



The Hebrew University of Jerusalem

Syllabus

New ways to think learn and Move - 34556

Last update 30-08-2021

HU Credits: 2

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Education

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Dr. Alik Palatnik

Coordinator Email: Alik.Palatnik@mail.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

Dr. alik palatnik

Course/Module description:

The course focuses on movement as the source of our insights on space and time. The course will cover key theories and basic concepts in the field of embodied cognition.

During the course, we will introduce Embodied Learning methods and discuss the possible application of this pedagogy in various disciplines. Dilemmas of cognition, culture and pedagogy will arise from participants' attempts to understand and explain their ways of thinking and movement.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:

Outline various theoretical and practical accounts and bases of embodiment.

Define and outline the main principles of embodied pedagogy.

Describe and compare models of embodiment pedagogy.

Practice a collaborative embodiment educational activity.

Analyse educational activities from the embodiment perspective.

Plan and implement an educational activity following the guiding principles of embodiment pedagogy (including distance learning).

Build a repository of educational embodiment activities and materials.

Attendance requirements(%):

90

Teaching arrangement and method of instruction: Participation in embodied learning activities, discussion, experimentation, lecture

Course/Module Content:

Introduction. Examples of embodied perception, emotion, language, concepts and social coordination.

Historico-technological excursion. What can we find on body-mind dualism? Plato, Aristo, Descartes and neuroscience evidence.

What can we learn about a body-mind connection from archaeology? A Theory of Material Engagement.

How the body influences our perception. Optical illusions and more.

Rhythm... You can feel it everywhere. Experiments with a rhythm. Collaborative

rhythmical activity.

Embodied learning of spatial geometry: 3D pen, construction of 3D models. Does size matter?

Embodiment and language.

Embodiment: Magic, monsters and mathematics.

Gestures are important.

Technology enters the scene. Meet MIT(p).

Dance physics.

Required Reading:

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Abrahamson, D. (2015). The monster in the machine, or why educational technology needs embodied design. In V. R. Lee (Ed.), *Learning technologies and the body: Integration and implementation* (pp. 21–38). New York, NY: Routledge.

Abrahamson, D., & Sánchez-García, R. (2016). Learning is moving in new ways: The ecological dynamics of mathematics education. *Journal of the Learning Sciences*, 25(2), 203–239.

Alibali, M. W., & Nathan, M. J. (2012). Embodiment in mathematics teaching and learning: Evidence from learners' and teachers' gestures. *Journal of the learning sciences*, 21(2), 247–286.

De Lima, R. N., & Tall, D. (2008). Procedural embodiment and magic in linear equations. *Educational Studies in Mathematics*, 67(1), 3–18.

Radford, L. (2009). Why do gestures matter? Sensuous cognition and the palpability of mathematical meanings. In L. Radford, L. Edwards, & F. Arzarello (Eds.), *Gestures and multimodality in the construction of mathematical meaning [special issue]*. *Educational Studies in Mathematics*, 70(2), 111–126.

Nemirovsky, R., & Ferrara, F. (2009). Mathematical imagination and embodied cognition. *Educational Studies in Mathematics*, 70(2), 159–174.

Ng, O., & Sinclair, N. (2018). Drawing in space: Doing mathematics with 3D pens. In L. Ball, P. Drijvers, S. Ladel, H.-S. Siller, M. Tabach, & C. Vale (Eds.), *Uses of technology in primary and secondary mathematics education* (pp. 301–313). Cham, Switzerland: Springer

Palatnik, A., & Abrahamson, D. (2018). Rhythmic movement as a tacit enactment goal mobilizes the emergence of mathematical structures. *Educational Studies in Mathematics*, 99(3), 293–309. DOI: 10.1007/s10649-018-9845-0.

Additional Reading Material:

Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. Chicago: University of Chicago Press.

Lakoff, G., & Núñez, R. E. (2000). *Where mathematics comes from: How the embodied mind brings mathematics into being*. New York: Basic Books.

Malafouris, L. (2013). *How things shape the mind*. Cambridge, MA: MIT Press.

Sheets-Johnstone, M. (1999). *The primacy of movement*. Amsterdam: John Benjamins.

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 60 %

Assignments 40 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information: