Vygotsky's Zone of Proximal Development in Connection with Technology-Enhanced Learning Environments

Technology-enhanced learning environments (TELEs) that support social interaction between teachers and learners are common in engineering higher education institutes. TELEs are often equipped with professional hardware and software, which not only enable learners to gain access to variety of learning instruments, but also allow learners to practice with authentic equipment and design tools. Furthermore, teachers can use TELEs and scaffolding principles to organize teaching in several ways that are beyond traditional classrooms. This paper discusses the potential of TELEs to shape the zone of proximal development (ZPD) of learners such that they could do harder learning activities than would otherwise be possible in less conducive environments. In addition, an example of a conducive TELE is presented that might have enlarged ZPD of learners, and, as such, may partly explain good learning outcomes obtained. The illustrations in this paper may help teachers to gain better understanding of the benefits of environment creation as well as to organize learning episodes that are suitable for ZPD-based thinking.

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Ministry of Education publication type: A4 Article in a conference publication
Authors: Pyrhönen, V.
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Host publication information
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Publisher: European Society for Engineering Education SEFI
Editors: Quadrado, J., Bernardino, J., Rocha, J.
ISBN (Electronic): 978-989-88875-7-2
Keywords: Zone of Proximal Development, Scaffolding, Technology-Enhanced Learning Environments, Engineering Education
ASJC Scopus subject areas: Education

Pedagogical Content Knowledge in Product Development Education

Engineering education at university faces challenge concerning the efficiency in producing results in learning. Engineering Education will be exposed to globalisation resulting in tough competition between the service providers and individual contributors. This study focus on capturing and discussing teachers’ pedagogical content knowledge on product development education. Currently there are no holistic approaches presented from teacher knowledge viewpoint. The next steps how to develop this knowledge of product development teaching further by focusing on the continuous learning process.

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Organisations: Mechanical Engineering and Industrial Systems, Research area: Design, Development and LCM, University of Tampere
Authors: Juuti, T., Rättyä, K., Lehtonen, T., Kopra, M.
Number of pages: 6
Pages: 483-488
Publication date: 7 Sep 2017

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Research output: Scientific - peer-review › Conference contribution

Minivirtuaallilaboratorio käänteisen luokkahuoneen oppimisvälineenä

General information
Affective experiences and student engagement in higher education

According to Kolb [1], experience is the source of learning and development. This is a statement that serves as the starting point of this study. We argue that the role of affective experiences cannot be overlooked when evaluating university learning and teaching. In the present paper, we will study students’ affective experiences in higher education setting, specifically in engineering education in a technological university. The perceived affective experiences are empirically analysed through a mystery shopper data set, which was gathered in the case university by a group of students. The study bases theoretically on affective experiences framework, more familiar from the consumer behaviour research stream. The aim of the study is to analyse what kinds of affective experiences students recognise when studying in a technical university and further to elaborate, how these affective experiences could be used to increase student engagement and the students’ motivation to learn. The study provides an innovative approach to university learning and teaching by applying mystery shopper method and affective experience approach from more business-oriented disciplines. The contribution to education science is the increased understanding of the role of affective experience in learning.

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Organisations: Department of Information Management and Logistics, Research group: Novi, Language Centre, Managing digital industrial transformation (mDIT)
Authors: Helander, N., Boedeker, M., Hellsten, P., Jussila, J., Mylläriemi, J., Tukiainen, M.
Number of pages: 8
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Publisher: IATED Academy

Editors: Gómez Chova, L., López Martínez, A., Candel Torres, I.

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**Ventana 2**

**General information**

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Organisations: Language Centre

Authors: Ahlava, A., Hämäläinen, E., Kemppainen, K., Mendoza Santana, C., Rambla Lop, B., Warjus, S.

Number of pages: 228

Publication date: Apr 2016

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Publisher: Sanoma Pro Oy

ISBN (Print): 978-952-63-3539-1

Original language: Finnish

Keywords: Spanish, Ventana

Links: https://www.booky.fi/tuote/anna_ahlava/ventana_2/9789526335391?kb=1&gclid=CP-S-bfBrswCFWTecgodHZgDhw

Research output: General public › Book

**Moodleen työpaja: Vertaisarviointi osana opetusta yliopistomatematikan ensimmäisellä peruskurssilla**

**General information**

State: Published

Ministry of Education publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Positioning

Authors: Mäkelä, A., Ali-Löytty, S., Joutsenlahti, J., Kauhanen, J.

Number of pages: 10

Pages: 90-99

Publication date: 2016

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Publisher: Matematiikan ja luonnontieteiden opetuksen tutkimusseura r.y.

Editors: Silvenberg, H., Hästö, P.

ISBN (Electronic): 978-952-93-8233-0

Keywords: Moodle, työpaja, workshop


**Bibliographical note**

INT=mat,"Joutsenlahti, Jorma"

Research output: Scientific - peer-review › Conference contribution
MYSTERY SHOPPERS RECOGNISING KNOWLEDGE SHARING BARRIERS IN HIGHER EDUCATION
This study focuses on the knowledge sharing barriers in the space between learning and teaching in higher education as reported by mystery shoppers. There is surprisingly little context-specific research on learning and teaching in a knowledge intensive community like a university from the perspective of knowledge management (KM). Discussing learning and teaching within KM is based on considering students controversially as customers or stakeholders. Thus including them more meaningfully in assessing and developing teaching practices, or knowledge flow, seems justified. The specific aim of this paper is to first recognise possible knowledge sharing barriers and then categorize such barriers emerging from the material into three larger domains, namely, individual barriers, technological barriers and organisational barriers.

There were 45 students from all faculties participating in a mystery shopper project in a Finnish university of technology. They observed their learning experience for six weeks in order to supplement data from other sources, to add a student voice on the process of developing learning and teaching in higher education. The research approach represents qualitative content analysis in which knowledge-sharing barriers were recognised from the qualitative mystery shopper data. The results identify teaching practices that contribute to creating knowledge sharing barriers. More detailed and almost real-time contextual activity sampling is suggested as a method for further study and also an avenue for instant feedback for teaching staff. The results will provide data on current knowledge practices and learning processes in a technical university in Finland.

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Authors: Tukiainen, M., Helander, N., Mäkinen, M.
Publication date: 16 Nov 2015

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https://iated.org/iceri/

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ORG=tlo,0.5
Research output: Scientific - peer-review › Conference contribution