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Sharpening the Mind Through Movement: Stand-up Desks

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Sharpening the Mind through Movement – Stand-up Desks

John Kilbourne, Ph.D.

For nearly twenty years I have been teaching courses in sport studies in the typical college or university classroom setting. The classrooms usually consisted of thirty to forty chairs with attached desks organized in neat rows all facing front. There was little opportunity to alter the configuration because of the confined space, time, and the other classes that preceded and followed mine. In the fall of 2008 this all changed when I introduced table top desks and exercise stability balls as options for seats. Researching the effectiveness of the exercise ball on student attention and focus I discovered that 98% of the students surveyed would like this option in every class (Kilbourne, J. 2009).

During the spring of 2010 I expanded my research to include the use of fixed-height, stand-up desks as an additional choice for the students. In my theory courses students had the option of sitting on the exercise balls, standing at a desk, or sitting in a regular chair at a desk. Some students used the balls, some used the standing desks, some used traditional chairs at desks, while still others sat in a regular chair with their legs or feet resting on a ball. It was the most exciting teaching and learning space I have ever experienced.

The influence of movement to learning is well documented. In Dr, John J. Ratey's informative book, *SPARK: The Revolutionary New Science of Exercise and the Brain* he says, "In addition to priming our state of mind, exercise influences learning directly, at the cellular level, improving the brain's potential to log in and process new information" (Ratey, 2008, p. 35). He goes on to say, "Research from kinesiologists to epidemiologists shows again and again that the better your fitness level, the better your brain works" (Ratey, 2008, p. 247).

There are an increasing number of teachers using stand-up desks in classrooms. Many, including sixth grade teacher Abby Brown in Minnesota who is a leader in the stand-up desk movement are seeing many positive results from creating what Dr. James Levine from the Mayo Clinic call "Activity Permissible" classrooms (Levine cited in Saulny, 2009). Ms Brown says she, "…got the idea for the stand-up desks after 20 years of teaching in which she watched children struggle to contain themselves at small hard desks, and after reading some of Dr. Levine's work. She goes onto say, "it gives students choices, and they feel empowered. It's not anything to force on anybody. Teachers have to do what fits their comfort level. But this makes sense to me" (Brown cited in Saulny, 2009).

Children in Pam Seekel's fifth-grade class in Wisconsin are also experimenting with stand-up desks. She said, "At a stand-up desk, I've never seen students with their heads down, ever. It helps with being awake, if they can stand, it seems. And for me as a teacher, I can stand at their level to help them. I'm not bent over. I can't think of one reason why a classroom teacher wouldn't want these" (Seekel cited in Saulny, 2009).

Several recent studies on the benefits of standing while at work or in school were neatly organized in Olivia Judson's article, "Stand Up While You Read This," (Judson, 2010). Ms. Judson, who writes on the influence of science on modern life for the New York Times said,

> It doesn't matter if you go running every morning, or you're a regular at the gym. If you spend most of the rest of the day sitting — in your car, your office chair, on your sofa at home — you are putting yourself at increased risk of obesity, diabetes, heart disease, a variety of cancers and an early death. In other words, irrespective of whether you exercise vigorously, sitting for long periods is bad for you (Judson, 2010).

She goes onto say,

> … sitting is one of the most passive things you can do. You burn more energy by chewing gum or fidgeting than you do sitting still in a chair. Compared to sitting, standing in one place is hard work. To stand, you have to tense your leg muscles, and

> engage the muscles of your back and shoulders; while standing, you often shift from leg to leg. All of this burns energy (Judson, 2010)

Standing at a desk instead of sitting may help a person burn as many as 50 more calories per hour. Over the course of a four to six hour day that additional 50 calories per hour may add-up to 200-300 extra calories burned per day. Those extra calories burned can help with weight loss over time (Cepedes, A.) .

Objective

The objective of my study with stand-up desks was similar to my earlier study with exercise balls at Grand Valley State University. The hypothesis was that using the stand-up desks would be a positive experience for students in a university lecture class. The title of the course was MOV 101, "The History and Philosophy of Sport and Physical Education." Quantitative data (questionnaires) and qualitative data (student comments) were collected from the students at the conclusion of one term of study, spring 2010.

Project

The goal of the project was to explore the use of stand-up desks for college-age students in lecture classrooms and solicit student feedback about their experience at the end of the spring term. Students in the classes had the option of standing at a table top desk. Each class in the spring term is the equivalent of three, fifty minute classroom periods. A grant from the PEW Teaching & Learning Center at GVSU provided the funds to purchase 10 fixed-height stand-up desks. One stand-up desk was used at the front of the classroom and one was transferred to an office. Eight stand-up desks were available for the twenty students enrolled in class. The desks were adjusted to accommodate students of varying heights.

Following are the responses (in italic) to the questionnaires administered to the students at the end of the semester.

Survey: "Sharpening the Mind Through Movement - Stand-Up Desks"

This research project (09-27-H. Kilbourne) has been approved by the GVSU Human Research Review Committee as exempt from the federal regulations under 45 CFR 46.101(b)(2).

MOV 101—Spring 2010

By completing this survey you are consenting to participate in the research project.

1. I certify that I am at least 18 years of age (Circle One): Yes *8* No *0*

3. Year in School (Circle One): Freshman Sophomore Junior Senior

0 *1* *4* *3*

4. Number of days you used the stand-up desks in a lecture class: Each class during the spring term is equal to three fifty-minute class periods. Number of days is based on fifty-minute class periods. *Mean: 16.8 days; Minimum: 10 days; Maximum: 30 days*

On a scale of 1 to 5 (1 being negative and 5 being positive), please rate using the stand-up desks in a lecture class (Circle One):

5. Ability to pay attention in class 1 2 3 4 5 *Mean: 4.8*

6. Ability to concentrate in class 1 2 3 4 5 *Mean: 4.8*

7. Ability to take notes in class 1 2 3 4 5 *Mean: 4.4*

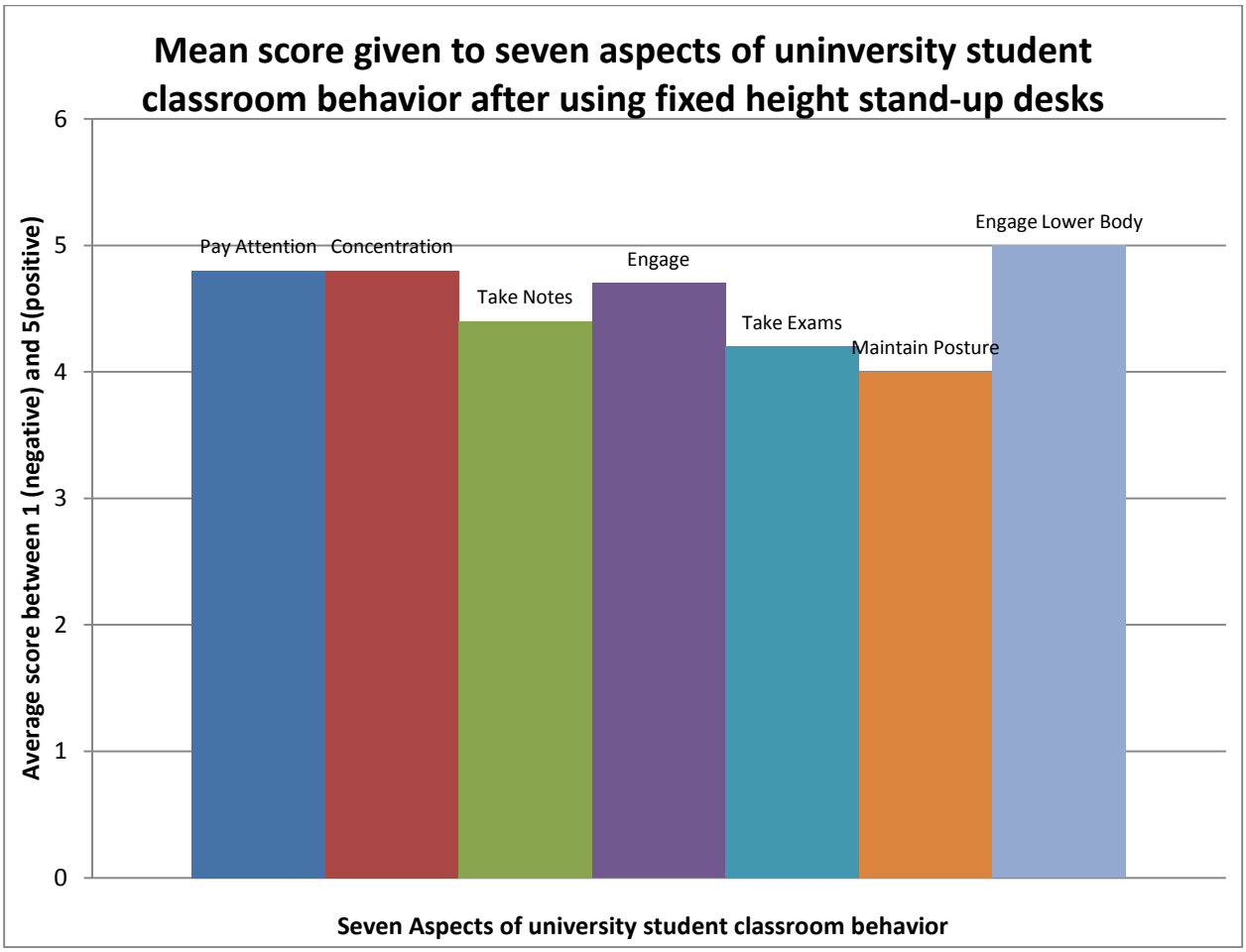
8. Ability to engage in classroom discussions 1 2 3 4 5 *Mean: 4.7*

9. Ability to take exams 1 2 3 4 5 *Mean: 4.2*

10. Ability to maintain upright posture 1 2 3 4 5 *Mean: 4.0*

11. Ability to engage the lower body 1 2 3 4 5 *Mean: 5.0*

12. If given the opportunity, would you use a stand-up desk in other classes at Grand Valley State University? (Circle One): Yes *8* No *0*



Comments:

The stand-up desk needs to be required in almost every classroom. For example, I have A.D.H.D. and they helped my ability to focus.

Having the ability to move around, stretch, and not have to sit stationary helped greatly in my ability to pay attention. Makes a three hour class easy to get through.

Though standing and sometimes slouching, the stand-up desk for sure prevailed over traditional desk and chair.

It was amazing how much concentration I had in class as a result of the stand-up desks. I regulary have extreme problems with concentration in class, especially in morning classes. I never had that due, in large part due to the desks.

Love It!

The professor's/instructor's teaching style can impact how well organized and fun and engaging student's experience during the semester.

Conclusions

The student's responses to the questionnaires clearly demonstrated an excitement and enthusiasm for having the option to use a stand-up desk in a university lecture class. Responses to each question, from student's ability to pay attention, take notes, engage in classroom discussions, and take exams were all 4.0 (Positive) or higher.

As the professor of the class it was exciting to walk into the classroom and see students standing instead of sitting in chairs at tables. Each stand-up desk had a swinging foot-rest that allowed students to engage their lower limbs. What was interesting is that of the twenty students in the class, eight females and twelve males, only males chose to use the stand-up desks. Of the eight participants, 100% stated that they would like the option of using a stand-up desk in all of their university classes.

The results of the research project clearly demonstrate that additional research is needed to further establish the effectiveness of stand-up desks in a university classroom. Research possibilities include examining student performance while standing in class versus sitting, examining why men seemed to prefer the stand-up desks, and research to determine the physiological and health benefits including enhanced posture and caloric expenditure. The aforementioned research project will be repeated with classes during the fall semester, 2009 at Grand Valley State University.

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