Using MVPA analysis, does partner based grouping show an increase in physical activity?

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ABSTRACT:
A two-week study done to analyze the potential change in physical activity during a given lesson through the variable of student grouping strategies. Using the moderate-to-vigorous-physical-activity guidelines as the key assessment tool, data was gathered to measure student physical activity levels. The differences in grouping strategies was the control week of allowing for student selected grouping while the proceeding week included instructor based grouping with the intent of mixing class social groups. Affective assessments were given halfway through the collection period to survey student opinion and predictions of activity levels and to see their views on grouping strategies used.

Methods:
• Students were chosen randomly each day for the ten lesson study.
• Each student was assessed at least once. No student was assessed more than three times.
• The classroom consisted of identical structure throughout the testing period.
• Students showing MVPA at the time of assessment received a score of one for the given interval.
• Students not showing MVPA at time of assessment received a zero. This data was then averaged to produce daily MVPA ratio for each student group that was assessed.

Prior Research:
One of the largest concerns in this study will be determining what movements can be categorized as moderate to vigorously physically active (MVPA). The term MVPA is used as a blanket term to identify any action that causes the heart rate to increase above normal levels. According to the Center for Disease Control (2011) MVPA is “On a scale relative to an individual’s personal capacity, moderate-intensity physical activity is usually a 5 or 6 on a scale of 0 to 10.” This means that if the person feels that they are working at a moderate level for their own physical abilities they have achieved an acceptable level of moderate to vigorous physical activity.

Every individual human body is constructed in differently than the next. These differences can include a variety of things ranging from height, weight, appearance and abilities. Looking specifically at the fitness levels of the people in this study on an individual level will be a determining factor in measuring MVPA. Gutin, Yin, Humphries, Barbeau (2011) found that children with lower body fat percentages (BF%) exhibited the highest level of MVPA. However, some students with high levels of BF% that showed high levels of MVPA saw a significant increase in mood as well as an increase in BF%. This inverse relationship between obesity and MVPA has been a topic for discussion for years however the research shows that the correlation between the two does exist. The focus needs to be places on obese children and their lifestyles.

Data

<table>
<thead>
<tr>
<th>Student A</th>
<th>Student B</th>
<th>Student C</th>
<th>Combined Results</th>
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<tbody>
<tr>
<td>Lesson Number</td>
<td>MVPA Ratio</td>
<td>Lesson Number</td>
<td>MVPA Ratio</td>
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</table>

The following figures illustrate the average MVPA ratio of the student chosen to represent the data pool for the lesson for that day.

Discussion:
• Data showed that the class as a whole responded equally to each lesson and grouping strategy used.
• The largest drop in MVPA occurred on the sixth lesson (first lesson of teacher-based grouping).
• The largest increase was found in lesson five (fifth lesson of student-selected grouping).
• The average MVPA ratio for student-selected grouping was .36
• The average MVPA ratio for teacher-based grouping was .32
• In both cases (control and variable), MVPA showed an increase after four lessons of each grouping strategy.

REFERENCES:
• Pabayo R, Belsky J, Gauvin L, Curtis S. (2011) Do area characteristics predict change in moderate-to-vigorous physical activity from ages 11 to 15 years? Journal of Social Science and Medicine
• Centers for Disease Control and Prevention (2011) Aerobic Activity-What Counts?

Results:
Due to the short duration of the testing period and the small sample used in the test itself the data collected in the study has shown:
• Student-selected grouping produced 16% more MVPA on average.
• The period of adjustment into a new type of grouping strategy is five lessons.
• Contrary to previous predictions, amount of time spent on-task was observed to be much higher during the student-selected grouping strategy.

Implications for further Research:
After completing this research, the following questions remain unanswered:
• Student MVPA in a variety of different activity units
• Student MVPA in all boy/girl classes
• What causes such a dramatic drop in MVPA when students work with someone other than a friend in the class