



FAMILIES COUNT

FAMILY LEARNING OF MATHS THROUGH DIGITAL TOOLS

2019-1-UK01-KA201-062073

IO.2: Training Curriculum on Family Learning of Maths

Aspire | Education
Group

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1. Introduction

The aim of FAMILIES COUNT project is to promote the **acquisition of skills and competences in Maths** through innovative **Family Learning teaching methods based on Digital Tools** addressed to disadvantaged families.

To do so, six organizations, including school authorities, entities supporting unprivileged families and experts in family learning and digital-based pedagogies from five countries (UK, Spain, Ireland, Turkey and Austria), will work together to equip family learning practitioners, tutors and headteacher (main users) with the necessary skills and innovative digital tools to support students and parents from disadvantaged families (beneficiaries) to acquire and improve their competencies in maths.

The project partners will design and co-create the following outputs:

- An **Online Digital Database** of good practices and resources on Family Learning of Maths (IO1),
- A **Training Curriculum** on Family Learning of Maths (IO2)
- The FAMILIES COUNT **Pedagogical Handbook** (IO3)
- The FAMILIES COUNT **Digital Toolkit** (IO4), a set of innovative tailor-made digital apps and tools.

FAMILIES COUNT will have a direct impact on target beneficiaries, improving their competencies in maths and their participation and engagement in the school systems and in the target groups of users, improving the pedagogical methods to teach maths to students and parents from disadvantaged families. The project will also improve the digital skills of both groups of users and beneficiaries thanks to the innovative digital tools created to facilitate the teaching leaning of maths.

Schools and other social entities and external stakeholders will count with new methods and instruments to facilitate their collaboration for the benefit of disadvantaged families in their communities. The long-term impact envisaged is the strength of the School system in Europe with new forms of tackling early school leaving and disadvantage.

PARTNER	COUNTRY	ORGANISATION	
D1	UK	ASPIRE	Aspire Education Group LTD
D2	ES	INFODEF	Instituto para el fomento del desarrollo y la formación S.L
D3	AU	KIST	Trenner Ingrid
D4	TR	SAMSUN	Samsun II Milli Egitim Mudurlugu
D5	ES	LBP	Asociación La Bien Paga’ Espacio Escénico
D6	IR	INQS	Innoquality Sistem

2. The Training Curriculum: approach to the FAMILIES COUNT Units of Learning Outcomes

The Training Curriculum aims to define and map the competencies, knowledge and skills that practitioners, tutors and headteachers need to use to support students and parents from disadvantaged families to acquire and improve their competencies in maths.

The Training Curriculum will facilitate the recognition of competencies in different countries, supporting the mobility of practitioners, tutors and headteachers across Europe and promoting lifelong learning, skills certification and training credit.

The process implied the Partners contribution as following:

- ✓ setting up of a Theoretical Framework analysing European and national qualification frameworks;
- ✓ definition of the Competence Framework required and creation of Units of Learning Outcomes;
- ✓ development of Learning Outcomes expressed in term of Knowledge, Skills and Competences (Responsibility and Autonomy).

The identification and definition of Units of Learning Outcomes has been designed following the EQF and ECVET guidelines and principles. The present Training Curriculum is an Open Educational Resource (OER) available in English and all the languages of the consortium and accessible through the project website.

Description of the elements included in the Curriculum

Aim

Overall description of the purpose, intention or objective of the Unit of Learning Outcomes

Performance Criteria

Standards by which an individual is considered competent in each particular Unit. That is a very brief description of those actions an individual needs to demonstrate in the required field of competence after completion of the Unit.

Learning Outcomes

- **Knowledge**

Collection of facts, principles, theories and practices related to the field of studies or professional activity

- **Skills**

Ability to apply knowledge and use the acquired resources to complete tasks and solve problems. It may be **cognitive** (use of logical, intuitive or creative thinking) or **practical** (implying manual skill and the use of methods, materials, tools and instruments)

- **Competences (Responsibility and Autonomy)**

Ability to develop tasks and solve problems of a higher or lower degree of complexity and different degrees of autonomy and responsibility

FAMILIES COUNT Training Curriculum is aimed at **EQF level 4**

Qualification level	Knowledge	Skills	Responsibility & Autonomy
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study.	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change. Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.

○ **Units of Learning Outcomes (U)**

U.4

Using Edtech to teach maths competencies in transgenerational learning contexts.

U.3

Practical application of Maths in a Family Learning context

U.5

Digital Tools to teach Maths with a Family Learning Approach

U.2

The Family Learning pedagogical approach

U.1

Role of Parent as Educator and early exposure of children to maths

Aims
<p>This introductory Unit aims to give a general overview of the role of the parents in the children’s education (in strict connection with the school) and to explain the positive multiple effects of early exposure of the children to maths.</p>
Performance Criteria
<p>Upon completion of this unit, the user will be able to:</p> <ul style="list-style-type: none"> - organize training courses with disadvantaged, multicultural families; - adapt contents to different people age range; - master intercultural, facilitation and inclusive pedagogical strategies; - develop contents related to the role of parents in scholar education of their children; - develop contents related to the multiple effects of children’s early exposure to maths.

Learning Outcomes

Knowledge	<p>K1. Principles of the family’s role in children’s (scholar) education</p> <p>K2. Extended knowledge of the multiple positive effects of children’s early exposure to maths</p> <p>K3. Fundamentals of Inclusive pedagogical Approach with parents and students from disadvantaged situations</p> <p>K4. Fundamentals of Intercultural and facilitation approach with parents and students with different backgrounds and cultures</p>	Skills	<p>S1. Outline the role of parents as educators to support children in scholar education</p> <p>S2. Explain the deep meaning of early exposure of children to maths</p> <p>S3. Apply Inclusive pedagogical approach while dealing with parents and students coming from different cultures and situations</p> <p>S4. Make use of Intercultural and Facilitation competencies</p>	Responsibility and Autonomy	<p>C1. Develop trainings for parents and students with focus on topics as the relationship between family and school and children’s early exposure to maths</p> <p>C2. Develop Inclusive pedagogical approach strategies in training with families with different backgrounds</p> <p>C4. Implement intercultural and facilitation strategies dealing with parents and students to respond their diverse needs</p>
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Aims
<p>The purpose of this unit is to explain the pedagogical approaches in family learning for the use of digital tools in mathematics teaching through teachers/trainers, appropriate environment, children and family members, and to recommend the most appropriate methods to be created through these approaches.</p>
Performance Criteria
<p>The main performance criteria of pedagogical approaches in family learning are; the socio-economic levels of families, the age groups, their being readiness, curriculum content, and the skills of the instructors to master the curriculum and evaluation criteria.</p> <p>Upon completion of this unit, the user will be able to:</p> <ul style="list-style-type: none"> - strengthen the pedagogical approach in Family learning of Math - acquire knowledge of educationally powerful connections with families - understand the main pedagogical keys of family learning - gain the knowledge of communities that support such family learning programmes. - compare classic and modern approaches in terms of technology using. - gain practical experience in getting appropriate approaches.

Learning Outcomes

Knowledge	<p>K1. Learners understand the trainers’ competences and skills in pedagogical approaches to be used</p> <p>K2. Learners can identify key performance criterias</p> <p>K3. Learners can gain the knowledge of communities that support such family learning programmes</p>	Skills	<p>S1. Learners can identify the suitable pedagogical approaches and theories to be used in family learning</p> <p>S2. Learners can understand the importance of family learning of math</p> <p>S3. Learners can identify families’ needs and solutions.</p>	Responsibility and	<p>C1. Learners can try to use the appropriate educational theories.</p> <p>C2. Learners can compare old fashioned pedagogical approaches and modern ones with the use of technology.</p> <p>C3. Learners can practice appropriate approaches.</p>
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Aims
The aim of Unit 3 is to look at how mathematics, numeracy and mental arithmetic can be identified and applied in a family learning situation in order to bring about robust financial order, good household management as well as short-term and long-term financial benefits.
Performance Criteria
Key performance criteria will be based around the ability to self-identify against given skills, knowledge and responsibilities and autonomies and against SMART targets based against initial diagnostic tools and the ability to identify key areas for learning and improvement through planning, doing and reviewing.
The key performance criteria will relate directly to the learning outcomes below in terms of being measured against each of these outcomes as successful. in progress, yet to begin.

Learning Outcomes

Knowledge	<p>K1. Learners understand the function of money (cash and card) in work and life and can identify key terminology.</p> <p>K2. Learners can identify key weights, measures appropriately as well as the context for applying all of these.</p> <p>K3. Learners can use mental arithmetic to help identify key financial differentials including percentages.</p>	Skills	<p>S1. Learners can show Problem Solving strategies for dealing with financial difficulties or choices.</p> <p>S2. Learners can use Target Setting and Goal-orientated outcomes to shape efficient financial outcomes.</p> <p>S3. Decision Making is based upon sound mathematical understanding to maximize efficiency and promote positive financial outcomes.</p>	Responsibility and Autonomy	<p>C1. Learners can self-regulate financial activities across all the learning outcomes listed above.</p> <p>C2. Learners can regulate and justify advising other family members on financial behaviours.</p> <p>C3. Fair and democratic rules for financial activity can be established within the family group or household.</p>
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Aims
The aim of this unit is to familiarize the learner with what educational technology (Edtech) is, how and why it can be applied to teach maths competencies in a transgenerational learning context.
Performance Criteria
<p>Upon completion of this unit, the user will be able to:</p> <ul style="list-style-type: none"> - define what Edtech is; - define Edtech in the context of teaching math competencies; - define Edtech in terms of the teaching of math competencies in transgenerational learning contexts.

Learning Outcomes

Knowledge	<p>K1. Knowledge of what Edtech is.</p> <p>K2. Knowledge of how Edtech can be applied to the teaching of math competencies.</p> <p>K3. Knowledge of how Edtech for the teaching of math competencies can be applied to transgenerational learning contexts</p>	Skills	<p>S1. Able to define and discuss Edtech.</p> <p>S2. Able to define and discuss the role of Edtech in the teaching of math competencies.</p> <p>S3. Able to define and discuss the role of Edtech in the teaching of maths competencies in transgenerational learning contexts.</p>	Responsibility and	<p>C1. Can apply the use of Edtech in a lesson plan.</p> <p>C2. Can apply the use Edtech to the teaching of math competencies.</p> <p>C3. Can apply the use Edtech in the teaching of maths competencies in transgenerational learning contexts.</p>
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Aims
<p>The aim of Unit 5 is to familiarize with different types of digital tools to teach mathematics with a Family Learning Approach, selection of appropriate tools and their use to develop understanding, stimulate interest, and increase proficiency in mathematics by exploring and identifying mathematical concepts and relationships.</p>
Performance Criteria
<p>Key performance criteria of digital tools for learning mathematics will be to ensure that the tool is mathematically sound and faithful to the underlying mathematical properties. It will relate directly to ease of using the digital tool, its stability and performance as well as their open source licensing.</p> <p>Upon completion of this unit, the user will be able to:</p> <ul style="list-style-type: none"> - acquire knowledge of various types of digital tools relevant to mathematics - evaluate impacts of digital tools on teaching and learning of mathematics - use digital tools in mathematics to achieve learning goals - gain understanding of using technology for solving mathematical functions - gain practical experience in the use of selected digital tools for mathematics

Learning Outcomes

Knowledge	<p>K1. Define the function of digital tools and Apps in solving mathematical problems in a family.</p> <p>K2. Identify the key terminology and functions in the context for applying the chosen digital tool for family learning of math.</p> <p>K3. Recognize the application of digital tools and audio-visual media for family-based learning of mathematical rules and properties.</p>	Skills	<p>S1. Apply confidently the digital tools as a family learning aid for daily life decision making and problem solving.</p> <p>S2. Explore collaborative learning with games-interface, simulations and digital tools for engaging in personalized active learning experiences in families.</p> <p>S3. Apply digital tools and train families in solving mathematical problems.</p>	Responsibility and Autonomy	<p>C1. Facilitate self-regulated learning of mathematical concepts in daily life by using digital tools for family learning.</p> <p>C2. Adopt age appropriate digital tools for enhancing mathematical competence through peer group learning and collaborative games with the family.</p> <p>C3. Practice and apply digital tools for implementing projects of practical living in a family context.</p>
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