The Virginia Journal

VAHPERD

Virginia Association for Health, Physical Education, Recreation, and Dance

FALL 2016 Vol. 37, No. 2

Photo taken by Laura Gordon, Radford University

VAHPERD Members,

It is my pleasure to serve as the editor of The Virginia Journal (TVJ) and Communicator. Enclosed you will find the Fall 2016 issue. I hope to continue the successful publications of TVJ and Communicator.

However, the success of TVJ and the Communicator only go as far as the members and our submissions. I ask that you continue to submit the quality work you have in the past. Let the state, region and nation know the outstanding work we are doing in VAHPERD. So this is my continued call for manuscripts for the Spring 2017 issue of TVJ and news information for the Communicator. The TVJ and Communicator depend on the submissions from our exceptional professionals working in the field.

So please continue to e-mail me your manuscripts and news by January 15, 2017 as a Word attachment for the two publications. Please follow the manuscript guidelines posted in each issue of TVJ. My contact information is below.

Sincerely,

Michael Moore, PhD, ATC, Associate Professor, HHP
Clinical Coordinator, ATEP, Radford University
P.O.Box 6957, Radford, VA 24142
540-831-6218
mbmoore@radford.edu
www.radford.edu/mbmoore

About VAHPERD

Mission Statement

VAHPERD is a professional association of educators that advocate quality programs in health, physical education, recreation, dance and sport. The association seeks to facilitate the professional growth and educational practices and legislation that will impact the profession.

VAHPERD Values

- Excellence in teaching, research and educational practices in HPERD and related professions
- Positive efforts to promote our disciplines
- Professional integrity and high ethical standards
- Effective communication within and between members and related professionals
- An active and healthy lifestyle
- Embracing the role of special and diverse populations

VAHPERD Priorities

Member Services
Communication
Marketing and Promotion
Education

Visit VAHPERD's Web Site

www.vahperd.org

Learn About:

VAHPERD	Membership
Leadership	Publications
Divisions	Resources
Students	Links
Awards and Grants	Forms

Table of Contents

Volume 37, Number 2 **FALL 2016**

Canvas Learning Management System for Online Health Education University Courses to Improve Performance and Enhance the Learning Experience

Michael S. Mucedola, Ph.D., M.S.T., MCHES, Health and Physical Education Graduate Program Coordinator
Longwood University in Farmville, VA

Introduction

Online learning provides a number of advantages for students of all ages across the globe. The ability to continue learning through online education while in a current profession is now possible. Additional benefits of online education include career advancement, flexibility, convenience, availability, and networking opportunities (Lundberg, & Sheridan, 2015). With continuing rapid advancements in technology, online education remains relevant in the current learning spectrum. The Babson Survey Research Group have conducted a number of studies in regards to distance education. In the past decade, the percentage of students taking at least one online course in the U.S. has rose each year and current online learning growth has exceeded that of overall higher education (Online Learning Consortium [OLC], 2016). However, faculty concerns remain. There are approximately 5.2 million students enrolled in at least one online course in the U.S. and student retention remains at the forefront of areas to target (OLC, 2016). Continued collaboration, innovative ideas and enhancing the learning experience are needed to address the overall retention rate.

Student satisfaction plays a key role in the overall learning process. Convenience and interaction are two major contributors to enhancing the learning experience and thus improve student satisfaction (Cole, Shelley, & Swartz, 2014). One way to address this issue is by allowing a self-paced option and improving criteria for online discussion boards. The Canvas Learning Management System was launched in 2011 and allows the user to create and administer online education (Canvas, 2016a). There are a number of options that enable the instructor to specifically address convenience, interaction and enrich the overall learning experience. A major concern of students is being prepared for the workplace they are entering. In 2015, an online survey was administered to nearly 8,000 current and former students in 14 different countries and only11.3% of current students believe they are fully prepared for the workplace and 5.7% of former students believe their education fully prepared them for their current job (Stein, & Irvine, 2015). Improving student performance during their educational experience is crucial and developing measurable objectives that closely align with employment in a particular discipline is needed to address preparation concerns by past and current students.

Overview

Canvas (2016b) provides the user with a flexible shell in which to customize pedagogical strategies. There are numerous functions and options available and the following discussion will consist of a brief overview on highlights of the system. One feature beneficial for the user is the graphic analytics reporting engine. This allows the instructor to assess when individuals sign onto the page, completion of assignments, participation, page views, measures content effectiveness, learning outcomes, and provides a clear picture on students who need additional support (Canvas, 2016b). This data is also useful for reporting to governing bodies, accreditation, and additional outside agencies that may be part of the review process for a particular program and/or university. An important feature of Canvas is the ability to share content. Once a course is developed, all or parts can be shared between other Canvas shells. This allows for easy cross-curricular collaboration and comprehensive learning. In addition, it allows the user to instantly update a course and the "student view" allows the creator to see exactly what the student sees during course development.

There are a number of functions available on Canvas, but a few highlights include tabs for discussions, assignments, grades, modules, files, and announcements. Specifically, the modules tab allows the user to develop pages based on content, quizzes, discussions, assignments, or external tools. Diving deeper into creation of these, provides options for due dates, grading points, submission criteria, time limits, etc. With each layer, comes additional options that are user friendly and provides a forum for creativity and clarity. Another tool at the disposal for the instructor is "speedgrader". When a quiz, assignment, discussion, or other assessment is complete, the user may open it using "speedgrader" for a quick evaluation. Grades, feedback, links to rubrics, and other options are available and this expedites the grading process and allows for specific, timely, and meaningful feedback for students.

Pedagogy

In order to promote higher forms of thinking (creating, evaluating, analyzing, etc.), Bloom's Taxonomy was developed that focused on three educational learning domains: cognitive (knowledge), psychomotor (skill) and affective (attitude) (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). It is recommended to create modules with overarching goals followed by standards of learning and specific, measurable learning objectives that focus on cognitive, skill, and affective components. In addition, various forms of assessment should be used to evaluate if the objectives are being satisfied. Multiple active learning strategies are provided in Table 1 and can be used to increase student engagement, performance, improve the learning experience, address multiple learning styles, and as assessments to measure progress.

There are a number of online learning strategies to increase student engagement and improve performance. The following have been shown to be effective: providing relevant and meaningful information and skills (this can be linked to future or current occupations in the field), timely feedback, assessment activities that allow for creativity and personalization, analytical

Table 1. **Activities to Enhance the Learning Experience**

Activity	Health Topic(s)	Suggested Use	Resource/Evaluation
Add a statistic	All topics	Set up a discussion board and have students add a statistic related to the topic that has not been provided.	Set criteria and provide grading rubric. *Technology available through Canvas
Catchphrase	Drugs, Alcohol, Mental Health, Bullying, etc.	Have students create a catchphrase to address a health topic	Set criteria and provide an example and grading rubric. (Marshall, 2014)
Class List	Prenatal program, outdoor survival, nutrition, etc.	Set up a discussion board and have students add an item to the list (with justification) that has not been provided.	Set criteria and provide grading rubric. *Technology available through Canvas
Create a quick reference pamphlet/chart	STI's, Infectious diseases, etc.	Have students create a quick reference chart or pamphlet to address a health topic	Set criteria and provide an example and grading rubric
Crossword puzzle	All topics	Set criteria and create a puzzle with key terms	(Printablecrosswordmaker, 2010).
Discussions	All topics	Have students critically think and problem solve through the use of a discussion board	Technology available on Canvas.
Healthy Eating Spectrum	Nutrition	Have students create a healthy eating spectrum based on provided nutrition guidelines.	(Mucedola, 2015b)
Maslow's Hierarchy Pyramid	Mental/Emotional Health-Depression, Stress, Suicide, etc.	Have students create a pathway to self-actualization as a preventive approach to mental health related issues.	(Mucedola, 2015a)
Matching game	All topic	Have students create a matching game to address key terms from a health topic	(Cram, 2016)
Poem/Rap	Drugs, Alcohol, Decision making skills.	Have students create a poem or rap with specific criteria	Set criteria and provide a rubric
Poster	All topics	Have students create a poster with specific criteria to display knowledge from assigned readings.	Microsoft Publisher
Powerpoint games	All topics	Use powerpoint games to review material and as an assessment	(Ertzberger, 2015)
Powerpoint/Prezi	All topics	Have students create a powerpoint or prezi with specific criteria	Microsoft Office Prezi
Public Service Announcement	Community health, Advocacy, etc.	Have students create a PSA with specific criteria.	(Bell, 2010)
Quiz Questions	All topics	Have students create quiz questions on a health topic	Set criteria and compile class quiz questions for review.
Ten Point Agenda	Communicable diseases, Community Health, Gang Violence, etc.	Have students create a top ten areas to target to address a specific health issue	Set criteria and provide a rubric
Theories and Models	All topics	Have students use a theory or model found in the literature to address a health topic.	Set criteria and provide an example and grading rubric
Wellness Wheel	Different components of wellness (physical, spiritual, emotional, etc.)	Have students create a wellness wheel with multiple components identified.	Set criteria and provide a rubric (Oregon State University, 2016)
Writing your sentence	Mental/Emotional Health, Goal setting, Drugs prevention, etc.	Have students write a sentence that sums up how they want their life remembered.	(Mucedola, 2015a)
YouTube Clip	All topics	Have students create a Youtube clip on a health topic	Set criteria and provide an example and grading rubric.

and transparent rubrics, self-reflection opportunities, flexibility, and utilizing multiple approaches (Baleni, 2015). The following sections provide a snapshot on course design and a suggested approach when developing modules on the Canvas Learning Management System.

Course Design

The following segment will pertain to setting up a course from a health education lens. It is recommended that an individual go through basic training sessions to learn about the functionality of Canvas before developing a course. In addition, browsing already completed courses and networking with instructors who frequently teach with this technology can expedite the learning process. The Canvas technology allows for a variety of different ways to design and manage a course. One specific avenue an instructor can choose is through the use of "modules." On a Canvas

homepage, uploading a picture is recommended to immediately hook the audience along with a link for the syllabus to provide easy access. This can be accomplished by selecting the "choose home page" tab and then selecting "syllabus". Once here, select "edit syllabus description." There are a number of choices, but utilizing the "files" option to add the syllabus link and "images" option to add a picture related to the course topic is recommended. In addition, a welcome message and instructions may be added here in the textbox.

***Figure 1*. Course Homepage Example**

There are a variety of ways to set up the modules, but one may wish to title the first module as "Start Here". This cooresponds with the directions on the provided example homepage and helps to eliminate confusion. Each module allows for different subtabs that directly link to the desired task (for example, assignment, quiz, file, etc.). For this section, it is recommended to use the "content page" option. This allows for a blank subtab that can be filled with text, files, pictures, tasks, etc. Recommended content page subtabs under a 'Start Here" titled module include, but are not limited to:

How to Navigate through the Course, Course and Institutional Policies, Etiquette and Expectations, *Technical Skills, Resources and Additional Support Links*, *Suggested Timeline, Tips and Format*, *Evaluation*, and *About Me.*

***Figure 2*. Example Modules**

How to Navigate through the Course example

Welcome to HLTH-205: Health & Wellness!

I would like you to become familiar with the site. Take note the tabs down the left hand side of the screen. ("Home", "Announcements", "Assignments", Discussions, etc.) Please click on each tab and familiarize yourself with their function. In the upper right hand corner you will notice a tab titled "Inbox". Here is where you can send me messages if you have any questions. In addition, you will notice on the syllabus (on the homepage) my contact information. Feel free to call or email me anytime with questions/concerns! I will respond within 24 hours but usually within the hour. Emailing me is the best way for a quick response (insert email address and contact information here).**Note: Make sure to scroll down each page so you do not miss any information at the bottom.*

Course and Institutional Policies example

Please read through the syllabus (located on the homepage) for additional Course and Institutional Policies. Note: since this is 100% online, there is no "attendance" policy. However, there is a participation policy (worth 10% of your total grade). Please read through each assignment carefully and make sure to pay close attention to the participation requirements.

NOTE: There are 17 assignments, 10 discussions, 6 quizzes, 2 self-reflections, a major project and a final exam. Therefore, you have 37 required tasks for this course. Failure to complete 10% (4 Tasks) will result in one letter grade reduction. Your major project is the family interview assignment. Failure to complete this project will result in one letter grade reduction. Failure to complete 25% (9 Tasks) will result in a course grade of "F".

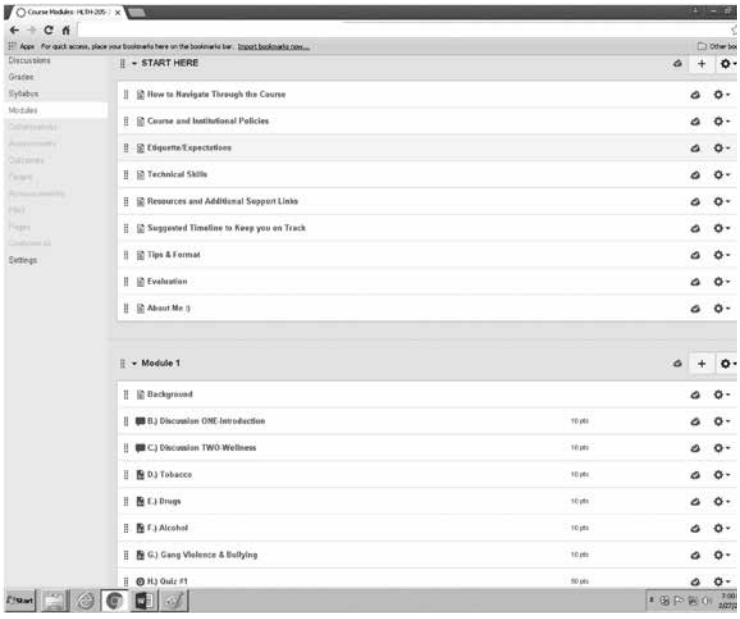
Etiquette and Expectations example

Please be respectful of all viewpoints and posts in this course. Some topics covered may have conflicting viewpoints/opinions. Please conduct yourself in a professional manner at all times. If you are unsure how to respond to a particular post by another student, you can always email me privately and I can help advise you on what direction to take. Please review the following checklist related to etiquette and expectations:

1) Active participation (reading others' posts and sharing your viewpoints) is a key component of online learning. Be succinct, provide examples, and back your work with literature when appropriate.

2) Take time to check for spelling and grammar errors. You want to make sure you are accurately conveying your message.

3) Contribute to the online learning community in a friendly



way. Being polite, respectful and courteous to others can go a long way. Avoid offensive language, sarcasm, and be mindful of your tone.
4) Keep an open mind. Consider all points of view and be willing to question your own. Substantiating your stance with evidence can help others see where you are coming from.
5) Focus on addressing the topic and try not to deviate from it. It is easy to get off task by sharing information that does not enrich the conversation.
6) Avoid requesting or providing medical advice. Always share information related to the topic but the focus should not be on medical diagnosis and treatment.

Technical Skills example

The following are a list of skills (included but not limited to) that will aid in your success in this course:

1) Word processing using Microsoft office (See syllabus for format).
2) Ability to search the internet for accurate and reliable information and resources.
3) Ability to navigate through the site (the easiest way to learn the site fast is to play around with each tab. Think about how many of you learned how to use the internet, Facebook, smart phones, etc. Playing around with them is an effective approach to quickly learn how to use them. As always, post any questions you have on the Discussion One board or email me anytime.
4) Self-directed learner. Find out what time(s) of day you are most productive and utilize those time slots to complete assignments, discussions, and tasks.
5) Effective communicator. When you have questions, please ask!

Resources and Additional Support Links example

Please locate the "Student Services" tab across the top of the page. Once here you will find a number of additional resources to assist you in this course. For example, "Disability Resources" under the Student Affairs section. If you do not see a link you are seeking under the Student Services tab, I recommend you use the search bar at the top of the screen and type in key words.

Here are a few quick links to save you time locating:

1) Academic Support-(Insert corresponding resource link here)
2) Writing Centre-(Insert corresponding resource link here)
3) Technology Accessibility-(Insert corresponding resource link here)
4) Disability Resources- (Insert corresponding resource link here)
(Please contact me if you have any specific disabilities or need other accommodations (for example, audio, visual, etc.).
5) Technical Support-(Insert corresponding resource link here)

Suggested Timeline example

Below is a suggested timeline for the course. I recommend you print this off and use it as a checklist.

Print this off!

(Include a word attachment that has a calendar of all dates for the course. Next, evenly distribute all tasks for the course on the available dates.)

Tips and Format example

This is a self-paced course and therefore you may complete each assignment at your own leisure. Recommendations on how to attack this course:

1) Print off the suggested timeline and use it as a checklist/guide
2) Complete the assignments in order. Start with "Discussion One Introduction" and work your way down.
3) Wait to receive feedback on all assignments for a particular module before completing the quiz for that module (Not required, just recommended). I will return all assignments within 48hrs.
4) Your quizzes contain information from the readings and assignments for that module. Some questions may ask you to apply knowledge or are asked with advanced level content. Many questions will contain information that you were already exposed to on your assignments. This is done deliberately because quiz questions are used not only as an assessment, but as a way for you to recall information. Through repetition and practicing comprehension of concepts (leading to new knowledge and skills), the odds of learning improve substantially (Brabeck, Jeffrey, & Fry, 2016).
5) Ask questions when you are unsure of something. I respond quickly! Email me (insert email address here).

Evaluation example

The following is a rubric that will be used to grade your module assignments and discussions. Please review this BEFORE completing each of your assignments/discussions.
*(Create and insert a general rubric that can be used to grade mini assignments).

"About Me" example

(Include a short biography to help build rapport. This is sometimes lost in distance education and has been cited by students in the past as being a con to online learning versus face-to-face in class.)

Modules example from a health and wellness course

Module 1:
Background
A) Discussion One- Introduction
B) Discussion TWO-Wellness
C) Tobacco
D) Illicit Drugs
E) Alcohol
F) Gang Violence & Bullying
G) Quiz #1

The user may set up each of these topics with a page formatted for content, discussion, assignment, quiz, etc. By linking the page to a specific task (discussion, assignment, quiz, etc.), when

students submit their work from the page, it automatically links to the grade book once the assignment is graded through the "speedgrader" option. Note: by placing a letter in front of each topic will organize them alphabetically and thus when students click on the "assignments" tab for the course they will be kept in order. This is useful when teaching a comprehensive curriculum that needs to be completed sequentially. Inside each topic under the module, an outline consisting of the following format was utilized:

> *Links to Course Objectives, Directions, Resources, Task, and Additional Materials (resources, practice quizzes and assignments, etc.)*

This provides consistent structure and clarity for the student and establishes a routine for them.

Figure 3. **Example Format inside one topic**

Conclusion

The Canvas Learning Management System provides user a friendly forum to address specific objectives while allowing the instructor to deliver and enhance the learning experience for the student. Designing a self-paced course rooted in sound pedagogical practice can increase performance (Southard, Meddaugh, & France-Harris, 2015). By improving the overall experience and student achievement, students may be more likely to continue learning and thus retention rates would increase. The ability to incorporate a variety of activities to engage students to address objectives that focus on preparing them for the workforce is another area in which to utilize Canvas. With the continued fast-paced environment in different parts of the world, there is much need for a self-paced online learning option. Once Canvas courses are created, parts or all of them can be easily shared between users and thus a unique collaborative approach with the potential to improve the overall product presents itself.

References

Baleni, Z. G. (2015). Online formative assessment in higher education: Its pros and cons. *The Electronic Journal of e-Learning, 13*(4), 228-236.

Bell, J. (2010). How to create the perfect public service announcement. Retrieved January 19, 2016 from http://www.centerdigitaled.com/artsandhumanities/How-to-Create-the-Perfect-Public-Service-Announcement.html

Bloom, B.S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). Taxonomy of educational objectives, handbook I: The cognitive domain. New York: David McKay Co Inc.

Brabeck, M., Jeffrey, J. & Fry, S. (2016). Practice for knowledge acquisition (not drill and kill). Designing activities with the goal of transferring knowledge. *American Psychological Association.* Retrieved January 20, 2016 from http://www.apa.org/education/k12/practice-acquisition.aspx

Canvas. (2016a). About us. Retrieved January 2, 2016 from https://www.canvaslms.com/about-us/

Canvas. (2016b). How to choose an LMS. Retrieved January 3, 2016 from https://www.canvaslms.com/higher-education/

Cole, M. T., Shelley, D., & Swartz, L. B. (2014). Online instruction, e-learning, and student satisfaction: A three year study. *International Review of Research in Open and Distance Learning, 15*(6), 111-131.

Cram. (2016). Jewels of wisdom. Retrieved January 21, 2016 from http://www.cram.com/flashcards/games/jewel/vitamins-5883976

Ertzberger, J. (2015). PowerPoint games and game templates. Retrieved January 20, 2016 from http://people.uncw.edu/ertzbergerj/ppt_games.html

Lundberg, C. A. & Sheridan, D. (2015). Benefits of engagement with peers, faculty, and diversity for online learners. *College Teaching, 63*(1), 8-15.

Marshall, L. (2014). How to create a memorable catchphrase. Retrieved January 19, 2016 from http://www.quickanddirtytips.com/business-career/public-speaking/how-to-craft-a-memorable-catchphrase

Mucedola, M. S. (2015a). Depression, suicide, and Maslow's hierarchy of needs: A preventive approach. *Journal of Health Education Teaching Techniques, 2*(3), 48-57.

Mucedola, M. S. (2015b). Nutrition guidelines: A healthy eating spectrum. *Journal of Health Education Teaching Techniques, 2*(3), 10-22.

Online Learning Consortium [OLC]. (2016). Babson study: Distance education enrollment growth continues, but at slowest rate ever. Retrieved January 2, 2016 from http://onlinelearningconsortium.org/press-release-online-learning-survey-report-2014/

Oregon State University. (2016). Healthy campus initiatives. Retrieved January 21, 2016 from http://studentlife.oregonstate.edu/hci/student/student-resources

Printablecrosswordmaker. (2010). Crossword maker. Retrieved January 21, 2016 from http://www.printablecrosswordmaker.com/crossword_maker/crossword_maker.jsp

Southard, S., Meddaugh, J. & France-Harris, A. (2015). Can SPOC (Self- Paced Online Course) live long and prosper? A comparison study of a new species of online course delivery. *Online Journal of Distance Learning Administration*, *28*(2), Retrieved January 15, 2016 from http://www.westga.edu/~distance/ojdla/summer182/southard_meddaugh_harris182.html

Stein, J. & Irvine, A. K. (2015). Career preparedness and lifelong learning: A global perspective. Retrieved January 2, 2016 from https://www.canvaslms.com/lifelong_learning

Students with Fragile X Syndrome in Recess

Matthew D. Lucas, Ed.D., C.A.P.E., Associate Professor, Department of Health, Athletic Training, Recreation, and Kinesiology, Longwood University

Introduction

It is possible that many education professionals have heard of Fragile X Syndrome but know basically nothing about the disorder. It is very possible that teachers will work with children with the disorder at some point during their career. What should these teachers know about the disorder? What are characteristics of children with the disorder? What are good practices for working with children with Fragile X Syndrome? What are poor practices for working with children with Fragile X Syndrome? Specifically for this manuscript, because of the benefits of recess that are noted, the question to be addressed is: What are appropriate modifications to activities for children with the Fragile X Syndrome in the recess setting?

Definition, Signs, and Symptoms of Fragile X Syndrome

Fragile X Syndrome is a "genetic condition that causes a range of developmental problems including learning disabilities and cognitive impairment" (National Institutes of Health: Genetics Home Page, 2016, p. 1). Usually, males are more severely affected by this disorder than females (National Institutes of Health: Genetics Home Page, 2016). A problem with a specific gene that normally makes a protein needed for brain development causes the disease. A person can only make little or none of the protein as a result of the problem with the gene. This causes the symptoms of Fragile X (Cleveland Clinic: Diseases and Conditions: Fragile X Syndrome, 2016)

Although signs and symptoms vary greatly, they often include many of the following according to the National Institutes of Health. It should be noted that, as alluded to earlier, many of the symptoms are often milder in females than in males.

- **Intelligence and learning**
  - These problems can range from the mild, such as learning disorders or problems with mathematics, to the severe, such as an intellectual or developmental disability.
  - Individuals with the syndrome also have attention disorders, hyperactivity, anxiety, and language-processing problems. A person with Fragile X may have more capabilities than his or her IQ (intelligence quotient) score suggests.

- **Physical**
  - Most infants and younger children with Fragile X don't have any specific physical features of this syndrome. When these children start to go through puberty, however, many will begin to develop certain features that are typical of those with Fragile X.
  - Physical features include a narrow face, large head, large ears, flexible joints, flat feet, and a prominent forehead.
  - These physical signs become more obvious with age.

- **Behavioral, social, and emotional.**
  - Most children with Fragile X are afraid or anxious in new situations.
  - Individuals may have trouble making eye contact with other people.
  - Boys, especially, may have trouble paying attention or be aggressive.
  - Girls may be shy around new people. They may also have attention disorders and problems with hyperactivity.

- **Speech and language.**
  - The children may have problems speaking clearly, may stutter, or may leave out parts of words. They may also have problems understanding other people's social cues, such as tone of voice or specific types of body language.
  - Girls usually do not have severe problems with speech or language.
  - Some children with Fragile X begin talking later than typically developing children. Most will talk eventually, but a few might stay nonverbal throughout their lives.

- **Sensory**
  - Many children with Fragile X are bothered by certain sensations, such as bright light, loud noises, or the way certain clothing feels on their bodies.
  - Sensory issues as a result of items such as bright light, loud noises, or the way certain clothing feels on their body, might cause them to act out or display behavior problems (National Institutes of Health: What are the symptoms of Fragile X Syndrome, 2016, p. 1).

Prevalence of Fragile X

The percentage of children with the syndrome is relatively low. However, Fragile X is the most common known cause of inherited intellectual disability (Center for Disease Control and Prevention: Fragile X Syndrome, 2016). One in 4000 boys are born with the disorder. At a rate less frequent, one in 8000 girls are born with the disorder (March of Dimes: Fragile X Syndrome, 2014). This is roughly one in every 5300 children. In Virginia elementary schools with 500 students, roughly one in eleven schools at any time will have a student with Fragile X Syndrome.

Benefits of the Recess Setting for Students with Fragile X

Recess is basically a planned, supervised activity allowing time for active, free play. It is suggested that kids participate in a minimum of 20 minutes of recess a day. Recess should not be taken away as a consequence of punishment. Simply stated, the benefits of the recess setting are high for all children. Included in these benefits are both physical and social and emotional benefits

(Praxis Physical Education: Practice and Study Guide: Benefits of Recess for Elementary School Children, 2015). In terms of general physical benefits, recess has been shown to lead to an improvement of general fitness and endurance levels for children (Kids Exercise, 2009). Also, it is important to remember that increased out-of-school activity levels is evident as children usually are involved in physical activities on days in which they participate in in-school physical activities (Dale, Corbin, & Dale, 2000).

More specifically for children with Fragile X are the benefits recess can have on intelligence and learning, physical, behavioral, social, speech and language, and sensory characteristics. Following the discussion of characteristics of the disorder are basic methods to address these characteristics in the recess setting.

Intelligence and learning

Most children with Fragile X have some type of intelligence and/or learning problems. As noted, these problems can range from the mild, such as learning disorders or problems with mathematics, to the severe, such as an intellectual or developmental disability. Learning problems can stem from attention disorders, hyperactivity, anxiety, and language-processing problems. Modifications for the recess setting may include the following:

- Clearly explain and display the proper manner to use equipment – such as swings.
- Explain items in a very basic format and should be done daily. This is beneficial for all students.
- Try to provide enough activities/equipment to limit waiting time.
- Provide a peer-partner for the student with Fragile X to help display equipment and/or participate in activities. This may reduce hyperactivity, anxiety, and possibly language-processing problems.

Physical

In terms of physical characteristics, most younger children with Fragile X, as noted, don't have any specific physical features of this syndrome. When these children start to go through puberty, however, many will begin to develop certain features that are typical of those with Fragile X. These features include a narrow face, large head, large ears, flexible joints, flat feet, and a prominent forehead. As these characteristics do not usually develop until after elementary school, no modifications would probably need to be made as a result of them in the recess setting. Flat feet may be a concern for older children in elementary school. Modifications for a child with flat feet may include:

- Organize non-competitive games.
- Cut down on activities that bring pain (heavy running and jumping) and avoid prolonged walking and standing to give arches a rest (Foot Health Facts, 2016)

Behavioral (social, and emotional)

Most children with Fragile X have behavioral concerns. These children are often afraid or anxious in new situations. They may have trouble making eye contact with other people and may have attention disorders and problems with hyperactivity. Instructional methods, noted by Lucas and Long (2010) related to recess for children with emotional disturbances, can also be used to address these characteristics and ensure participation in recess. These may include the following, plus additional methods:

- Explain the activity to the student personally emphasizing the "fun" in an activity.
- Organize all games that require teams.
- Do not allow students to "pick" teams in group activities.
- Establish clear rules.
- Reduce the number of players on a team.
- Possibly assign a peer that can answer questions for the student.
- Encourage no score keeping (p.28)
- Provide encouragement to all students (Strategies for Teaching Students with Behavioral Disorders, 2007).
- Hold the same behavioral expectations for all students (Winnick, 1995).

Speech and language

In terms of speech language, as noted, most children with Fragile X may have problems speaking clearly, may stutter, or may leave out parts of words. They may also have problems understanding other people's social cues, such as tone of voice or specific types of body language. Also, children with Fragile X often begin talking later than typically developing children or stay nonverbal throughout their lives. Instructional methods, noted by Lucas and Watson (2013), related to recess to address these speech language characteristics and ensure participation in recess may include the following:

- Provide time for delayed responses and verbal rehearsals (Seaman, Depauw, Morton, Omoto, 2007).
- Encourage and allow students to point, gesture, or use explanations and similar words to increase the listener's understanding of expressive language (Seaman, Depauw, Morton, Omoto, 2007).
- Use small, stable groups (Winnick, 1995).
- Use familiar words and supplement with verbal cues (use a variety of words to describe the same movements if needed) (Seaman, Depauw, Morton, Omoto, 2007).
- Provide directions that are simple and concrete (Seaman, Depauw, Morton, Omoto, 2007).
- Provide a comfortable environment.

Sensory

Many children with Fragile X are bothered by certain sensations, such as bright light, loud noises, or the way certain clothing feels on their bodies. Such issues may cause some children with Fragile X to act out or display behavior problems. Instructional methods related to recess to address these characteristics may include the following:

- Provide an environment with lighting that is neither too dark nor too light.
- Provide an environment that is not too loud. This may be difficult to address in the recess setting but may be more possible if the student is not in a large group.
- Provide a comfortable temperature.

Conclusion

Many children with Fragile X Syndrome are in schools today. The benefits to these children, including children with disabilities, are noteworthy. It is very possible that any teacher will have the opportunity to work with a student who has Fragile X. This paper has addressed characteristics of children with the disorder and effective practices for working with children with Fragile X Syndrome, specifically in the recess setting.

References

Center for Disease Control and Prevention: Fragile X Syndrome (2016). Retrieved June 23, 2016 from http://www.cdc.gov/ncbddd/fxs/data.html

Cleveland Clinic: Diseases and Conditions: Fragile X Syndrome (2016): Retrieved June 13, 2016 from http://my.clevelandclinic.org/health/diseases_conditions/hic_Fragile_X_Syndrome

Dale, D., Corbin, C. B., & Dale, K. S. (2000). Restricting opportunities to be active during school time: Do children compensate by increasing physical activity levels after school? *Research Quarterly for Exercise and Sport, 71*(3), 240-248.

Foot Health Facts (2016). Activity Modifications. Retrieved June 13, 2016 from http://www.foothealthfacts.org/footankleinfo/flatfoot.htm

Kids and Exercise: (2009). The many benefits of exercise. Retrieved June 12, 2016 from http://kidshealth.org/parent/fitness/general/exercise.html

Lucas, M.D & Long, B. (2010). Students with emotional disturbances participating in recess. *The Virginia Association of Health, Physical Education, Recreation, and Dance Journal, 31 (2),* p. 28-30.

Lucas, M.D. & Watson, C. (2013). Students with speech impairments participating in recess. *Journal of the American Academy of Special Education Professionals, 8*(1), 128-131.

March of Dimes: Fragile X Syndrome. (2014). Retrieved June 12, 2016 from http://www.marchofdimes.org/complications/fragile-x-syndrome.aspx

National Institutes of Health: Genetics Home Page. (2016). Retrieved June 12, 2016 from https://ghr.nlm.nih.gov/condition/fragile-x-syndrome#genes

National Institutes of Health: What are the symptoms of Fragile X Syndrome. (2016). Retrieved June 12, 2016 from https://ghr.nlm.nih.gov/condition/fragile-x-syndrome

Praxis Physical Education: Practice and study guide: Benefits of recess for elementary school children. (2015) Retrieved June 12, 2016 from http://study.com/academy/lesson/benefits-of-recess-for-elementary-school-children.html

Seaman, J., (2007). Making connections: From theory to practice in adapted physical education. Scottsdale, AX: Holcomb Hathaway

Strategies for teaching students with behavioral disorders. (2007). General Strategies. Retrieved June 23, 2016 from http:// www.as.wvu.edu/~scidis/behavior.html#sect1

Winnick, J. P. (1995). Adapted physical education and sport. Champaign, IL: Human Kinetics

Developing Strength and Conditioning Programs for Athletes

David Salee, Ph.D., ATC, CSCS, TSAC-F, EP-C, CHES, LMT, Radford University

Developing quality strength and conditions programs begins with an understanding of what you want to achieve. The old adage, if you don't know where you are going how will you know when you get there, comes to mind. We spend so much time thinking about the components of our programs that we forget to just get down to good old common sense and think about what we want as an end result.

Let's start off by looking at a basic concept called the SAID principle. SAID means specific adaptations to imposed demands. Simply put, the results we receive from any exercise program will be specific to the demands we place on the body. The way we get better at exercise is by reforming our body to become something different that it was in the past. We create new muscle, bone, heart, lung, vasculature, tendons, ligaments, and joint cartilage cells to name a few. The body is actually recreating itself to match the demands we are placing on it. If we sit around on the couch for months, our body makes cells that are good at sitting on the couch. As we exercise we transform ourselves into new cells that are more efficient at the stress we impose on our bodies. In short, adaptations to exercise are specific. You have to make a careful assessment of what you want to achieve and plan your program to carefully match that assessment.

As a way of demonstrating this point, think about a sport that interests you. How would you work with a person to make them better at that sport? You would probably begin by developing knowledge about the sport and an understanding of what a person needs to do to be successful. Those skills are the same ones you will use to develop quality strength and conditioning programs.

What is essential is that you look carefully at the game situations your athletes compete in. What muscular actions are common in the sport? Is the main component jumping, lateral movement, or driving explosively forward? Take a close look at what people really do. What parts of their body do they use and how do they use them? How long does a play last? How many plays does a person perform before they are rested? What types of injuries are common in the sport? All of these elements come together in the planning of strength and conditioning programs. What we need to develop is a sense of what a person needs to be effective at a task. What's the real nature of the sports activity? We have to understand that if we are going to develop a program that helps people get better at those same skills. What our athletes do in a game situation is the critical component.

In athletics nothing is performed in isolation. When we jump we use the quads, hamstrings, calves and arms together to help propel the body. If we think back to the idea that adaptations are specific, it is clear that our strength and conditions programs will be more functional if they match the complex nature of athletic motion. If nothing is performed in isolation, exercises that are performed in isolation (e.g. leg extension) are probably not going to be as valuable as exercises that are performed using complex motions (e.g. squats). That does not mean that you only use complex motions in your programs, but it does mean that you should be working toward complex motions. It may be that the person you are working with is not strong enough to perform complex motions (e.g. power clean). You may have to build their strength and endurance so that they can perform complex motions safely. The key is to think about the motions you want the person to get better at and work toward exercises that mimic that motion as safety and strength allow. There are some exceptions to this rule (e.g. weighted bats), but the general principle remains the same. What we do is what we get better at.

Another aspect to consider when designing strength and conditioning programs are the energy systems being used. How long does the average play last in the sport of your interest? If you chose football the average play is over in a matter of a few seconds. Plays lasting longer than 30 seconds are rare in sport. For most of us that means that we need to improve the way our athlete's bodies manufacture energy anaerobically. Let's think about how your body produces energy. There are three major systems for procuring energy. Two of the systems provide energy for short bursts of exercise (anaerobic), one system provides energy for longer sessions of exercise (aerobic). In general, the aerobic energy system does not kick in until we have been exercising for 1 to 3 minutes. If most sporting activities are over in seconds, what we need to concentrate on is developing the bodies' ability to produce energy anaerobically. If we are exercising in a way that is different from the game conditions of our sport, we should not be surprised if our game performance does not improve. If we consider football for example, in a game situation the athlete needs to produce short all out bursts of exercise with 45 seconds to one minute of recovery. Therefore, our conditioning exercises should be based around that time frame. In that way we are working to improve the energy system that is required for play in the game. We know what we want and we are exercising in a way that will make the body adapt to the elements that are critical for performance in the game.

Another concept to consider is what type of muscular development is appropriate for the sport we are interested in. Football players need to develop the ability to perform an all out effort for a short period of time. They also need to be able to perform that effort hundreds of times in a game. Therefore, it will be important to use exercise patterns that improve muscular power (all out maximal efforts combined with speed) and muscular endurance. In general, those are the two types of muscular development required for athletics. The exercises you choose and more specifically the number of repetitions you perform is going to determine the results you get in terms of the development or endurance, strength, or power. Certainly these muscular changes don't happen in isolation, but improvement tend to be more profound in a given area. Additionally, the amount of time the athlete takes between sets is important for the type of muscular development they are trying to obtain. High repetitions exercises (e.g. 15 to 20 reps, with short rest periods, less than 1 minute) are more likely to produce muscular endurance. Low repetitions exercises (3-5, generally with longer rest periods, 2-3 minutes)

tend to develop muscular strength. Repetitions in the 8-12 range (with short rest periods of a minute or less) tend to be most effective at producing muscular growth. What types of muscular development does your athlete need? That is not so hard to find out. Take a stop watch and go to the athletic field or break out some videotape. How long does a play last (energy system), what type of muscular actions are involved (movement analysis)? Do you see more emphasis on muscular endurance, strength or power? Additionally, what muscular movements are most common? The end product of what you are trying to achieve is exercising in a way that improves the common movements of the sport in a way that matches the energy and performance needs of the athlete. Proper periodization is key (e.g. training in a progression that developed the qualities that support the next level or training), but at its base developing training programs is a process that leads from your athletes' current capacities to the conditions that supply the raw materials for success in their sport. Selecting exercises that build toward that goal and eliminating exercises that are not conducive to that goal (e.g. punishment runs).

One factor that is frequently overlooked in the development of strength and conditioning programs is common injuries in the sport. What structures are commonly injured in your sport? If it is the ankle, what can you do to strengthen the ankle to prevent as many injuries as possible? Why not include exercises to strengthen the ankle if the ankle is a common injury site? You can use isolation exercises or incorporate explosion into your exercises so that the ankle gets strengthened in combination with other muscle groups that are involved in the activity. Tape and braces are no substitute for strong muscles. Most athletic taping loses a great deal of its supportive ability after about a half hour. Take a look at the tape jobs on your athletes when they come in from practice. How much support is that tape providing at the end of practice or a game? Take a look at it after warm ups and you will see that it is losing some of its supportive nature. There is a time and place for bracing, but bracing alone is never as effective as an appropriate rehab and strength program. Including exercises to prevent injury is a critical component of your program. Don't leave it out.

The last component I will mention is the amount of exercise you ask your athletes to perform. Let me give you a scenario to think about. It is the beginning of pre season. You have scheduled two or three practices every day for the next two weeks. In total you will be having your athletes work out for three or more hours each day. What would happen to you if I asked you to work out in the sun as hard as you could for three hours each day for the next two weeks? Chances are that you would have an injury. That is exactly what happens to your athletes. They go from a relatively unfit state to exercising over three hours a day. Their bodies can not adapt to the stress in that time period. What you have done is planted the seeds of nagging overuse injuries. Most of the overuse injuries I saw in my career as an Athletic Trainer began in pre-season when the volume of exercise was far beyond the athletes' ability to recover. The fact of the matter is that muscular adaptations take time. The body has to rebuild itself into something that is more efficient at the skills required in the sport. If we try and go too fast, we are asking for injuries. What if you just progressed slower? I know that the first game is in two weeks, but what if you progressed slower and had healthier athletes as a result. What if your team could play at their full potential because they did not have tendonitis, muscle strains, cramps from dehydration and a myriad of other problems? What if you structured your practices with a target of getting your athletes into shape in a month instead of two weeks? Let me tell you that it is going to take at-least that long before they are any where close to being in playing shape. That is the case for your opponents as well, but they are still overworking their athletes and that is going to result in injuries. Less is more. The body can only adapt so fast. It will only adapt in the way that you structure the stress of exercise. Your athletes will only get better at game skills if you understand what it is that they need to do and structure your practices and conditioning program to match those conditions. Structured stress leads toward success in ways that unstructured stress can never compete with. Think about it.

Chronic Traumatic Encephalopathy (CTE)

Haley O'Brien, Radford University Honors Student

Chronic Traumatic Encephalopathy (CTE) is a neurodegenerative disease. Those who acquire this disease have had exposure to repeated brain trauma throughout the course of their lives. CTE is not only limited to athletes. Although football players, boxers, and hockey players are those who are recognized most with (CTE), military personnel have also been associated with this degenerative brain disease (Riley, Robbins, Cantu, Stern, 2015). In Riley et al. (2015), it is stated that "CTE has the potential to impact contact-sport athletes of all levels, blast-exposed military veterans and other individuals with a history of repetitive head impacts," (Pg. 154). CTE has become a highly researched topic in the past decade, but the idea of this concept was described by a doctor almost one hundred years ago in 1928. Dr. Harrison S. Martland observed and said that boxers seem to be "punch drunk." This was his term for boxers who experienced multiple blows to the head would go into a state where the boxer would develop confusion, a slow muscle response, slowed speech, and tremors. These characteristics aligned with Parkinson disease and Dr. Martland believed it was from multiple blows to the head. (Meehan, Mannix, Zafonte, and Pascual-Leone, 2015). Parkinson disease is a long-term effect to CTE so Dr. Martland was on the right track when he made his observations. Starting in 2005, more deceased former National Football League (NFL) players have donated their brains to science. CTE was found in most of these players' brains. In 2015, 87 out of 91 former NFL players that had their brain scanned tested positive for CTE (Abreu, Cromartie, and Spadley, 2016).

The list of long-term effects of Chronic Traumatic Encephalopathy is extensive and long. CTE is not a disease that is shown up all at one time. The early symptoms of this disease are vague and unless knowledgeable about CTE, would not be associated with the condition. At first, a person may experience headaches and mood disorders. The mood disorders can later be diagnosed as bipolar disorder or a similar disorder. These mood disorders also include aggressive behaviors towards others. As CTE starts to progress, the symptoms become more definite. These effects include, but are not limited to, cognitive difficulties, suicidal ideation, parkinsonism, Alzheimer's disease, and other types of dementia. With the cognitive difficulties, these can include slowed and slurred speech, problems acquiring knowledge and understanding through thoughts and experience. This causes a great deal of problems for a person. This takes away or burdens their ability to make rational decisions and learning from past mistakes (Meehan et al, 2015).

CTE has four stages of progression according to Abreu et al. (2016). In Stage I, headaches are common and a loss of attention and concentration. These are the same symptoms of a normal concussion. In Stage II of CTE, include the symptoms of Stage I plus depression, explosiveness, and short-term memory loss. In Stage III, on top of all the other stage symptoms, a person experiences dysfunction and cognitive impairment. Finally, in Stage IV, dementia, word-finding difficulty and aggression were all experienced. A person suffering from CTE doesn't kill him or herself, dementia will eventually be the resulting factor of their death (Abreu et al., 2016). Dr. Sam Gandy is a Professor of Neurology and Psychiatry, Icahn School of Medicine at Mount Sinai Director, and Center for Cognitive Health and NFL Neurological Care at The Mount Sinai Hospital. Dr. Gandy researches Alzheimer's Disease. Dr. Gandy has written 250+ papers, chapters, and reviews on Alzheimer's (Gandy, 2016). In Abreu et al., (2016), Dr. Sam Gandy says, "the frontal lobe of the brain often jostles around during head contact in football games, and the frontal lobe has an inhibiting effect that helps control behavior. Damage to the frontal lobe can compromise the inhibiting effect, and cause mood swings, even violence." Suicidal ideation is more common than not in those diagnosed with CTE. Lastly, those with CTE will develop parkinsonism. Parkinsonism is the symptoms of a person with Parkinson Disease without being diagnosed with Parkinson Disease. These symptoms include muscular rigidity, tremors, and impaired motor control. Adding cognitive difficulties with impaired motor control does not end up well. Most athletes who are retired and now have CTE have an extremely hard time being "out of control" which can sadly lead to suicide (Meehan et al., 2015).

Quan, (2014), stated that Junior Seau, Ollie Matson, and John Mackey have many things in common. All three athletes were stars in the National Football League. They were all inductees of the Pro Football Hall of Fame. Lastly, they all were diagnosed with CTE. Quan suggests that there could be another area of concern of those with CTE. The question asked in this article is, "Is repetitive concussive injury the only risk factor for CTE? Could obstructive sleep apnea (OSA) and other sleep disturbances be contributing or exacerbating factors?" There have been several studies researching the correlation between those who suffered from traumatic brain injury (TBI) and a variety of sleep disturbances. In some of these studies those who say OSA and insomnia is a factor in their lives are 23% to 25%. Scientists are suggesting that is lack of sleep can contribute to mood and cognition of these athletes (Quan, 2014).

Chronic Traumatic Encephalopathy was first found in the brain of Mike Webster. Webster is a deceased former NFL player (Abreu et al., 2016). He is from Wisconsin and played at the University of Wisconsin. He is more known for his career in the NFL with the Pittsburgh Steelers. Webster also played for the Kansas City Chiefs but that was in his last two years in the professional league. Mike Webster was a strong guy who always played on the offensive line. Webster is best known for his career playing center (Mike Webster Stats, n.d.). The link between CTE and suicide are a piece of the puzzle that has not quite been nailed down yet. Suicide is a highly researched long-term effect of CTE. There is a strong relationship between CTE and suicidal idea. The group of individuals who are known to have had CTE were professional athletes. These athletes committed suicide because of their diminished cognitive and psychological capabilities. The difference from being a high dollar, highly skilled athlete to being someone who has trouble

speaking and functioning takes a huge toll on these athletes (Abreu et al., 2016).

Before 2013, it was impossible to diagnose an athlete with Chronic Traumatic Encephalopathy. The way that they tested a person for CTE was taking a chunk out of their brain during the autopsy to test. Obviously by that, early diagnosis and prevention couldn't be deemed necessary or helpful. In 2012, researchers started trying different techniques to see if CTE would show up in Positron Emission Tomography (PET) scan. This technique was similar to how doctors would test a person for Alzheimer's disease. The year 2013 was a breakthrough year in the research for CTE. In that year, researchers found similarities between Fred McNeill, Wayne Clark, and three other unnamed former NFL players' brain scans. It showed an abnormal protein buildup of tau, concentrated in the area of the brain that controls memory, emotions, and other functions (Abreu et al., 2016). Tau is a name for proteins that form around the affected area in the brain. In those with CTE, the buildup of tau overwhelms the amount of healthy brain cells available clear to the brain (Mike Webster Stats, n.d.). Dr. Gary W. Small was the lead doctor that conducted the study for these five athletes. Dr. Small is a professor of psychiatry and director and director of the UCLA Longevity Center at the Semel Institute for Neuroscience and Human Behavior. He is a highly known physician who has made headlines on the Wall Street Journal and the New York Times (Small, & Vorgan, 2013). He said, "if they hold up in future studies, this may be an opportunity to identify CTE before players have symptoms so we can develop preventative treatment." There is no treatment for CTE currently, but the research and testing being done may move researchers closer to treatment. Many former NFL are trying a treatment plan that is being tested which is having them undergo a two-hour hyperbaric chamber therapy session. These former NFL players are also getting frequently brain imagery done and have examinations. The Mayo Clinic Staff say that the hyperbaric chamber allows oxygen to be amplified in a person's body. Therefore, their oxygen intake is higher. The growth and release of stem cells is also significantly higher. Reports from researchers who are conducting this research are reporting slight improvement in the brain. Also, the cognitive and psychological improvements have been apparent (Abreu et al., 2016).

Derek Boogaard is another professional athlete that was diagnosed with CTE during his autopsy. Boogaard was a professional hockey player. His professional career was with the Minnesota Wild and the New York Rangers. One May night in 2011, twenty-eight-year-old Derek Boogaard died of a drug and alcohol overdose. Boogaard was the National Hockey League's fiercest fighter, now dead and took the world by surprise. Boogaard's brain was taken to the Bedford V.A. Medical Center in Bedford, Massachusetts to be tested. After five long months for Boogaard's parents waiting for the results of their son's brain, they finally found out the results of their son's brain. Derek Boogaard had CTE. This helped explain to the family why their son had the addictive habits. CTE can also lead to addiction through it all. The scientists said that they were so shocked to see so much damage in a young person's brain. The scientists believe if Boogaard were to have lived, he would have gotten middle-age dementia (Branch, J., 2011).

Since the diagnosis of Chronic Traumatic Encephalopathy does affect learning ability in the long term, research and prevention becomes imperative. Research has been conducted and reported the cognitive and memory is significantly affected. CTE affects cognitive difficulties of those who are suffering from this brain degenerative disease. With awareness and research, people may be diagnosed with the early signs of CTE and perhaps can stop playing the sport where the injuries can be increased due to impact. With more research, better preventative measures can be taken, such as better head protection.

References

Abreu, M. A., Cromartie, F. J., & Spadley, B. D. (2016). Chronic traumatic encephalopathy (CTE) and former national football league player suicides. *Sport Journal*, 1-12.

Branch, J. (2011). A brain 'going bad'. The New York Times. p. B13.

Gandy, S. . (2016). *Cure Alzheimer's Fund Targeting Breakthrough Research*. Retrieved December 10, 2016, from http://curealz.org/people/sam-gandy

Meehan, W., Mannix, R., Zafonte, R., & Pascual-Leone, A. (2015). Chronic Traumatic Encephalopathy and athletes. *Neurology*, 85(17), 1504-1511.

Mike Webster Stats | Pro-Football-Reference.com. (n.d.). Retrieved December 09, 2016, from http://www.pro-football-reference.com/players/W/WebsMi00.htm

Quan, S. F. (2014). Are sleep disturbances a risk for Chronic Traumatic Encephalopathy? Only the shadow knows. *Journal of Clinical Sleep Medicine*, 241-242.

Riley, D. O., Robbins, C. A., Cantu, R. C., & Stern, R. A. (2015). Chronic traumatic encephalopathy: Contributions from the Boston University Center for the Center for the Study of Traumatic Encephalopathy. *Brain Injury*, 29(2), 154-163.

Small, G., Dr., & Vorgan, G. (2013). Dr. Gary Small - Doctor, Author, Speaker. Retrieved December 11, 2016, from http://www.drgarysmall.com/gary-and-gigi/

Photo taken by Laura Gordon, Radford University

A Culture-Based Differentiated Instruction Model: Addressing School, Community, and Health Related Behaviors through Health Education

Michael S. Mucedola, Ph.D., M.S.T., MCHES, Health and Physical Education Graduate Program Coordinator
Longwood University in Farmville, VA

Introduction

Current health related issues, education, and their associated costs continue to be debated throughout the U.S, with immigration concerns also receiving attention. Understanding culture is crucial and a new approach is needed, focusing on these interrelated national priorities. As of 2012, 81% of students entering public school in 9th grade finish with a regular diploma in four years (Stetser & Stillwell, 2014). The remaining students provide one potential cultural group that needs to be addressed. A closer inspection reveals gaping disparities and many students are being left behind. In 2012, the overall graduation rate for African American (69%), American Indian/Alaska Native (67%), and Hispanic (73%) students were all lower than White (86%) and Asian/Pacific Islander students (88%) (Stetser & Stillwell, 2014). Ethnicity represents an additional culture group to account for and a focus on eliminating disparities is justified.

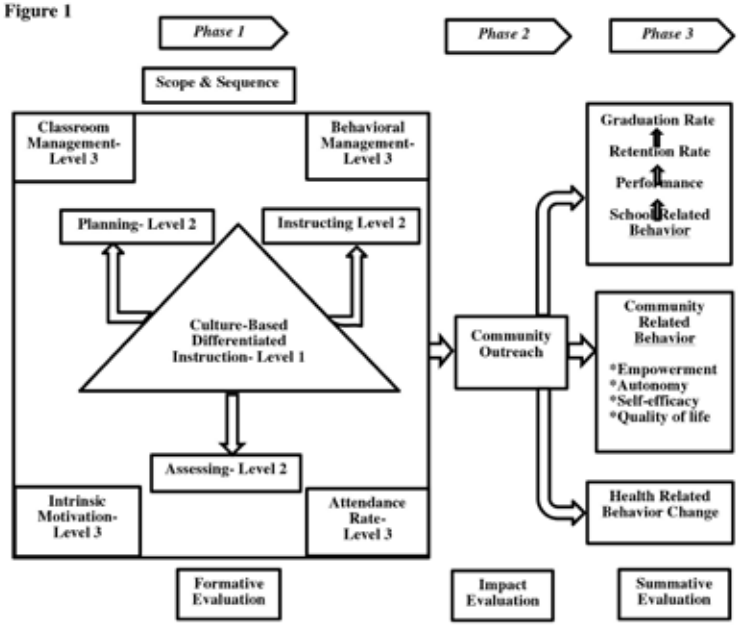
Earning potential over the course of a lifetime has been linked to completion of a high school degree program. In 2012, median income for young adults without a high school credential was $22,900 compared to $30,000 with a credential, $46,900 with a bachelor's degree and $59,600 with a master's degree or higher (NCES, 2014). Increasing student performance and retention are vital to improving graduation rate. Both income and education levels are strong determinants of health and have a major impact on quality of life for an individual (WHO, 2015). Running parallel to performance, retention, and graduation rates are health related conditions experienced throughout a lifetime. A significant amount of high school students engage in behaviors that increase risk of morbidity and mortality both in the short term and long term (CDC, 2014). Increasing income and education levels has been linked to lower rates of many long-term ailments that are also leading causes of mortality in the USA. (CDC, 2012). With billions of dollars in health care related costs at stake, continued focus on education is warranted.

Overview

The Culture-Based Differentiated Instruction Model (CBDIM) was developed as a preventative, comprehensive framework to address underlying issues related to school, community and health related behaviors. The model will be illustrated through a high school health education lens, but may be applied to other subject areas/grade levels. The model is a framework to guide curriculum and individual classroom instruction to enact positive social change out in the corresponding community. A community outreach component is utilized as a means for student learning and to address the stated outcomes. The CBDIM consists of three main phases along with three parallel assessments. The model centers on Culture-Based Differentiated Instruction (CBDI). Phase one consists of three levels. Level one centers on CBDI and branches into level two (planning, instructing and assessing) while focusing on the central theme. Level three entails four encircling constructs (classroom and behavioral management, intrinsic motivation, and attendance and entail pre, present, and post strategies) and are accounted for during level two. Above the model the curricula scope and sequence is designed so units can be completed both sequentially and independently. Phase one is linked closely with phase two (community outreach) as a means for dissemination, learning strategies for all members involved and aims to partner the community in the educational process. Phase three highlights the target outcomes. Formative (phase one), impact (phase two) and summative (phase three) assessments run parallel along the bottom of the model to measure effectiveness.

Phase One- Level One, Culture-Based

Figure 1



Differentiated Instruction

Differentiated instruction is a teaching approach where different learning pathways are created based on individual student needs and learning styles and can be ascertained through a variety of formative assessment strategies (Dixon, Yessel, McConnell, & Hardin, 2014). Trying to meet the needs of each individual learner is not a new concept. The Association for Supervision and Curriculum Development (1953) outlined challenges of teaching to a room full of low and high skilled learners and ways to provide individualized instruction. Others have expanded on this research and shortly after the term "differentiated instruction" took hold in pedagogy literature. Dr. Virgil Ward developed a differentiated instructional approach to identify and meet the needs of gifted

learners as he felt they had the biggest impact toward society (Ward, 1986). Present day differentiated instruction specialist Carol Tomlinson has published extensively substantiating the effectiveness of this approach (Tomlinson, 2013).

Differentiated Instruction allows for assessment of multiple areas that impact student learning. A plan is formalized according to the student's profile and instruction is then carried out to best meet student needs. Culture is one area accounted for in this individualized student assessment. However, the CBDIM focuses on culture as a starting point and is emphasized throughout the other components of the module. Culture is being defined as shared knowledge, behavior and affective understanding displayed by a group of people and not solely based on ethnicity or proximity in a specific community. By gearing the model in this fashion, planning for, instructing, and assessing multiple cultures along with community outreach leads to a vital learning process that drives other areas of the model.

Level Two- Planning

The CBDIM requires extensive planning that focuses on the aforementioned phase one components. Stanford University and the American Association of Colleges for Teacher Education (with assistance from Pearson) developed "edTPA" (Teacher Performance Assessment) to assess teacher education programs that are in accordance with state and national standards (including Common Core State Standards) (edTPA, 2013a). The edTPA tool focuses on a teacher's ability to demonstrate knowledge and skills essential for student learning (edTPA, 2013a). Included are specific rubrics on planning, instruction, and assessment. Planning mastery lessons (level 5 edTPA planning rubrics) include but is not limited to connections between cognitive, skill, and affective objectives (driven by standards), allows for personalization, supported by research and/or theory, focuses on multiple learning styles, allows for different options to demonstrate learning, and meets the needs of different language levels (edTPA, 2013b). By focusing on culture and utilizing a differentiated instructional approach, mastery level as outlined by edTPA can be achieved.

Instructing

Instructing under a CBDIM entails a variety of strategies to meet all different learners. It starts with knowing their cultural background, learning styles, readiness to learn and then planning instruction based on this assessment. In addition, differentiating the classroom learning experience is utilized. Health education mastery (level 5 on edTPA instruction rubrics) encompasses the following themes: address different perspectives, challenging content, skill, and affective objectives, self-assessments, a variety of strategies to deliver content and practice skills, address individual beliefs, grounded in theory and/or research, and personalized (edTPA, 2013b). These mastery level themes are embedded in the CBDIM. This enriches the learning experience for all involved through dissemination of learned material from specific cultural lenses, while allowing others to benefit from a unique cultural perspective.

Assessing

Formative assessment strategies are essential when planning and instructing in a CBDIM. Informal assessments of materials and procedures ahead of time are critical and allows for adjustments to be made before implementation. One example entails information gathering surveys that include learning styles, environment the student works best and other essential information. Daily assessments and adjustments are utilized in the CBDIM. Health education mastery (level 5 on edTPA assessment rubrics) encompasses the following themes: connections between quantitative and qualitative patterns of learning, feedback, self-reflection, opportunities to display knowledge and demonstrate skills, account for a variety of learning styles, and personalized to student beliefs (edTPA, 2013b). A variety of assessments are presented for students to display knowledge and skills in the CBDIM. Individualized feedback is essential to the learning process and daily assessments provide an opportunity for this to occur.

Level Three-Classroom Management

Classroom management in the CBDIM refers to the environment where instruction, skill practice and assessments occur. Friedman and Abramson (2013) discussed how student success can be set up by providing learners with a path of least resistance and the instructor's role is mainly a facilitator. The ability to walk around freely to assess, instruct, and provide feedback is important to the learning process. Howard Gardner spent decades researching multiple intelligences and concluded that everyone has a full range of intelligences and no two individuals have the same intelligence profile (Gardner, 2006). A classroom environment needs to be conducive to learning and account for these different multiple intelligence makeups in each class. Rita and Kenneth Dunn spent decades conducting meta-analysis research on learning styles. Environmental elements were one particular stimulus identified and translate to a classroom environment that takes into consideration sound, light, temperature, and seating design (Dunn & Dunn, 1993). The CBDIM incorporates formative assessments and process evaluation throughout to identifying optimal classroom environmental stimuli for students.

Behavioral Management

Student readiness to learn is a key component when instructing under a CBDIM. It is critical to have strategies to handle potential behaviors that arise. However, many of these behaviors can be prevented by effectively utilizing the CBDIM. Lessons individually geared toward student's cultural background and learning style, allow for learning of material that is personalized to student interests and thus helps avoid behaviors that may occur from a different approach. Teaching under a CBDIM focuses on understanding culture and communication is essential when managing behaviors. Students who are most likely to dropout are unmotivated by specific lessons, their needs are not being met or may be dealing with outside influences (McWhirter, et al., 2013). Behavioral management starts with setting up a classroom environment that is conducive to learning and then managing it in a non-threatening way. The theory of planned behavior proposes that individual behavior is determined by behavioral intentions, where these intentions are directed by individual's attitude toward the behavior, subjective norms surrounding performance of the behavior, and ease with which the behavior can be performed (behavioral control) (Ajzen, 1985). Keying on subjective norms

in the students life can help identify and thus create strategies to deal with intention to commit behavior.

Intrinsic Motivation

Martin Buber (1957) discussed how active inclusion involves creating an atmosphere that allows an individual to feel important or essential to the outcome of a situation taking place. The CBDIM accounts for this key component of the learning process. By focusing on individual cultures, an educator can utilize intrinsic rewards the individual deems important, thus creating a purposeful and meaningful environment. Extrinsic motivation is a temporary moment that soon dissipates while intrinsic motivation is a long-term investment essential to the learning process. Building on the work of Harry Harlow and Edward Deci, Daniel Pink (2009) discussed how traditional extrinsic rewards can have the opposite intended result and lead to diminished intrinsic motivation, lower performance, less creativity, unethical behavior, and short-term thinking. Teaching under a CBDIM utilizes intrinsic rewards as a motivational tool to improve performance, attendance, behavior, and increase creativity.

Attendance Rate

Evidence suggests there is a direct correlation between attendance and student achievement (Balfanz & Byrnes, 2012). An educator can utilize several classroom approaches, but their efforts become futile if students are not present. Therefore, a specific focus on increasing attendance rate is crucial and directly tied to the CBDIM outcomes. By starting with cultural background and then differentiated instruction, one aim of the model is to create a relevant and meaningful environment for each student, thus improving the desire to attend class regularly. In addition, a variety of pre, present, and post strategies are essential to account for this key component.

Scope & Sequence

The curricular scope and sequence sits above the CBDIM in phase one and is based on student readiness. This can be implemented and managed in a comprehensive fashion, but flexibility is built in to account for attendance, behavior, and other barriers to learning. A multiunit curriculum designed to build on each other can still be accomplished by having students complete the lessons in order as intended. If a barrier presents itself (student absence) and a lesson is not completed for that day, under the traditional model a student would fall behind, thus playing catch-up the rest of the way. Under the CBDIM all lessons can be completed individually without needing past material. Students who have past material will be cued to incorporate prior knowledge into the lesson. Students without this material will be briefed on how the current information will be utilized in future lessons. This sets the stage for the future lesson, allows the student to feel they are still with their classmates, thus encouraging an environment where students begin to attend class regularly. Strategies are then employed to catch students up on missing assignments through independent studies, online, culminating projects, etc. In addition, the community outreach component (as discussed in the next section) provides an avenue for comprehensive learning. The scope and sequence must "float" across the top of the model to account for barriers to the learning process. By understanding culture, these barriers can be reduced and/or eliminated and by utilizing a differentiated instructional approach, the scope and sequence can be completed in a comprehensive manner.

Phase Two- Community Outreach

The CBDIM utilizes a community outreach component to learn, disseminate, and teach knowledge, skills, and value. It has long been established that many students learn by doing (Dewey, 1938). Community outreach serves multiple purposes and provides a forum for students to become teachers. Simply expecting to teach has shown to improve student learning (Nestojko, Bui, Kornell, & Bjork, 2014). Current immigration concerns coupled with existing multicultural neighborhoods, present a scenario where potential language barriers and other needs will continue to exist. School aged children serve as important catalysts when working with multicultural groups. This provides a unique opportunity where students and the community, partner in the learning experience. Learning by teaching is an effective strategy that allows students to apply knowledge and skills and helps them retain information (Ketmao, 2014). In addition, they reap the benefits of formative assessment strategies as they now become the disseminators of information. Recursive feedback occurs through assessing and observing pupil's use of knowledge and skills they have been taught (Okitaa & Schwartzb, 2013). The students now benefit from recursive feedback they receive from teaching knowledge and skills to family and community members. The CBDIM allows for cultural needs to be prioritized and students play the dual role as learner and teacher. This presents itself in a variety of forms. For example, products students create to display knowledge and practice skills in class can serve as important materials to disseminate information. Differentiating this component is essential, but the process of working back and forth with the community is critical to student learning.

Phase Three- Outcomes

The CBDIM was designed to target school, community, and health related behaviors. School related behaviors consist of conduct, performance, retention, and graduation rate. Community behaviors include empowerment, autonomy, self-efficacy, and quality of life. The final outcome focuses on health related behaviors and these will vary depending on the community. Assessment throughout implementation is crucial to achieve the stated outcomes. The model is broken down into three major forms of evaluation. Phase one utilizes formative assessment strategies during development of culture based lessons. Process evaluation strategies are ongoing, starting in the formative evaluation phase and continue through summative evaluation. Phase two consists of impact evaluation strategies tied to community outreach. Phase three entails summative evaluation to assess school, community and health related behaviors.

Conclusions

This model was designed as a framework to account for and utilize multicultural learners, partner with the community during the learning process, and to address school, community and health related behaviors. It is recommended health education specialists

are at the forefront when developing and implementing this approach, but other content areas and different level learners can also benefit from this model. Future research studies by the author are planned, focusing on achieving the stated outcomes for students and the residing community. The author invites researchers to partner with to address the following populations: at-risk school districts, multicultural school districts/communities, schools on state need of improved lists, low performing schools, and districts looking to improve student behavior, retention, performance, and graduation rate while improving different facets in the corresponding community

References

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.

Association for Supervision and Curriculum Development. (1953). The challenge of individual difference. *Educational Leadership, 11*(3), 138-203.

Balfanz, R., & Byrnes, V. (2012). *Chronic absenteeism: Summarizing what we know from nationally available data.* Baltimore: Johns Hopkins University Center for Social Organization of Schools.

Buber, M. (1957). Distance and relation. *Psychiatry, 20*, 97-104.

Dewey, J. (1938). *Experience and education.* New York: Macmillan

Center for Disease Control and Prevention [CDC]. (2012). *Higher education and income levels keys to better health, according to annual report on nation's health.* Retrieved October 18, 2014 from http://www.cdc.gov/media/releases/2012/p0516_higher_education.html

Center for Disease Control and Prevention [CDC]. (2014). *Youth risk behavior surveillance-United States, 2013*. Retrieved October 18, 2014 from http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf

Dixon, F. A., Yessel, N., McConnell, J. M. & Hardin, T. (2014). Differentiated Instruction, professional development, and teacher efficacy. *Journal of the Education of the Gifted, 37*(2), 111-127.

Dunn, R., & Dunn, K. (1993). *Teaching secondary students through their individual learning styles: Practical approaches for grades 7–12.* Boston: Allyn & Bacon.

edTPA. (2013a). *About edTPA.* Retrieved December 15, 2014 from http://edtpa.aacte.org/about-edtpa#Overview-0

edTPA. (2013b). *Health education assessment handbook*. San Franciso, CA: Pearson.

Friedman, R. & Abramson, C. (2013). Setting students up for success. *Education Next, 13*(1), 88.

Gardner, H. (2006). *Multiple intelligences: New horizons in theory and practice.* New York, NY: Basic Books.

Ketmao, H. (2014). Learning by teaching: A game-based approach. In Niemi, H., Multisila, J., Lipponen, L. & Vivitsou, M. (Eds.), *Finnish innovations and technologies in schools: A guide towards new ecosystems of learning* (pp.77-85). The Netherlands: Sense Publishers

McWhirter, J. J., McWhirter, B. T., McWhirter, E. H. & McWhirter, R. J. (2013). *At risk youth: A comprehensive response for counselors, teachers, psychologists, and human service professionals* (5th edition). Belmont, CA: Brooks/Cole, Cengage Learning.

National Center for Education Statistics [NCES]. (2014). *Income of young adults.* Retrieved October 18, 2014 from http://nces.ed.gov/fastfacts/display.asp?id=77

Nestojko, J. F., Bui, D. C., Kornell, N. & Bjork, E. L. (2014). Expecting to teach enhances learning and organization of knowledge in free recall of text passages. *Memory & Cognition, 42*(7), 1038-1048.

Okitaa, S. Y. & Schwartzb, D. L. (2013). Learning by teaching human pupils and teachable agents: The importance of recursive feedback. *Journal of the Learning Sciences, 22*(3), 375-412.

Pink, D. (2009). Drive: *The surprising truth about what motivate us*. New York, NY: Riverhead Books.

Stetser, M. C. & Stillwell, R. (2014). *Public high school four-year on-time graduation rates and event dropout rates: School years 2010–11 and 2011–12*. Retrieved October 18, 2014 from http://nces.ed.gov/pubs2014/2014391.pdf

Ward, V. S. (1986). Theory in the practice of differential education for the gifted. *Roeper Review, 8*(4), 263-271.

Tomlinson, C. (2013). *Fulfilling the promise of differentiation: Responding to the needs of all learners*. Biography. Retrieved December 1, 2014 from http://www.caroltomlinson.com/biography.html

World Health Organization [WHO]. (2015). *Determinants of health.* Retrieved November 30, 2015 from http://www.who.int/hia/evidence/doh/en/

Guidelines for Manuscript Submission - (Revised Spring 2010)

The Virginia Journal is published twice yearly (Fall and Spring) by the Virginia Association for Health, Physical Education, Recreation and Dance. Deadlines for submitting materials for inclusion in the spring and fall issues are January 15th and July 15th respectively. Manuscripts should be sent to Dr. Michael Moore, TVJ editor, by email in an attached WORD document. Each e-mail attachment should not be greater than 4 MB. In submitting a manuscript, the author affirms that it has not been published or accepted for publication elsewhere, unless otherwise stated in writing.

Manuscripts

Manuscripts follow the form of the Publication Manual of the American Psychological Association and must be typed on 8 ½ by 11 inch paper. The attached manuscript must be double spaced except that direct quotations of three or more lines in length are to be single spaced and indented. Manuscripts should not exceed 10 double-spaced pages of narrative including the citation page. Pages should be numbered consecutively. The name and institution of each author are inserted on a title page but not on the narrative. There should be provided on the title page biographical information on each author. This biographic information should include name and position at time of manuscript submission.

Any research involving human subjects must have Institutional Review Board (IRB) approval before a review can take place. A PDF copy of the letter must be submitted with each manuscript. If IRB approval was not granted and TVJ editor doesn't have a copy of the approval letter, the manuscript will not be published. Please check with your institution or school for IRB details.

References should be listed at the end of the manuscript and should be arranged in alphabetical order. Each reference cited in the article must be listed, but only those cited should he included. Sources should be cited by placing the author's name and date of publication followed by a page number when appropriate in parentheses: i.e., (Cowlick & Rice, 2003). The reference should be cited following the quote or fact noted. References listed at the end of the article should contain the following information:

1. The author, editor's or compiler's name, in reverse order (surname, followed by first and middle initials).
2. The exact title. Titles of books, pamphlets, periodicals, and newspapers are underlined: titles or articles within periodicals or books are not underlined and precede the periodical or book in which they are found. Only the first word of the title is capitalized and the title is followed by a period.
3. Titles of books are followed by place: company, date of publication. The date, volume, and page numbers follow the title of a journal. If each issue of a journal begins with page 1, include the issue number after the volume number in parentheses. Volume numbers should be italicized, issue numbers should be in parentheses and not italicized forjournals. Please see below and the following web page for further examples of APA styles of various sources. http://libguides.radford.edu/apastyle

Examples of Citations

American Dietetic Association. (1999). Dietary guidance for healthy children aged 2 to 11 years. Journal of the AmericanDietetic Association, 99, 93-101.

Kulwicki, A., & Rice, V.H. (2003). Arab American adolescent perceptions and experiences with smoking. Public Health Nursing, 20, 177-183.

Illustrations

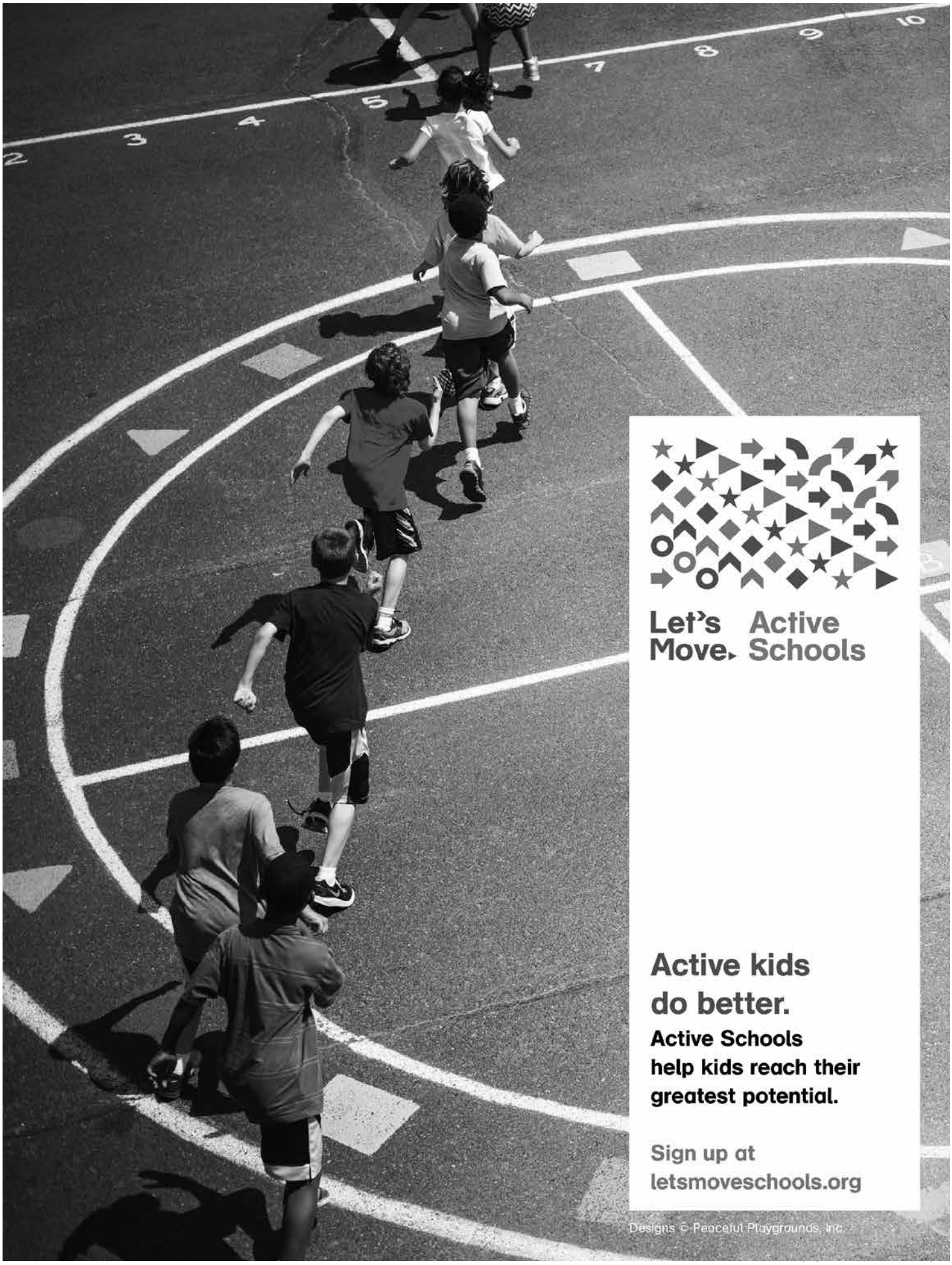
Illustrations such as pictures, graphs, and drawings are valuable additions to manuscripts. Please send these embedded within your manuscript.

Reviewing and Editing

Each article is reviewed by three members of the Editorial Board. Sometimes a guest editor is asked by the editor to review a manuscript depending upon the topic. To be accepted for publication the article must be approved by at least two of these persons. Reasons for rejecting articles include: topic is not of interest to the profession or to only a few members of the Association, topic is of interest but has already been thoroughly discussed in the literature, manuscript discussion is too general and vague, poor research techniques, the manuscript is poorly written or if human subjects were used in your research and IRB approval was not obtained and provided to TVJ Editor. In some instances a manuscript may be rejected but the author is invited to revise and resubmit it with corrections. Manuscripts accepted are subject to editing to conform to the Journal format.

Final Acceptance for Printing

After the editor has compiled the journal issue, it is sent to the printers. VAHPERD's executive director, president and presidentelect then edit The Virginia Journal. These three VAHPERD members are provided with a minimum of two drafts for their revision and comment. Upon their approval, the final document is printed and distributed.


Let's Move. Active Schools
Active kids do better.
Active Schools help kids reach their greatest potential.
Sign up at letsmoveschools.org
Designs © Peaceful Playgrounds, Inc.

American Heart Association.
life is why™

JUMP ROPE FOR HEART℠

HOOPS® FOR HEART

It Takes Heart to be a Hero

HEART HERO

Bran, Age 11

Although he was born with a serious heart defect, Bran has still jumped his way to raising more than $80,000 through Jump Rope For Heart, including $25,000 this year.

Within an hour of his birth, he was diagnosed with the most extreme form of Tetralogy of Fallot, called Pulmonary Atresia. Since he had no pulmonary valve, blood couldn't flow from the right ventricle into the pulmonary artery and onto the lungs.

At 18 months, a team of surgeons operated for eight hours to fix Bran's complex set of heart problems. Doctors had cautioned the family that Bran would likely need multiple surgeries by the age of 16. He is due for his annual visit to the cardiologist to see what lies ahead in the coming year. So, when Bran asks friends and family to donate to Jump Rope For Heart to help the American Heart Association fund research to learn more about the heart and how to fix it, he's speaking from his own heart.

Jump Rope For Heart and Hoops For Heart are national education and fundraising events created by the American Heart Association and SHAPE America-Society of Health and Physical Educators. Students in these programs have fun jumping rope and playing basketball — while becoming empowered to improve their health and raise funds for research and programs to fight heart disease and stroke.

Funds raised through Jump Rope For Heart and Hoops For Heart give back to children, communities and schools through the American Heart Association's work:

- **Ongoing discovery of new treatments through research**
- **Advocating at federal and state levels for physical education and nutrition wellness in schools**
- **CPR training courses for middle and high school students**

Millions of students have joined us in being physically active and in fighting heart disease and stroke by funding research and educational programs. Be a part of these great events and your school will earn gift certificates for FREE P.E. equipment from U.S. Games.

Call 1-800-AHA-USA1 or visit heart.org/jump or heart.org/hoops to get your school involved.

SHAPE America SOCIETY OF HEALTH AND PHYSICAL EDUCATORS®
health. moves. minds.

SHAPE America is a proud program partner of Jump Rope For Heart and Hoops For Heart.

The Virginia Journal
Radford University
Department of Health and Human Performance
P.O. Box 6957
Radford, VA 24142

www.facebook.com/vahperd

www.twitter.com/vahperd

Please submit a manuscript or announcement for our next issue.

The Virginia Journal
Publication Specifications

Submission Deadlines:
January 15 and July 15

Manuscript Specifications:
All manuscripts and announcements should be submitted by e-mail as a WORD attachment. See page 18 for more information.

Authors:
Please include your name, position, address, e-mail address, and telephone number. Authors are strongly encouraged to be members of both VAHPERD and SHAPE America.

VAHPERD

HAVE YOU MOVED?
Please send your change of address information to:
Henry Castelvecchi
Executive Director
info@vahperd.org