

Using Systematic Observation to Research School Physical Education and Physical Activity Programs

(T. McKenzie and M. Lounsbury, [ALR Webinar](#), 5.20.15)

Responses to Participant's Questions that were not addressed during the Webinar or in the [Resource Handout](#)

NOTE: Questions have been modified for brevity and clarity.

SOFIT:

Are there any systematic relationships (e.g., causal, mediating, moderating) of three categories (physical activity, context, teacher) of SOFIT?

Yes. The three categories are independent, nonetheless they are related statistically. For example, see the first SOFIT publication:

McKenzie, T. L., Sallis, & Nader, P. R. (1991). SOFIT: System for observing fitness instruction time. *Journal of Teaching in Physical Education*, 11, 195-205.

Do we have to validate SOFIT for use in Colombia?

SOFIT is used in many countries and has been validated in many ways, including by heart rates in Brazil. It should be appropriate for use in Colombia

Is computer-based SOFIT available to public?

Not that we are aware of.

Can you compare and correlate data obtained SOFIT and accelerometers?

Numerous researchers have made data summary comparisons, and found very high correlations. Keep in mind that these two instruments measure very different things (accelerometers assess impact/force; SOFIT assesses behavior). See page 27 of the [SOFIT Description and Procedures Manual \(5.1.15\)](#) on the ALR website for a listing of papers on SOFIT methodology and validation.

How can SOFIT intervals be translated into time?

SOFIT uses momentary time sampling, with the sum of one observe and one record interval to equal 20 seconds. For an **estimate** of time, multiply the number of intervals (for any Student Activity or Lesson Context) by 20. Thus, students recorded engaged in Vigorous Activity for 10 intervals would have an **estimated** 200 seconds (3.3 minutes) of vigorous physical activity. At an ASCM meeting several years ago, one researcher reported a congruence of 96% between physical activity levels measured using intervals of this length and duration recording (data were from videotapes).

How was interval length decided?

During the 1980's we tested many different lengths. Shorter intervals provide more samples, but increase the burden on observers. Ten seconds provide ample time to enter codes for the three

main categories and they provide good estimates of the behaviors as compared to using duration recording.

What does 'game play' mean.

Page 9 of the [SOFIT protocol](#) identifies Game play as follows: Activity time devoted to the application of skills in a game or competitive setting. Game participants generally perform without major intervention from the instructor, such as during volleyball and tag games, balance beam routines, and folk dance performances. (It could involve such as configurations a 1 vs.1; 1 vs. 5; 5 vs. 5, or one or more people against standard.)

How would you improve SOFIT if you want to make it better at this point?

There are several ways, including additional validation in aquatic environments, improved observer training videos, and the development of apps that are flexible (e.g., enable user identifiable characteristics), facilitate ease data entry, and provide data summaries to Excel-type files.

What about the criticism that assessing physical activity during a lesson does not measure PE quality.

PE, as a program of study, has many proposed objectives/outcomes. SOFIT is a process measure of student physical activity, lesson context (how time is spent), and some instructor behaviors during lesson time. SOFIT does not measure program expectations such as student outcomes related to knowledge, physical fitness, motor skills, attitudes, self-esteem, or ability to get along with others. The central focus of SOFIT is on student physical activity which is important for current and future health and is essential for developing student physical fitness and motor skills.

Rest assured the presenters do not believe that simply having students run non-stop for 30 minutes constitutes a quality PE lesson. For their views on PE program and lesson quality, see:

McKenzie, T. L., & Lounsbery, M. A. F. (2013). [Physical education teacher effectiveness in a public health context](#). *Research Quarterly for Exercise and Sport*, 84(4), 419-430. doi:10.1080/02701367.2013.844025

McKenzie, T. L., & Lounsbery, M. A. F. (2014). [The pill not taken: Revisiting physical education teacher effectiveness in a public health context](#). *Research Quarterly for Exercise and Sport*, 85(3), 287-292. doi:10.1080/02701367.2014.931203

SOPLAY:

Is it the more important to an accurate count of the total number of people in the setting or to capture the activity levels for a sample of the population in that setting?

SOPLAY is a target area measure. From a population health view, it is important to both get more people into an activity area and to increase their activity levels (thus, the importance of both promoting and programming). With SOPLAY, the 'head' count and activity levels are recorded simultaneously. From an analysis view, consider 'total' population first, and then analyze by other factors (e.g., gender, age grouping).

OTHER:

Where are the keys (answers) to the Video Training Assessments?

To permit the video tests to be valid for use by diverse study groups, the answers are available only by request (tmckenzie@sdsu.edu). The request should be made by the study PI or Project Director and include the name and location of the study and the number of observers to be trained. The request should include a written statement indicating that the test answers will not be provided to the project observers or distributed to other investigators.

Are there apps for SOFIT and SOPLAY?

For SOPLAY, download [iSOPARC for IPADS](#) from the App store. (FREE)

We have not seen a quality App for SOFIT. We are working on one, and it will be free.

Do you consider doing observations using "Skype" to be live?

Interesting question, they are 'live' in time—but not in quality! Skype has many of the limitations of a video segment (limited focus, inability to see the entire scene at one time, challenges hearing instructor behavior, and increased possibility of reactivity).

What are some advantages of systematic observation over accelerometry?

In our work we use diverse methods to assess physical activity, including questionnaires, interviews, heart rate monitors, pedometers, accelerometers, and systematic observation—not all at the same time of course. Each method has limitations and strengths, and we use the one that best answers our research question. As indicated during the Webinar, there are limitations to systematic observation. Generally, however, systematic observation usually has the following advantages over using accelerometers: (a) information on the context of physical activity (e.g., location where it took place, who was there, were there concurrent prompts or consequences for it); (b) improved ability to assess physical activity in certain activities such as aquatics and weight training; (c) reduced burden on participants (they don't have to wear anything or potentially forget to wear it); (d) data summaries easier for practitioners to understand (e.g., parents and administrators easily understand information such as minutes or % of lesson students spent "standing"); (e) no artificial cutpoints; and (f) increased ease of gaining consent for studies.

What are some research questions in schools that might be answered by using these tools?

One of our main concerns is that there has never been a national (or even state) surveillance study of physical activity in schools using systematic observation. Most of what we know about what happens in PE and leisure time physical activity programs comes from self-reports (often by people far distal to the actual conduct of programs).

See the following paper for a detailed response:

McKenzie, T. L., & van der Mars, H. (2015). [Top 10 research questions related to assessing physical activity and its contexts using systematic observation](#). *Research Quarterly for Exercise and Sport*, 86(1), 13-29. doi 10.1080/02701367.2015.991264