EDULEARN 15

7TH INTERNATIONAL CONFERENCE ON EDUCATION AND NEW LEARNING TECHNOLOGIES

BARCELONA (SPAIN)
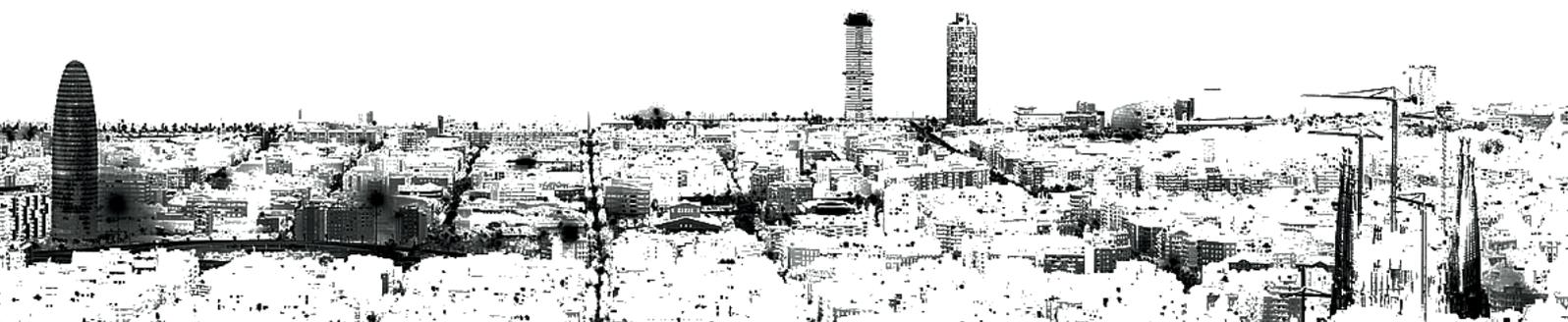6TH - 8TH OF JULY, 2015

CONFERENCE PROCEEDINGS

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EDULEARN15 Proceedings
7th International Conference on Education and New Learning Technologies
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WELCOME INTRODUCTION

Dear EDULEARN15 participants,

We are delighted to welcome you all to the 7th annual International Conference on Education and New Learning Technologies.

After seven years, EDULEARN has become a reference event for lecturers and researchers from all over the world. It is the ideal place to be inspired by innovative ideas, different educational perspectives and to establish international partnerships.

Above all, we wish to thank all delegates who have participated, sharing their unique experiences and projects. More than 600 attendees from 80 different countries have contributed to the program, making EDULEARN15 a multidisciplinary and truly international conference.

We hope that your participation at this conference will provide you with an opportunity to open your minds to new educational innovations, to share your knowledge with other experts, and to be an active part of the *connection between technology and education*.

Thank you very much for your valuable contribution to EDULEARN15!

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CONFERENCE SESSIONS

ORAL SESSIONS, 6th July 2015

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Blended Learning (1)
Teaching Programming Skills
Educating the Educators: ICT Skills Literacy
Meet the Keynote
Planning the Digital-Age School
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Technologies in Business & Management Education

Flipped Learning (2)
Blended Learning (2)
Problem Based Learning Experiences
Pre-Service Teacher Experiences
STEM Experiences in Higher Education
Mobile & Tablet Technologies
New Technologies in Primary Education (2)
Experiences in Business Education

Advanced Classroom Technologies (1)
e-Learning Projects & Experiences
e-Assessment & Testing
Training Educational Staff (1)
New Technologies in STEM Education (1)
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Inclusive & Multicultural Education

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Experiences in Primary & Secondary Education
Language Learning Experiences (1)
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Inclusive Learning

POSTER SESSIONS, 6th July 2015

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ORAL SESSIONS, 7th July 2015

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Educational Software & Games (1)
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International Projects and Cooperation
Pre-Service Teacher Experiences in Language Learning
Learning Experiences in Higher and Further Education
Experiences in Engineering Education

Social & Digital Media in Education
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Student Support in Education (1)
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Learning Experiences in Math Education
New Technologies in Engineering Education

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Quality Management in Education
Student Support in Education (2)
Educational Management
Experiences in Primary and Secondary STEM Education
Experiences in Health Sciences Education

Virtual Learning Environments (VLE)
Educational Software & Games (3)
Advanced Classroom Technologies (2)
Curriculum Design and Development
Plagiarism & Student Identity Authentication
Pedagogical Innovations in Education
New Technologies in STEM Education (2)
New Technologies in Health Sciences Education

POSTER SESSIONS, 7th July 2015.

Emerging Technologies in Teaching and Learning

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VIRTUAL SESSIONS

Barriers to Learning
Blended Learning
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Distance Learning
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e-Learning Projects and Experiences
Education and Globalization
Educational Management
Educational Software & Serious Games
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Enhancing Learning and the Undergraduate Experience
Entrepreneurship curriculum
Evaluation and Assessment of Student Learning
Experiences in Research
Flipped Learning
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Learning Experiences in Primary and Secondary Education
Lifelong Learning
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Quality Assurance/Standards and Accreditation
Special Education
Student Support in Education
Technology-Enhanced Learning
The Bologna Declaration and ECTS Experiences
Training educational staff
Transferring Skills and Disciplines
Tutoring and Coaching
University-Industry Cooperation
Vocational Training

ABOUT EDULEARN15 Proceedings USB

HTML Interface: Navigating with the Web browser

This USB includes all presented papers at EDULEARN15 conference. It has been formatted similarly to the conference Web site in order to keep a familiar environment and to provide access to the papers trough your default Web browser (open the file named "EDULEARN15.html").

An Author Index, a Session Index, and the Technical Program are included in HTML format to aid you in finding conference papers. Using these HTML files as a starting point, you can access other useful information related to the conference.

The links in the Session List jump to the corresponding location in the Technical Program. The links in the Technical Program and the Author Index open the selected paper in a new window. These links are located on the titles of the papers and the Technical Program or Author Index window remains open.

Full Text Search: Searching EDULEARN15 index file of cataloged PDFs

If you have Adobe Acrobat Reader version 6 or later (www.adobe.com), you can perform a full-text search for terms found in EDULEARN15 proceedings papers.

Important: To search the PDF index, you must open Acrobat as a stand-alone application, not within your web browser, i.e. you should open directly the file "EDULEARN15.pdf" with your Adobe Acrobat or Acrobat Reader application.

This PDF file is attached to an Adobe PDF index that allows text search in all PDF papers by using the Acrobat search tool (not the same as the find tool). The full-text index is an alphabetized list of all the words used in the collection of conference papers. Searching an index is much faster than searching all the text in the documents.

To search the EDULEARN15 Proceedings index:
1. Open the Search PDF pane through the menu "Edit > Advanced Search" or click in the PDF bookmark titled "SEARCH PAPERS CONTENT".
2. The "EDULEARN15_index.pdx" should be the currently selected index in the Search window (if the index is not listed, click Add, locate the index file .pdx, and then click Open).
3. Type the search text, click Search button, and then proceed with your query.

For Acrobat 9 and later:
1. In the "Edit" menu, choose "Search". You may receive a message from Acrobat asking if it is safe to load the Catalog Index. Click "Load".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

For Acrobat 8:
1. Open the Search window, type the words you want to find, and then click Use Advanced Search Options (near the bottom of the window).
2. For Look In, choose Select Index.
3. In the Index Selection dialog box, select an index, if the one you want to search is available, or click Add and then locate and select the index to be searched, and click Open. Repeat as needed until all the indexes you want to search are selected.
4. Click OK to close the Index Selection dialog box, and then choose Currently Selected Indexes on the Look In pop-up menu.
5. Proceed with your search as usual, selecting other options you want to apply, and click Search.

For Acrobat 7 and earlier:
1. In the "Edit" menu, choose "Full Text Search".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

LEARNING TO MAKE SUSTAINABLE DECISIONS IN CONSTRUCTION ENGINEERING; INDEX OF ENVIRONMENTAL SENSITIVITY IN THE DESIGN OF STRUCTURES

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Abstract

The construction engineering discipline covers a huge number of subjects: materials, building techniques and optimizations. Despite being one of the sectors which generates a greater environmental impact, due to the rigidity of the curricula and the reduced time of the subjects, the applied efforts at engineering faculties are not enough to teach students how to manage the environmental impacts referred to the construction processes. In order to accelerate this learning process, authors designed a training structure appropriate to the case. To this end, a methodology has been created for evaluating the environmental sensitivity (ISMA) mainly focused on the structural system in various constructive solutions (case studies); i.e.: reinforced concrete, steel and timber structures, respectively. Therefore this methodology has established a tree of sustainable requirements, which must comply with the performed structures, according to two main areas: the development of the material itself, and the measures taken for implementing the on-site works that may affect the environment.

The methodology here presented applies a requirement tree to quantify the value of a decision at various hierarchical levels, in order to assess the final decision and compliance with some criteria. The Analytic Hierarchy Process is applied at the ISMA methodology, by combining Multiple-Criteria Decision Making process and the Function Value Analysis concept (as a normalizing tool). Finally, the main output of present paper is the development of a method, which enables a valuation process for indicators and weightings. This approach is effective and appropriately integrated with a set of indicators, criteria and assessment areas (hierarchy tree), to assess the higher overall "index value" of ISMA.

Industrial engineering students should raise their final project by designing and calculating a structure, likening it to a real building, as proposed by the supervisor, by clearly identifying the proposed solution and searching for companies that could achieve such work of building the structure. Through this simulation the student determines the value of ISMA and may analyze the sustainability of the proposed solutions, supplying added value to both its project and professional career.

Keywords: Case Studies, Construction Engineering, Decision Making, Hierarchy Tree, Index Value, Indicators, Learning weights.

1 INTRODUCTION

Construction activity causes a huge impact on the environment. The energy consumption of building sector in EU developed countries is around 40% of the total energy consumption [1]. Building industry is also a great consumer of global economy materials (about 40%). During its' 'lifetime' (including building, maintenance and demolition) buildings are 'responsible' of 50% of total energy consumption and responsible also for 50% of total CO_2 emissions in the atmosphere [2].

This is a big problem for the human being, so it is time to promote a sustainable development in the construction sector. And we have to start with the education of the future technicians.

Most studies, databases, design guides and assessment tools on sustainable construction were focused exclusively on the environmental requirement [3-6]. However, there has recently been an increasing in the number of research papers and assessment tools that also incorporate economic and/or social requirements [7-8], as well as the first standards legislating social aspects [9].

These types of tools are classified in three main groups:

- Tools based on Life Cycle Analysis (LCA): handling complex and large amounts of information, such as ECOQUANTUM, ENVEST [10-11].

The methodology proposed, on the basis of the MIVES model and, therefore, on value analysis, makes it possible to evaluate, in quantitative terms, the sustainability of concrete structures. This assessment should lead to an improvement in the sustainability of those structures. The application examples conducted to test the proposed methodology and the known cases in which it has been used have yielded very satisfactory results

5 NOMENCLATURE

-   H&S   Health and Safety.
-   ID   Indicators.
-   ISMA   Environmental Sustainability Index.
-   LCA   Life Cycle Analysis.
-   MCDM   Multi-Criteria Decision Making.
-   MIVES   Integrated Value Model for Sustainable Assessment.
-   Vi   Value function.

ACKNOWLEDGEMENTS

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