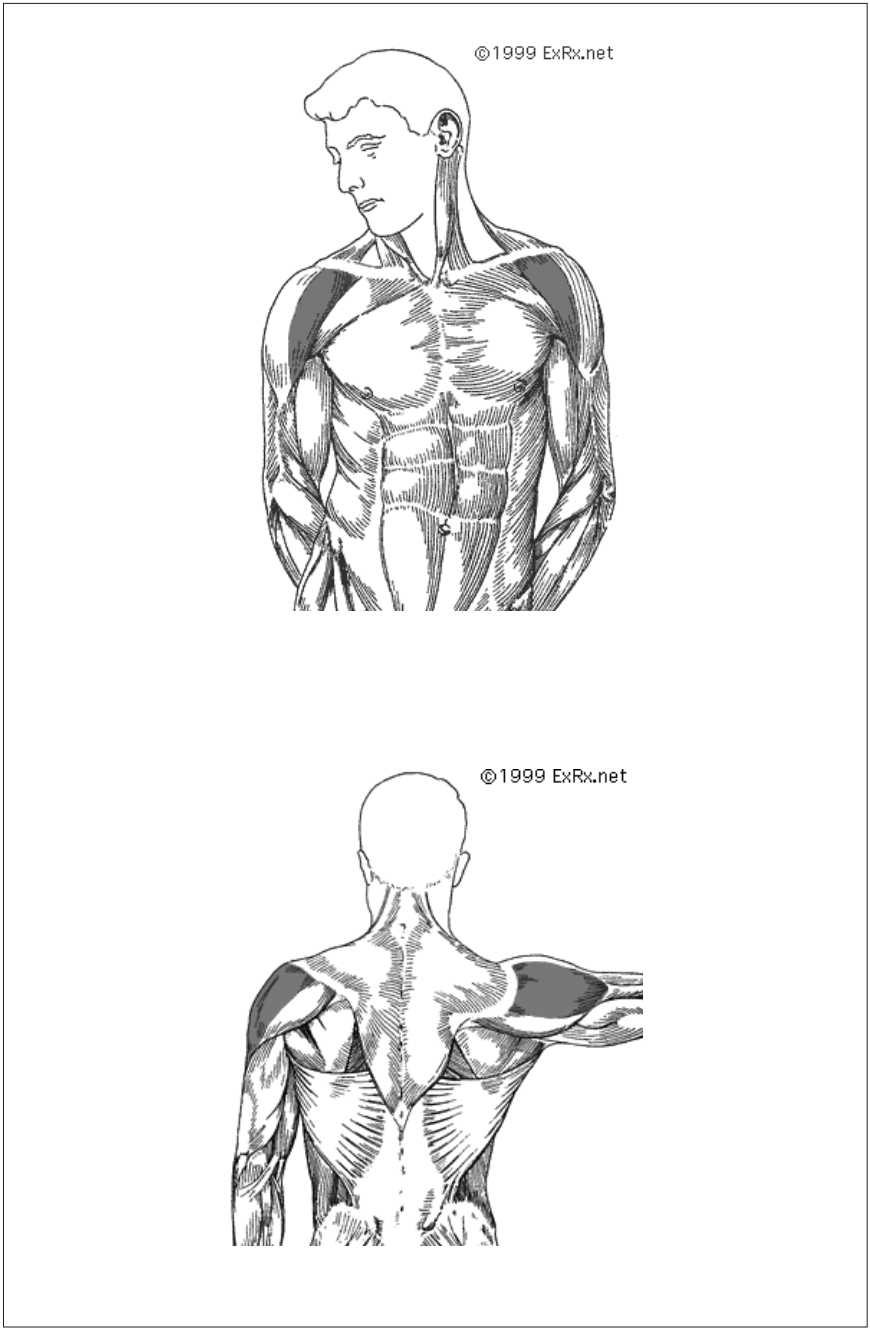

Figure 7. Deltoids: Anterior deltoid (top), lateral deltoid (bottom). Images used with permission of ExRx.net.

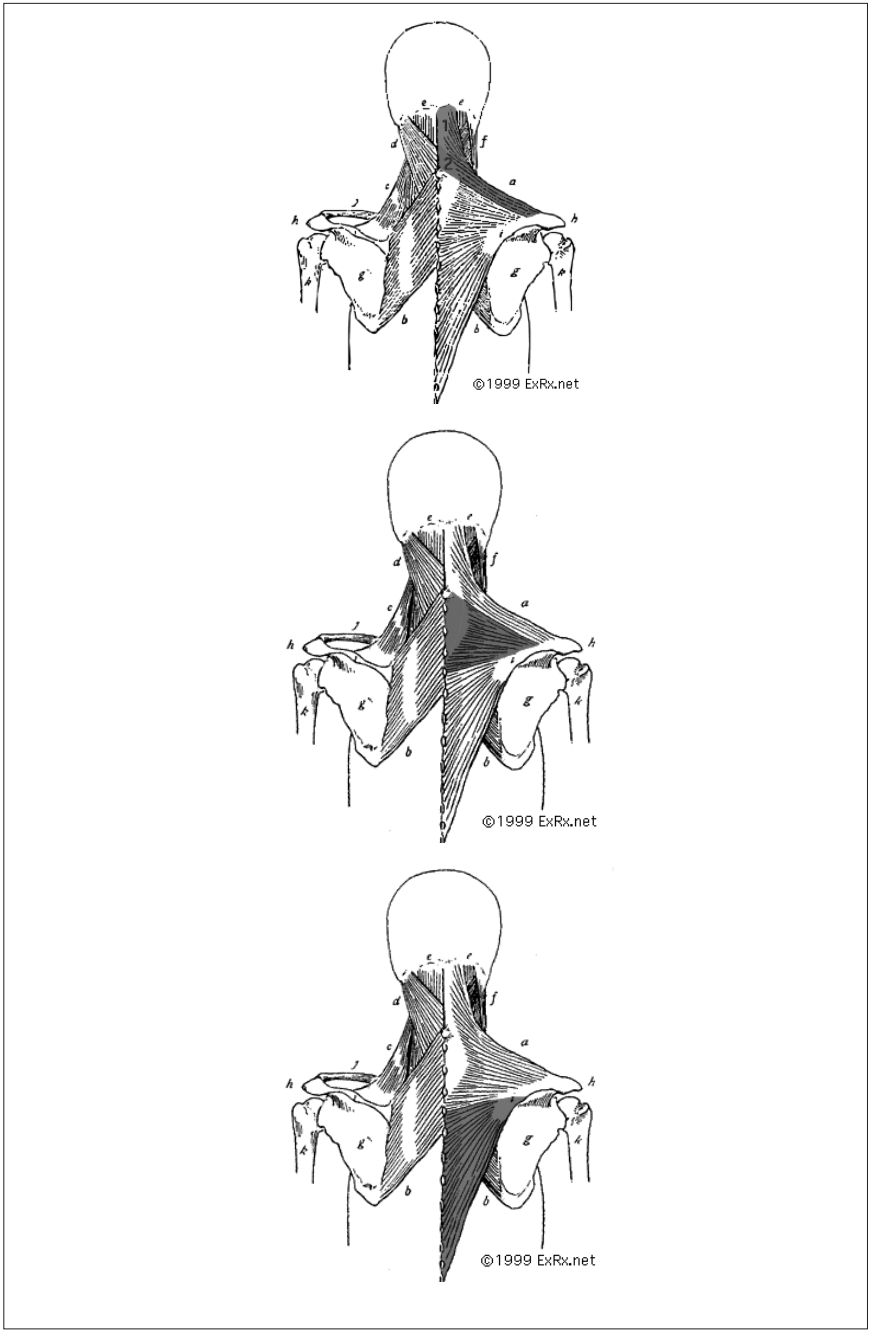

Figure 8. Trapezius: Upper fibers part 1, upper fibers part 2 (top); middle fibers (middle); lower fibers (bottom). Images used with permission of ExRx.net.

Table 13
Power Clean Technique and Performance Cues Checklist

Cues	Picture
☐ 1. Stand over barbell with balls of feet positioned under bar pointing forward, hip-width apart or slightly wider. ☐ 2. Squat down and grip bar with overhand grip slightly wider than shoulder width. ☐ 3. Position shoulders over bar with back arched tightly. Arms are straight with elbows pointed along bar.	
☐ 4. Pull bar up off floor by hips and knees.	
☐ 5. As bar reaches knees, vigorously raise shoulders while keeping barbell close to thighs. When barbell passes thigh, allow it to contact thighs. ☐ 6. Shrug shoulders and pull barbell upward with arms allowing elbows to flex out to sides, keeping bar close to body.	

Table 13 (cont.)

Cues	Picture
☐ 7. Aggressively pull body under bar, rotating elbows around bar.	
8. Catch bar on shoulders while moving into squat position.	
9. After squat position, extend knees and hips to stand.	

Comprehension task/readiness drill. Find a partner and demonstrate to each other the proper performance cues for the Power Clean with very little weight. Be able to identify the muscles being activated during this exercise. Be sure to provide feedback to each other for correct and incorrect performance cues until both of you correctly execute a Power Clean. Perform a Power Clean using proper form with a weight you can lift at least 5 repetitions.

Learning tips.

- Breathe out during the Upward Phase and breathe in on the Downward Phase.
- Control the weight during the lift so you have a smooth motion.

If you experience difficulty with this readiness drill, refer to the Performance Cues and review each cue as presented (see Table 14 for common errors and corrections). If you still have difficulty, ask your course instructor to assist you in applying these techniques.

Table 14
Common Errors and Corrections

Error	Correction
Not using momentum	To do a proper Power Clean, apply upward force to the bar and then drop your body down underneath it.
Not flicking the wrist	It helps get the weight "around the corner" so that you can rack it on your shoulders.
Not dropping the body down as you rack the bar on your shoulders	Your legs should not remain stiff and stationary throughout the movement. As you flip the bar up and across your shoulders, bend your knees quickly and drop down when catching the bar.

Criterion task 1.
Partner Checked

- Target: Correct form
- Criterion: Score 9 out of 9 on the Power Clean Technique and Performance Cues Checklist

Perform the Power Clean with a weight that you think you can lift with correct form while a partner checks your **Power Clean Technique and Performance Cues Checklist** (Table 13). You must score 9 out of 9 on Power Clean Technique and Performance Cues Checklist to go to the next task. Write down weight lifted and score for each set (Table 15). Note that you are not concerned with weight but with correct form!

Table 15
Personal Recording Form

Set	1	2	3	4	5
Weight					
Power Clean Checklist Score					

Partner initials _____ Date completed _____

Criterion task 2.
Partner checked

- Target: Correct form
- Criterion: Lift as much weight as possible for 5 repetitions

Perform the Power Clean with a weight that you think you can lift at least 5 repetitions. If you are unable to lift the weight 5 repetitions, then you have too much weight. Let your partner go and then try again after approximately 2 to 5 minutes of rest. If you are able to lift 5 repetitions with ease, then the weight is not heavy enough. Let your partner go and then add some weight during your turn after your rest period. Keep doing this until you have reached a weight that you can lift at least 5 repetitions with CORRECT form. Write down weight lifted and number of repetitions for each set (Table 16). *Note:* You may not do 9 Sets.

Table 16
Personal Recording Form

Set	1	2	3	4	5	6	7	8	9
Weight									
Repetitions									

Partner initials _____ Date completed _____

Criterion task 3.
Partner Checked

- Target: Calculate 1RM
- Criterion: Determine 1RM of Power Clean

To calculate your 1RM, take the maximum amount you lifted 10 RM and divide it by 75%. Round up or down your answer based on 5 lb. Calculate your 1 RM. Have your partner check off the criteria that you performed correctly for the Power Clean.

Conclusion

Students in secondary PE settings have an increasingly diverse set of skills and experiences. The teacher must differentiate instruction to meet the needs of all students and provide developmentally appropriate experiences. The PSI instructional model provides a coherent framework for PE teachers to differentiate instruction. Although the teacher requires additional time to plan a PSI, current technology-related resources make implementation feasible and practical with the teacher spending less time in instruction, management, and assessment.

References

Baechle, T. R., & Earle, R. W. (2008). *Essentials of strength training and conditioning* (3rd ed.). Champaign, IL: Human Kinetics.

Colquitt, G., Pritchard, T., & McCollum, S. (2011). The Personalized System of Instruction in fitness education. *Journal of Physical Education, Recreation, & Dance, 82*(6), 46–54. https://doi.org/10.1080/07303084.2011.10598645

Dunn, R., & Dunn, K. (2014). Learning styles: Online learning style assessments and community. Retrieved from http://www.learningstyles.net/

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York, NY: Basic Books.

Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences.* New York, NY: Basic Books.

Garn, A. C., Cothran, D. J., & Jenkins, J. M. (2011). A qualitative analysis of individual interest in middle school physical education: Perspectives of early-adolescents. *Physical Education and Sport Pedagogy, 16,* 223–236. https://doi.org/10.1080/17408989.2010.532783

Graham, G. (2008). *Teaching children physical education: Becoming a master teacher* (3rd ed.). Champaign, IL: Human Kinetics.

Hills, L. A., & Croston, A. (2012). 'It should be better all together': Exploring strategies for 'undoing' gender in coeducational physical education. *Sport Education and Society, 17,* 591–605. https://doi.org/10.1080/13573322.2011.553215

Joyce, B. R., & Weil, M. (1980). *Models of teaching* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Keller, F. S. (1968). "Good-bye, teacher...". *Journal of Applied Behavior Analysis, 1*(1), 79–89. https://doi.org/10.1901/jaba.1968.1-79

Keller, F. S., & Sherman, J. G. (1974). *PSI, the Keller plan handbook: Essays on a Personalized System of Instruction.* Menlo Park, CA: W. A. Benjamin.

Lieberman, L. J., & Houston-Wilson, C. (2009). *Strategies for inclusion: A handbook for physical educators* (2nd ed.). Champaign, IL: Human Kinetics.

Martin, M., & Morris, M. (2013). Sport education and multiple intelligences: A path to student success. *Strategies, 26*(4), 31–34. https://doi.org/10.1080/08924562.2013.799931

McKenzie, W. (1999). Multiple intelligences survey: The one and only surfaquarium. Retrieved from http://surfaquarium.com/MI/inventory.htm

Meredith, M. D., & Welk, G. (2010). *Fitnessgram/activitygram: Test administration manual* (Updated 4th ed.). Champaign, IL: Human Kinetics.

Metzler, M. W. (2011). *Instructional models for physical education* (3rd ed.). Scottsdale, AZ: Holcomb Hathaway.

Nishida, T., & Isogai, H. (2007). Cross-cultural comparison of motivation to learn in physical education: Japanese vs Swedish schoolchildren. *Psychological Reports, 101,* 597–613. https://doi.org/10.2466/pr0.101.2.597-613

Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011–2012. *JAMA, 311,* 806–814. https://doi.org/10.1001/jama.2014.732

Oliver, K. L., & Hamzeh, M. (2010). "The boys won't let us play:" Fifth-grade Mestizas challenge physical activity discourse at school. *Research Quarterly for Exercise and Sport, 81*(1), 38–51. https://doi.org/10.1080/02701367.2010.10599626

Prewitt, S. L., Hannon, J. C., Colquitt, G., Brusseau, T. A., Newton, M., & Shaw, J. (2015a). Effect of the Personalized System of Instruction on health-related fitness knowledge and class time physical activity. *The Physical Educator, 72,* 23–39.

Prewitt, S. L., Hannon, J. C., Colquitt, G., Brusseau, T. A., Newton, M., & Shaw, J. (2015b). Implementation of a personal fitness unit using the Personalized System of Instruction. *The Physical Educator, 72,* 382–402. https://doi.org/10.18666/TPE-2015-V72-I5-6997

Pritchard, T., Penix, K., Colquitt, G., & McCollum, S. (2012). Effects of a weight training Personalized System of Instruction course on fitness levels and knowledge. *The Physical Educator, 69,* 342–359.

Salter, G. (2003). Maori culture and tradition in the mainstream: Teaching Te Reo Kori in sport education. *Journal of Physical Education New Zealand, 36*(1), 27–41.

Santangelo, T., & Tomlinson, C. A. (2012). Teacher educators' perceptions and use of differentiated instruction practices: An exploratory investigation. *Action in Teacher Education, 34,* 309–327. https://doi.org/10.1080/01626620.2012.717032

Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A., Brighton, C., Hertberg, H., Callahan, C. M., Moon, T. R., Brimijoin, K., . . . Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest, and learning profile in academically diverse classrooms: A review of literature. *Journal for the Education of the Gifted, 27*(2–3), 119–145. https://doi.org/10.1177/016235320302700203

Tomlinson, C. A., & Imbeau, M. B. (2010). *Leading and managing a differentiated classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.

Whipp, P., Taggart, A., & Jackson, B. (2014). Differentiation in outcome-focused physical education: Pedagogical rhetoric and reality. *Physical Education and Sport Pedagogy, 19,* 370–382. https://doi.org/10.1080/17408989.2012.754001