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المركز الدولي للأبحاث والدراسات التربوية والعلمية

الندوة الدولية:

الأنظمة التربوية للتعليم العالي

شروط النجاح ومقوماته من خلال بعض النماذج المعاصرة

يومي السبت والأحد 13 .14 نونبر 2021

On MathICs project: Strengthening Mathematics Education by the use of ICTs in Morocco

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برعاية

مركز ضياء للبحوث والإنماء

MathICs

STRENGTHENING MATHEMATICS EDUCATION BY THE USE OF ICTS IN MOROCCO

Talk Outline.

1. MathICs overview
2. Why Mathematics ?
3. What are ICTs ?
4. Moroccan institutions recommendations on the use of ICTs and MathICs contribution.
5. Some news.

1. MathICs overview.

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- MathICs is an Erasmus+ KA2 **Joint Project**

Reference number: 619501-EPP-1-2020-1-ES-EPPKA2-CBHE-JP

- **Thus,** MathICs is

Co-funded by the
Erasmus+ Programme
of the European Union

- MathICs is a « Capacity Building in the Field of Higher Education » project.

« Capacity Building projects are multilateral higher education development projects between Erasmus+ Programme Countries and over 150 Partner Countries.

The aim of Capacity Building projects is to improve the administration of Partner Countries' higher education, develop leadership and innovation capabilities, promote internationalisation and modernise education systems. At the same time. the projects promote regional and interregional cooperatic

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- MathICs is of category 3 : Developing the Higher Education sector within society at large.

  «New technologies in higher education: support to the modernisation of Higher Education systems through the development of open educational resources, connectivity, the acquisition of digital skills and learning methods and mobilisation of stakeholders including teachers, learners, economic and social partners.»

- MathICs is one of 164 projects selected at European level out of 1005 applications submitted in 2020 with a success rate of 12% in the South Mediterranean region.
- MathICs Budget: 942.855,00€
- DURATION: 3 years (5-01-2021 to 14-01-2024)

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CONSORTIUM :

PROGRAM COUNTRIES

- 1. Universidad de Almería, Spain (coordinator).
- 2. École Centrale de Nantess, France.
- 3. Instituto Superior Técnico, Universidade de Lisboa, Portugal.
- 4. Synapstic S.L., Almería, Spain.

PARTNER COUNTRY (MOROCCO)

- 5. Université Mohammed V de Rabat (local coordinator).
- 6. Université Cadi Ayyad de Marrakech.
- 7. Université Ibn Tofail de Kenitra
- 8. Université Sultan Moulay Slimane de Beni Mellal.
- 9. École Nationale Supérieure des Mines de Rabat.
- 10. Académie Internationale Mohammed VI de l'Aviation Civile, Casablanca.

Associates

- Réseau Méditerranéen des Écoles d'Ingénieurs et de Management (RMEI), Marseille, France.
- Société Marocaine de Mathématiques Appliquées (SM2A).
- Moroccan Association of Private Higher Schools (AMESUP).
- Jiwar éducation et développement.

WIDER OBJECTIVE

Contribute to the modernization of mathematics education in Morocco through the use of ICTs

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SPECIFIC OBJECTIVES

- Increase the understanding, the level of competences, the success rate in exams and the interest in mathematics of partner HEIs' students.
- Build up the capacity of the partner HEIs mathematics professors in the use of ICTs for teaching in the classroom.
- Complete the existing equipment at HEIs partners in Morocco with the latest needed media to achieve good use of the ICTs in mathematical education
- Help, through e-learning methods, to potential students living in a situation of marginality.
- Reduce the massification of the universities through the use of e-learning methods.

2. Why Mathematics ?

Why Mathematics ?

Science, technology, engineering, and mathematics (STEM) :

Report « Future jobs, future skills » conducted by the government of Western Australia :

- *It is estimated that around 75% of the future jobs will be related to STEM subjects.*
- *It is predicted that by 2030 workers will on average spend double the amount of time solving problems and 77 percent more time using science and mathematics skills.*

Why Mathematics ?

- Mathematics was identified as a "**key lever to transforming STEM teaching and learning**".

  Ref. "STEM Education Policies report" of European Schoolnet (2018).

- Mathematics has been shown to be the main developmental lever for STEM subjects.

  Ref. Technology, Engineering and Mathematics Education Practices in Europe. Scientix Observatory report (2018).

3. What are ICTs?

What are ICTs?

Information and Communication Technologies (ICTs) is a broader term for Information Technology (IT), which refers to all communication technologies, including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking, and other media applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form.

ICTs are also used to refer to the convergence of media technology such as audio-visual and telephone networks with computer networks, by means of a unified system of cabling (including signal distribution and management) or link system.

Ref. http://aims.fao.org/fr/information-and-communication-technologies-ict

Various devices/technology in ICTs includes:

- Access of course materials through remote devices,
- Online digital repositories for lectures, course materials, and digital library,
- Online/ cloud based academic management systems,
- Employing the flipped classroom concept,
- Making use of handheld computers, tablet computers, audio players, projector devices etc.

Also, the rising number of Massive Open Online Courses (MOOCs) like the coursera, khan academy, and edx tells us that there is a huge demand for off-the-classroom learning facilities. The future of our institutions will depend on whether or not they can satisfy those needs.

Ref. https://stories.linways.in/ict-enabled-education

4. Moroccan institutions recommendations on the use of ICTs and MathICs contribution.

- Reports of the Higher Council for Education, Training and Research of Morocco:
  - L'enseignement supérieur au Maroc:
  Efficacité, efficience et défis du système universitaire à accès ouvert.
  - Pour une école de l'équité de la qualité et de la promotion : vision stratégique de la réforme 2015-2030.
- Loi-cadre 51.17. (Article 33).

Recommendations on the use of ICTs and MathICs contribution.

Recommendation 1:

Develop a national program that aims to *complete the equipment needed in schools, Universities and training centers in educational technologies, multimedia rooms and audio-visual equipment.*

MathICs contribution :

MathICs aims to install two kind of media rooms in each of Moroccan partner institutions: one for the creation of digital content and the other for e-learning.

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Recommendations on the use of ICTs and MathICs contribution.

Recommendation 2 :

Strengthen the integration of ICTs in schools in the sense of promoting the quality of learning, namely:

- *In the conception and preparation of curricula, programs, subjects and during their implementation;*
- *In the use of software and interactive digital resources throughout the educational process by targeting self-learning, research and diversification of learning sources.*
- *Medium-term training of specialists in the design of educational software and the production of digital educational resources;*
- *The development and promotion of distance learning as a complement to face to-face courses.*

MathICs contribution :

MathICs offers for the benefit of Moroccan mathematics professors as well as doctoral students three training sessions as well as a final phase of application of acquired knowledge.

Recommendations on the use of ICTs and MathICs contribution.

Recommendation 3 :

Strengthen the integration of ICTs in schools in the sense of promoting the quality of learning, namely:

- In the medium-term integration of educational technologies and digital culture as the main subject in the initial and continuous training of all pedagogical actors;

- The development of an action plan to raise awareness of the importance of information and communication technologies and their contribution to the reform of the School.

MathICs contribution :

MathIcs has designed a dissemination strategy that is as broad as possible underlining the importance of the use of ICTs in education in general and in mathematics education in particular.

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5. Some news.

Organization of several dissemination events :

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Organization of the first MathICs training in Almería :

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Participation in the Erasmus National Info Day

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- Thank you !

Join us on

Linkedin, Facebook, Youtube

https://www2.ual.es/MathICs/

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