OBTC

Teaching Conference for Management Educators

OBTC 2015 at University of La Verne
June 17th – 20th, 2015

Submission Template

SUBMISSION GUIDANCE

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Only one document should be submitted

Submission Template for the 2015 OBTC Teaching Conference for Management Educators

1) Title of Proposal:

The track on the track: Encouraging deep learning by teaching while engaged in physical activity

2) Abstract:

Please include a brief session description (not to exceed 100 words).If your proposal is accepted, this description will be printed in the conference program.

Much recent research has shown a positive relationship between physical activity and learning capacity. A challenge for faculty is finding a way to ensure their students get such activity. One solution is to center lessons around physical activity.

During this session, participants will themselves be actively engaging in physical activity (a brisk walk around the track) while engaging other participants in a discussion of ways to encourage student physical activity when an "aerobic classroom" isn't feasible.

Session participants are encouraged to bring comfortable walking shoes and a water bottle.

3) Keywords:

Use three or four keywords to describe your session.

Deep learning, physical activity, exercise

4) Format

___ Activity or exercise
___ Discussion roundtable (60 minute only)
_X_ General discussion session

5) Time Requested:

___ 30 Minutes
_X_ 60 Minutes (*Roundtables must select 60 minutes*)
___ 90 Minutes

6) Planning Details:

Does your session have any special requirements for space or materials?

This session is meant to take place outdoors on the track – we will need to ensure that we have access to the track during the session. If there is inclement weather, it would be nice to have a back-up site (a gym with treadmills?) but that is not imperative. We can get an equally aerobic workout walking the halls.

7) Learning Objectives or Goals for the Session:

What are 2-4 specific learning outcomes that participants will get from your session?

Upon leaving this session, participants will have exercised for at least 30 minutes, thus increasing their learning capacity for 2-4 hours for other OBTC sessions that follow. Upon leaving this session, participants will have shared ideas of how to encourage student physical activity both in and out of class.

8) Management or Teaching Topics:

Describe what management and/or teaching topics are relevant to your session, and why. Please include theoretical, disciplinary, or theoretical foundations that will help reviewers understand how your ideas fit within the broader field of management.

There has been much recent research into the benefits of physical activity when it comes to learning (e.g., Ratey, 2008; Roig, Nordbrandt, Geertsen & Nielsen, 2013). Researchers from various fields (e.g., kinesiology, psychology, neuroscience) have all come to the same general conclusion – that exercise is the best thing you can do for your brain (Ratey, 2008).

"Brain researchers have discovered there are five things that humans must provide their brain for it to function at its optimum level for learning. These are oxygen, hydration, proper diet, a good night's sleep and aerobic exercise" (Doyle, 2014, Five Areas that Improve Learning Readiness section, para. 1). While faculty cannot control access to all five of these, we can certainly facilitate some of them.

For instance, while physical activity certainly has the capacity to meet the final criterion, aerobic exercise, it also helps oxygen get into the blood stream, meeting the first criterion. If physical activity is promoted alongside proper hydration, then 60% of the key elements for optimal learning are being met. Indirectly, exercise improves sleep (Godman, 2014) and mood (Godman, 2014, Mayo Clinic Staff, 2014), thus dealing with four of the five criteria.

"The benefits of exercise come directly from its ability to reduce insulin resistance, reduce inflammation, and stimulate the release of growth factors…Problems in these areas frequently cause or contribute to cognitive impairment" (Godman, 2014). Scientists have found that regular aerobic exercise increases blood flow to the brain, and helps to support formation of new neural and vascular connections. Physical

exercise has been shown to improve attention, reasoning, and components of memory. The effects of such exercise last 2-4 hours (Putnam, 2001)

A recent meta-analysis revealed that acute exercise (a single bout of exercise, such as a brisk 30-minute walk) had moderate whereas long-term exercise (had small effects on short-term memory. In contrast, acute exercise showed moderate to large whereas long-term exercise had insignificant effects on long-term memory (Roig, M., Nordbrandt, S., Geertsen, S. S., & Nielsen, J. B., 2013). Other studies have shown similar effects for acute exercise, for instance, Coles and Tomporowski (2008) found that exercise-induced arousal may facilitate the consolidation of information into long-term memory.

It is important to note that the exercise required to gain these benefits needn't be heavy, but rather moderate physical activity has been shown to improve various cognitive functions, particularly when it is applied simultaneously to the cognitive task; Schmidt-Kassow et al., (2014) found that performance was improved when their subjects were active during the learning process compared to being sedentary.

The relevance of this proposed session is the relationship between deep learning and physical activity. There is a lot of research backing the importance of physical activity and learning, especially when it comes to longer-term recall (i.e., deep learning).

9) Session Description and Plan:

What will you actually do in this session? What activities will you facilitate, how long will they take, and how will participants be involved? Reviewers will be evaluating how well the time request matches the activities you'd like to do, and the extent you can reasonably accomplish the session's goals. Reviewers will also be looking for how you are engaging the participants in the session. Include a timeline for your session.

The first 5 minutes will be used to brief participants on the activity and prime them with discussion topics. Participants will be broken into small (3-5 person) walking groups to facilitate discussion. The next 30 minutes will involve walking around the track at a brisk pace to encourage simultaneous moderate physical and cognitive activities. The next 5 minutes will be devoted to light cool-down stretches followed by a session debrief whereby participants share what their small groups found during discussions. We will also brainstorm ways to encourage students to engage in physical activities when it is unfeasible to do so during class sessions, so as to take advantage of an active mind.

10) For Activities and Exercises:

Attach any materials needed to run the activity and debriefing questions. Evidence for effectiveness may also be included.

Participants will be required to bring comfortable shoes for physical activity, and the session facilitator will also bring a tablet or laptop in order to gather ideas during the breakdown/debrief stage of the session.

11) Implications for Teaching or for Teachers:

What is the contribution of your session?

The contribution of this session is to provide college teachers with additional tools to encourage student learning. While it may not always be feasible to take a class for a nature walk, there are other ways to encourage student exercise which has been shown to improve student learning, both in short- and long-term.

12) Application to Conference theme:

How does your session fit with the overall OBTC theme of Learning in Community?

This session will build a community of faculty who use physical activity as a tool in their teaching toolbox. While this won't be appealing to every faculty member, neither is using simulations, or the case-method, or any other number of teaching techniques. Many of these communities may have overlapping membership, and we welcome building this community alongside the other vibrant communities within OBTC.

13) Unique Contribution to OBTC:

Have you presented the work in this proposal before? If so, how will it be different? Is this proposal under current review somewhere else? If so, please explain. How will your proposal be different for the OBTC conference?

This work has not been proposed, submitted or presented elsewhere prior to OBTC.

14) References and/or Additional Materials:

Coles, K., & Tomporowski, P. D. (2008). *Effects of acute exercising on executive processing, short-term and long-term memory*. Journal of Sports Science, 26(3), 333-344.

Doyle, T. J., (2014, Dec. 4). *A new paradigm for student learning – preparing the brain for learning*. Retrieved from: https://learnercenteredteaching.wordpress.com/2014/12/04/blog-1-a-new-paradigm-for-student-learning-preparing-the-brain-for-learning/

Godman, H. (2014, Apr. 9) *Regular exercise changes the brain to improve memory, thinking skills*. Retrieved from: http://www.health.harvard.edu/blog/regular-exercise-changes-brain-improve-memory-thinking-skills-201404097110

Mayo Clinic Staff (2014, Feb. 5). *Exercise: 7 benefits of regular physical activity*. Retrieved from: http://www.mayoclinic.org/healthy-living/fitness/in-depth/exercise/art-20048389

Putnam, S. C. (2001) *Nature's Ritalin for the marathon mind: Nurturing your ADHD child with exercise*. Hinesburg, VT: Upper Access, Inc.

Ratey, J. J. (2008) *Spark: The revolutionary new science of exercise and the brain*. New York, NY: Hachette Book Group USA.

Roig, M., Nordbrandt, S., Geertsen, S. S., & Nielsen, J. B. (2013). *The effects of cardiovascular exercise on human memory: A review with meta-analysis*. Neuroscience and Biobehavioral Reviews, 37, 1645–1666.

Schmidt-Kassow, M., Zink, N., Mock, J., Thiel, C., Vogt, L., Abel, C., & Kaiser, J. (2014) *Treadmill walking during vocabulary encoding improves verbal long-term memory.* Behavioral and Brain Functions, 10:24, 1-9. doi:10.1186/1744-9081-10-24