

O2. Methodological approach and model for SEN teacher training

**O2- T2. Development of the learning modules and
assessment toolkit as joint curricula in the
languages of the consortium.**



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CONSORTIUM

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Introduction to the INTELed TPD and learning modules

The aim of the INTELed Teacher Professional Development (TPD) is to advance the knowledge of in-service SEN teachers on the use of multi-sensory and embodied technologies, in terms of learning and assessment. Towards this end, the INTELed TPD model aims to promote both teachers' theoretical knowledge as well as to provide them with the opportunity to transfer and put in praxis the theoretical knowledge they have gained in their school classrooms.

Grounded on reports from the literature (e.g. Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2010) and our own research-based conclusions derived from our previous professional development experiences (e.g. FP7 projects PARRISE, PROFILES) all indicate the need to engage in-service teachers in extended professional development experiences (Georgiou, Kyza & Ioannou, 2012; Kyza & Georgiou, 2014; Kyza, Hadjichambis, Georgiou, & Agesilaou, 2017). As such, the INTELed TPD model extends during a typical school year (e.g. September-May) and adopts a four-stage model: teachers as "Learners", as "Teachers", as "Innovators" and as "Reflective practitioners" (Kyza & Georgiou, 2014). A crucial component of the proposed TPD model are the classroom implementations, which provide the experiences on which teachers can deepen their theoretical understanding and improve their current teaching practices based on their observations and data collected from their students.

Figure 1 provides an overview of the INTELed TPD model as comprised by the four aforementioned sequential stages.

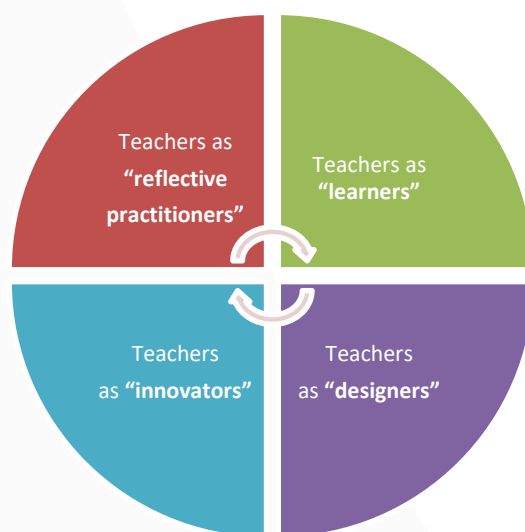


Figure 1. An overview of the INTELed TPD model

Following up this four-staged TPD model, a total of four learning modules have been developed in order to facilitate teachers' training. These modules combine experiential learning (Teachers as "learners"), hands-on activities (Teachers as "Designers"), practical experiences (Teachers as "Innovators") as well as reflection activities (Teachers as "Reflective practitioners").

Objectives of the INTELEd learning modules

The INTELEd learning modules aim at supporting in-service teachers in:

- #1 Achieving a functional understanding of the INTELEd pedagogical framework for promoting embodied learning in inclusive educational settings
- #2 Becoming able to distinguish and explain the differences of the INTELEd pedagogical framework as compared to other pedagogical frameworks and approaches
- #3 Analyzing existing educative modules for supporting embodied learning in inclusive educational settings
- #4 Adopting and/or adapting embodied learning activities grounded on the INTELEd pedagogical framework
- #5 Implementing embodied learning activities grounded on the INTELEd pedagogical framework in inclusive educational settings
- #6 Evaluating the success of embodied learning activities grounded on the INTELEd pedagogical framework in inclusive educational settings
- #7 Reflecting on the challenges of the INTELEd pedagogical framework in relation to understanding and implementing the framework



Overview of the INTELed learning modules

An overview of the INTELed learning modules is presented in the following table.

Learning modules	Learning module title and main objectives	Approach	Duration	Type
1	Introduction to the INTELed project and its pedagogical framework	Teachers as learners	5h	Face to face session
2	Investigating the INTELed learning materials and their pedagogical affordances	Teachers as designers	5h	Face to face session
3	Implementing and evaluating the INTELed pedagogical framework	Teachers as innovators	5h	Teaching session
4	Reflecting on the INTELed pedagogical framework and training methodology	Teachers as reflective practitioners	5h	Face to face session

Examples of INTELed embodied cognitions apps

In the context of the INTELed learning modules (presented in the following section), we will employ as an indicative example the embodied cognition apps “The angle makers” and “Young cardiologists”. However, alternatively a teacher trainer could use different embodied app(s) from the INTELed educational resources repository (<https://www.inteled.org/repository/>)



Young cardiologists: In the context of implementation, 5th graders have the opportunity to participate in an innovative digital app based on the contemporary approaches of kinesthetic and embodied learning. Grounded in interactive technologies and motion trackers, the innovative digital app "Young Cardiologists" aims to help young students to learn more about the heart's structure and function as well as the circulatory system. In the context of the app, students are turn into "young cardiologists" and travel within the human body, focusing on the circulatory system and its importance through a more playful and entertaining learning experience.



Angle-makers: In the context of implementation, 3th and 4th graders have the opportunity to participate in an innovative digital app based on the contemporary approaches of kinesthetic and embodied learning. Grounded in interactive technologies and motion trackers, the innovative digital app "Angle makers" aims to help young students to learn more about angles and their measurement, their formation, the different types of angles and consequently the different types of triangles. In the context of implementation, children are transformed into "angel-makers" and have the opportunity to experience the world of mathematics and geometry through a more playful and entertaining learning experience.

Learning module 1: Introduction to the INTELed project and its pedagogical framework

Type: Face to face

Approach: Teachers as “learners”

Duration: 5 hours

Learning goal: The learning goal of this module is to introduce teachers into the INTELed pedagogical framework. In particular, this module aims at teachers’ familiarization with the notion of embodied cognition through the use of interactive and multi-sensory techniques for addressing the needs of Special Education (SEN) children. In order for this to be achieved during the second part of the module, teachers are asked to participate in a sequence of experiential activities, taking the role of “learners”.

Teaching and learning activities

Activity 1 - Introducing the INTELed project

(Duration: 30 minutes)

The activity begins with a short presentation about the INTELed project, discussing the approach and key aspects of the project, while also situating INTELed in the theoretical context of embodied cognition. As part of this presentation, teachers are also introduced to the notion of “inclusive education via embodied and motion-based technologies”, as the overall goal of the PARRISE project.

Materials

PowerPoint presentation “*The INTELed project*”

Activity 2 – Evaluating initial teachers’ needs & confidence

(Duration: 30 minutes)

As part this activity teachers are asked to complete the “Teachers’ needs and confidence” questionnaire (see IO3). This questionnaire aims to evaluate teachers’ initial needs and confidence in relation to the mains aspects of the INTELed pedagogical framework: (a) Embodied Cognition theory in relation to the learning process, (b) Embodied Learning Environments in relation to Special Education, and (c) Embodied Learning in relation motion-based technologies.

Materials

“Teachers’ needs and confidence” questionnaire

Activity 3: Introducing the INTELed pedagogical framework

(Duration: 1 hour)

This activity aims to introduce the INTELed pedagogical framework (as this has been developed during the IO1) and its pedagogical value. As part of this experiential activity, teachers are divided in groups; each group is asked to brainstorm about one

of the main pedagogical aspects comprising the INTELed pedagogical framework: (a) Embodied Cognition theory in relation to the learning process, (b) Embodied Learning Environments in relation to Special Education, and (c) Embodied Learning in relation to motion-based technologies. Each group is asked to respond to guiding questions included in the “*The main aspects of the INTELed pedagogical framework*” handout; the questions included aim to provoke discussion and reflection on the aforementioned INTELed aspects. Finally, all groups are gathered and share the brainstorming activity results, which are then discussed by all.

Materials

Handout “*The main aspects of the INTELed pedagogical framework*”

Activity 4: The “Angle-makers”

(Duration: 1 hour)

The activity begins with a short presentation of the “Angle-makers” – an embodied cognition digital app addressing to 3rd-6th graders in general and inclusive educational settings for promoting their understanding in angles and triangles. The presentation provides an overview of the app’s theoretical background, mechanisms, learning goals and relation to the educational curriculum. At a second part, the teachers are asked to take the role of learners and experience the app, via taking the students’ perspective,

Materials

PowerPoint presentation “*The Angle makers*”
“*The angle makers*” embodied cognition app

Activity 5: The “Young cardiologists”

(Duration: 1 hour)

The activity begins with a short presentation of the “Young cardiologists” – an embodied cognition digital app addressing to 5th-6th graders in general and inclusive educational settings for promoting their understanding in relation to the human heart and the circulatory system. The presentation provides an overview of the app’s theoretical background, mechanisms, learning goals and relation to the educational curriculum. At the second part of the activity, the teachers are asked to take the role of learners and experience the app, via taking the students’ perspective.

Materials

PowerPoint presentation “*The young cardiologists*”
“*The young cardiologists*” embodied cognition app

Activity 6: Existing and adapted technological toolkits

(Duration: 30 hours)

As part of this activity the teachers are presented with and provided access to the INTELed repository of existing and adapted technological toolkits (as this has been developed during the IO1 & IO2). If there’s time the teachers will have the opportunity to take the role of students test 1-2 additional embodied learning apps for SEN and inclusive educational settings.

Materials

INTELed repository with existing and adapted technological toolkits

Learning module 2: Investigating the INTELed educative modules and their pedagogical affordances

Type: Face to face

Approach: Teachers as “designers”

Duration: 5 hours

Learning goal: The learning goal of this learning module is to introduce teachers into the INTELed educative modules. In particular, this stage includes teachers’ familiarization with the implementation and the affordances of the INTELed educative modules (lesson plans and students’ material) developed around the embodied digital apps: (a) The “angle makers” and (b) The “young cardiologists”.

Teaching and learning activities

Activity 1 – Selecting an educative module

(Duration: 30 minutes)

The activity begins with a short presentation about each educative module structured around the embodied digital apps: (a) The “Angle-makers” and (b) The “Young cardiologists”. In particular the presentation provides an overview of each educational module (lesson plans, student materials, assessment tools). By the end of the activity the participating in-service teachers are divided in two cohorts according to the educative materials that they would like to implement in their classroom.

PowerPoint presentation “*The INTELed educative modules*”

“*The young cardiologists*” embodied cognition app

“*The angle makers*” embodied cognition app

Activity 2 – Elaborating on the nature of the selected educative module

(Duration: 1 hour)

Each teachers’ cohort is provided within hour in order to study and elaborate further on the nature of the selected educative module. In particular, as part of this activity each cohort is provided with an hour in order to study and discuss the educative module (lesson plans and students’ material).

Materials

“*The young cardiologists*” embodied cognition app / “*The young cardiologists*” educative module

“*The angle makers*” embodied cognition app / “*The angle makers*” educative module

Activity 3 – SWOT analysis of the INTELed educative modules

(Duration: 2 hours)

As part this activity teachers in each cohort are provided with two hours in order to conduct a SWOT analysis about the INTELed educative module they have selected. In particular, during the activity the teachers are asked to discuss and complete the SWOT analysis template for reporting the perceived: (a) strengths (30’), (b) weaknesses (30’), opportunities (30’) and threats (30’) of the selected INTELed educative module.

Materials

SWOT analysis template for INTELed educative modules

Activity 4: SWOT analysis presentation

(Duration: 30 minutes)

As part of this activity the teachers reconvene as a plenary and each cohort presents an overview of the SWOT analysis conducted. In particular, each cohort is provided with about 15' for communicating across the perceived: (a) strengths, (b) weaknesses (30'), opportunities and threats of the selected INTELed educative module.

Materials

One PowerPoint presentation per cohort

Activity 5: Assessment: Evaluating the INTELed students' learning gains

(Duration: 30 minutes)

The activity begins with a short presentation focusing on the assessment of the INTELed implementations, as these will be grounded on the employment of the "Angle makers" and the "Young cardiologists". During the second part of the activity teachers are presented with the INTELed assessment tests (see IO3) that will be allocated pre-post the INTELed implementations for evaluating students' learning gains.

Materials

PowerPoint presentation "*Assessment: Evaluating the INTELed students' learning gains*"

The INTELed assessment tests

Learning module 3: Implementing and evaluating the INTELed pedagogical framework

Type: Teaching session

Approach: Teachers as “innovators”

Duration: 5 hours

Learning goal: As part of this learning module teachers’ pilots will take place in schools. In particular, during this training module, teachers will be asked to enact the INTELed educative modules (lesson plans and students’ material) developed around the embodied digital apps: (a) The “angle makers” or (b) The “young cardiologists”. During this training module teachers will have the opportunity to assess the effectiveness of the INTELed pedagogical framework though piloting in authentic school environments and implement the knowledge and skills/competencies they have previously gained in praxis.

Teaching and learning activities

Activity 1 – SEN students’ pre-knowledge/competences

(Duration: 15 minutes)

As part this activity the INTELed students will be asked to complete the INTELed assessment tests for measuring their initial knowledge and competences prior to the INTELed implementations.

Materials

The INTELed assessment tests

Activity 2 – INTELed implementations

(Duration: 4 hours – 3 courses x 80mins)

As part this activity the teachers will implement the INTELed educative module (lesson plans and students’ material) developed around the embodied digital apps: (a) The “Angle makers” or (b) The “young cardiologists”. In particular, about half of the teachers are expected to implement the “Angle makers” while the rest of the teachers are expected to implement the “Young cardiologists”.

Materials

*The young cardiologists” embodied cognition app / “The young cardiologists” educative module
“The angle makers” embodied cognition app / “The angle makers” educative module*

Activity 3 – SEN students’ post-knowledge/competences

(Duration: 15 minutes)

As part this activity the INTELed students will be asked to complete the INTELed assessment tests for measuring their knowledge and competences after the INTELed implementations.

Materials

The INTELed assessment tests

Activity 4 – Reflective diary

(Duration: 30 mins)

By the end of the implementation each teacher will be asked to complete a reflective diary, for reflecting on their emotions, attitudes, skills and practices in relation to the INTELed implementations/

Materials

Reflective diary



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Learning module 4: Reflecting on the INTELed pedagogical framework and training methodology

Type: Face to face

Approach: Teachers as “Reflective practitioners”

Duration: 5 hours

Learning goals: The learning goal of this training module is to provide the INTELed in-service teachers with the opportunity to reflect on the INTELed training methodology as well as to share their experiences with their colleagues about the implementations of the INTELed pedagogical framework.

Teaching and learning activities

Activity 1: Ownership of the INTELed pedagogical framework

(Duration: 30 minutes)

Aiming to receive feedback regarding the impact of the INTELed TPD program on our in-service teachers' ownership of the INTELed pedagogical approach, an open-ended task will be administered (see IO3). According to this activity the INTELed teachers will be provided with a radial diagram and will be asked to indicate the six main factors of INTELed TPD program which contributed to their ownership towards the INTELed pedagogical approach, as well as to assess and weight these factors.

Materials

Radial diagrams task

Activity 2 – Evaluating initial teachers' final needs & confidence

(Duration: 30 minutes)

As part this activity teachers are asked to complete the “Teachers' needs and confidence” questionnaire (see I4). This questionnaire aims to evaluate teachers' final needs and confidence in relation to the mains aspects of the INTELed pedagogical framework: (a) Embodied Cognition theory in relation to the learning process, (b) Embodied Learning Environments in relation to Special Education, and (c) Embodied Learning in relation motion-based technologies.

Materials

“Teachers' needs and confidence” questionnaire

Activity 3 – SWOT analysis of the INTELed pedagogical implementations

(Duration: 2 hours)

As part this activity teachers are divided in two cohorts according to the INTELed educative module they have implemented (“The angles makers”/ “The young cardiologists”). The teachers in each cohort are provided with two hours in order to conduct a SWOT analysis of their INTELed implementations. In particular, during the activity the teachers are asked to discuss and complete the SWOT analysis template for reporting the perceived: (a) strengths (30'), (b) weaknesses (30'), opportunities (30') and threats (30') of their INTELed pedagogical implementations.

Materials

SWOT analysis template for INTELed pedagogical implementations

Activity 4: Lessons learned & Best practices

(Duration: 1,5 hours)

During the first part of this activity, in each cohort are asked to reflect of the findings of their SWOT analysis in order to develop a presentation providing an overview of the lesson learned and the best practices emerged out of their INTELED pedagogical implementations. During the second half of the activity teachers reconvene as a plenary and each cohort presents the main outcomes of this activity.

Materials

Template for reporting lessons learned/best practices



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