Smart Ecosystem for Learning and Inclusion

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D4.1

Course Report

PREPARED BY:
Ismar Frango Silveira;
Maria Amelia Eliseo

D4.1 Courses report

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Website: http://seliproject.org/

E-Mail: ismar.silveira@mackenzie.br

Consortium:

University of Eastern Finland, Finland, (UEF), Coordinator

Hacettepe University – Turkey (HUT)

Pedagogical University of Cracow, Poland (PUC)

Universidad Central "Marta Abreu" de Las Villas, Cuba (UCLV)

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Authors: Maria Amelia Eliseo, Ismar Frango Silveira, Valéria Farinazzo Martins, Cibelle Albuquerque de la Higuera Amato, Caroline Malaguti Taus, Eduardo Benitez de Siqueira, Flavio Lima de Oliveira, Rebecca Mello dos Santos, Camilla Almeida da Silva, Cibele Spigel, Mariana Hercovici, Mackenzie Presbyterian University

Contributors: Solomon Sunday Oyelere,University of Eastern Finland | Lukasz Tomczyk, Pedagogical University of Cracow | Gabriel Barros, Sonia Magali Arteaga Sarmiento, Universidad del Azuay | Darwin Muñoz, Cinthia De la Rosa, Federico Henriquez y Carvajal University |Vladimir Abel Costas Jáuregui, Mayor de San Simón University| Regina Motz, Mariana Porta, Maria Viola, Universidad de la República|Margarita E. Zambrano Rivera, University of the Armed Forces | Özgür Yaşar Akyar, Gıyasettin Demirhan Emre Bilgin, Hacettepe University

EXECUTIVE SUMMARY

This deliverable provides a report of part of WP4 - Development of the pedagogical aspects of the project. The report shows a summary of the general progress of the project during the period covered by the report. The aim is to provide information about the WP4 specially the concepts and background of SELI pilot courses implemented in SELI Platform and some adjustments made due to the COVID-19 pandemic. In addition to the pilot courses, other courses have also been implemented by our partner countries.

TABLE OF CONTENT

1. Introduction

During the development of this project, an authoring tool, called the SELI learning platform, was implemented to assist and guide teachers in planning, structuring, and building accessible courses. Teachers can create their courses in an accessible way, considering their students' limitations and disabilities. After completing the course implementation, it can be published and made available to students. Thus, SELI learning platform is part of a learning ecosystem that offer authoring services, content management system (CMS) and a learning management system (LM) services and learning analytics service (Oyelere, et al. 2020; Martins et al. 2020).

SELI learning platform can assist the Instructional Design elaboration for accessible learning, optimizing planning time and suggesting the creation of accessible teaching materials. In addition, it offers some course models, based on Pedagogical Patterns suggesting to the teacher a methodology in pedagogical practice. It suggests different ways of presenting didactic concepts and tasks according to the type of content to be presented to the student.

Although digital technology has proved to be an efficient pedagogical tool to facilitate and improve the teaching-learning process, especially in relation to inclusive education, there is a gap when looking for some technological resource that helps the teacher to plan and build accessible teaching materials. As part of Smart Ecosystem for Learning and Inclusion, SELI learning platform helps to fill this gap.

Using SELI learning platform, some pilot courses were built to check the efficiency and feasibility of using the tool both on the teacher's side when using the instructional design and accessibility resources offered, and on the part of the student when studying with a course built to be accessible. The pilot courses were designed, in some way, to capacity teachers in the use of ICTs with focus in accessibility.

At first the pilot courses started their development following the ADDIE framework, an instructional systems design (ISD). In this phase, six pilot courses were planned by the partner countries. Table 1 shows the pilot courses planned by each country.

Table 1. Pilot courses planned

Bolivia	Training teachers on how to use new ICT tools
Turkey	Digital Storytelling training course with teachers,
Brazil	Educational Games training course,
Poland	Prevention of cyberbulling
Poland	Digital Inclusion
Uruguay	ICT tools by teachers to teach new media and English as a second language
Dom. Rep.	Training to teachers to teach the deaf and dumb.

Although the courses shown in Table 1 were planned, unfortunately, not all were implemented due to the limitations imposed by lockdown to prevent the proliferation of the coronavirus due to the COVID-19 pandemic. However, other courses were

implemented in addition to the pilot courses. At the time of writing this report, SELI learning platform, on Finland server, offered around 100 courses for the most varied target audience.

As pilot courses were being planned and implemented on the SELI learning platform, improvements in the tool's functionalities were being made. One of them was the implementation of the instructional design guide, based on the ADDIE framework and the availability of courses models, when the tool started to have a second version quite different from the first one. Because of this, there are courses implemented and being used in both versions of the platform. The old version is available at https://seli.uazuay.edu.ec/ and the new version at: https://vm2161.kaj.pouta.csc.fi/.

This report describes the implementation of instructional design and courses models on the SELI learning platform, in addition to describing the courses built on it and its activities, strategies and feedback. It is not the intention of this report to describe the use of the SELI learning platform, but rather to show the theoretical background of the resources that help to build the courses accessible on the platform.

2. Instructional Design and ADDIE Framework

The elaboration of a course or a class is a laborious task for the teacher that involves planning, developing, and applying methods, techniques, activities, materials, events and educational products in specific didactic situations, especially in remote courses. To systematize this set of activities, instructional design offers a process of identifying a problem or learning need to then design, implement and evaluate a solution to this problem (Merrill & Twitchell 1994, Filatro 2008). Based on a learner-centered approach, instructional design produces knowledge about the principles and methods of instruction best suited to different types of teaching to promote an effective learning (Filatro 2008, McGriff 2000).

An approach to instructional design that incorporates an iterative process with essential steps for the development of an effective course or class is ADDIE (Analyze, Design, Develop, Implement and Evaluate) framework (Peterson 2003). ADDIE is a systematic process that serves as a guiding framework for complex situations such as developing educational products and learning resources. It is used to facilitate the construction of knowledge and skills in guided learning situations. Guided learning is the quest for mutually agreed upon expectations between the student and the teacher (Branch 2009). The ADDIE framework is a cyclical process that evolves over time and continues throughout the instructional planning and implementation process (Peterson 2003). It divides the development of educational actions into small phases in the following sequence:

1. analyze the need;

2. design the solution;

3. develop the solution;

4. implement the solution;

5. evaluate the solution.

The Analysis phase comprises the problem definition, target audience, learning needs identification, learning objectives and determination of possible solutions. The Design is the process of specifying how it is to be learned and involves using the outputs from the Analysis phase to plan a strategy for developing the instruction and includes the identification of objectives, determining how the objectives will be met, the instructional strategies that will be employed to achieve the objectives, and the media and methods that will be most effective in the delivery of the objectives. Development is the phase of authoring and producing the didactic materials. The Implementation refers to the delivery of instruction. Evaluation measures the effectiveness and efficiency of the instruction and can occur during the development stage in the form of formative evaluations, throughout the implementation phase with the aid of the students and the teachers or/and at the end of the implementation of a course or class in the form of a summative evaluation for instructional improvement (Seels & Glasgow 1998, Filatro 2008, McGriff 2000, Branch 2009, Peterson 2003). The systematization of teaching learning process with the instructional design supported by the ADDIE framework ensures the development of learning activities and establishes the principles, objectives and teaching methods most appropriate to the needs of students.

These concepts of Instructional Design and ADDIE framework were used as requirements in the implementation of the SELI learning platform to guide teacher to plan their courses.

2.1 Instructional Design implemented in SELI learning platform

SELI learning platform offers the teacher the option of building courses freely or guided by the tool following a planning based on ADDIE framework (Figure 1). When choosing the guided form, the teacher will follow all ADDIE phases. The analysis phase consists of understanding the educational problem, covering the survey of educational needs, the characterization of students and the verification of constraints.

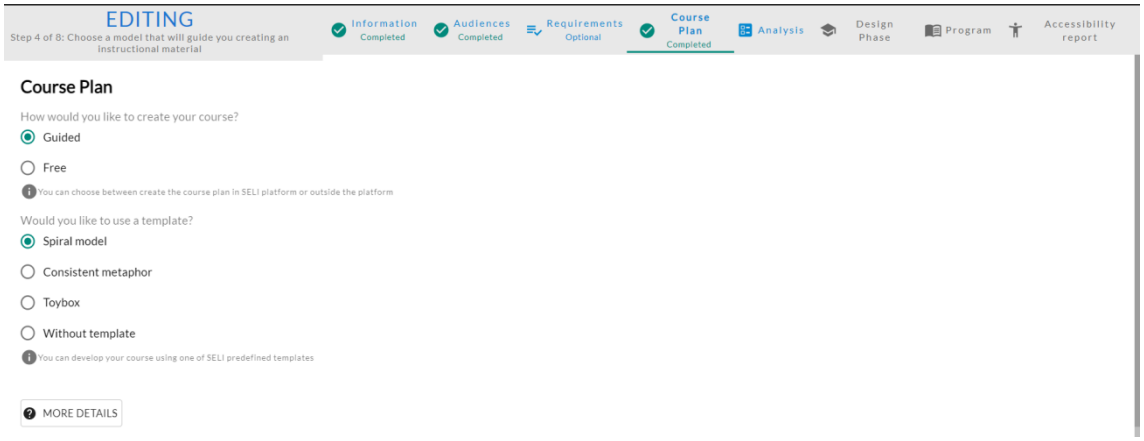

Figure 1. Choice screen between building a course guided by the SELI learning platform or free form.

In the analysis phase, after defining the course title, intended audience and inclusion goals, the teacher should define the learning objectives, outcomes, and constraint and the pedagogical considerations (Figure 2).

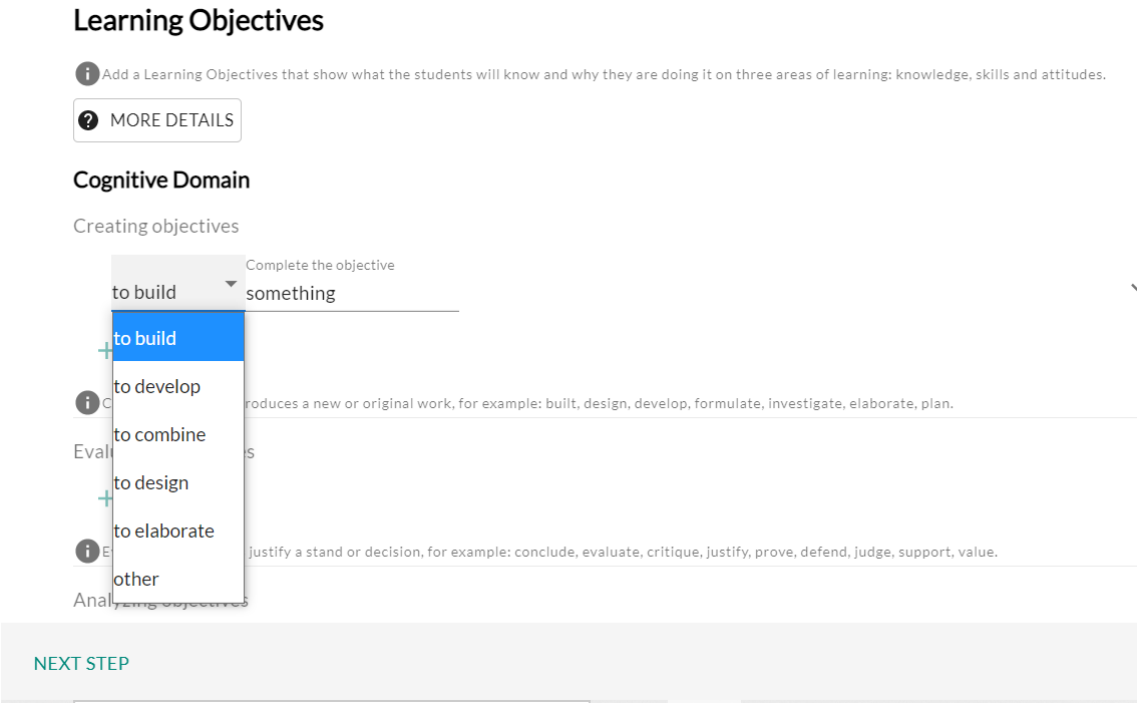

Figure 2. Learning objectives in analysis phase.

In SELI learning platform, the learning objectives is based on Bloom's taxonomy that divides these goals into three domains: cognitive domain, affective domain and psychomotor domain. Cognitive Domain comprises intellectual skills such as memorization, comprehension, application, analysis, synthesis / creation, assessment (Figure 2). The affective domain comprises feelings, values, enthusiasm, motivation, and attitude. Psychomotor domain is about physical and motor skills (Krathwohl 2002; Ferraz & Belhot 2010).

The cognitive domain involves the acquisition of a new knowledge, intellectual development, skill, and attitudes. To define these objectives according to the expected learning results, it was divided into six categories that were revised in 2002: remembering, understanding, applying, analysing, evaluating, creating, as shown in Table 2 and implemented in SELI learning platform. Generally, objectives state what is expected to be learned by students. The objectives use action verbs and nouns that describe the desired cognitive processes and SELI learning platform helps teachers in their choice suggesting some of these verbs (Figure 2)

Table 2. Categorization of revised Bloom's taxonomy in the cognitive domain (Based on Krathwohl 2002; Ferraz & Belhot 2010)

Cognitive Domain Categorization	Definition
Remembering	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned
Understanding	Student translates, comprehends, or interprets information based on prior learning
Applying	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction
Analyzing	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question
Evaluating	Student appraises, assesses, or critiques on a basis of specific standards and criteria
Creating	Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her

Complementing the learning objectives, the teacher must define the learning outcomes, indicating what the students will be able to accomplish with the acquired knowledge. Learning outcomes address content objectives, skill objectives and values or attitudes objectives. As well as learning objectives, learning outcomes are described using action verbs and should use specific language, and clearly indicate expectations for student performance. Generally, the phrases that indicate the learning outcomes begin as follows: "By the end of this course, students will be able ..." completed by the action verb according to the category (content, skills and values / attitudes objectives). SELI learning platform offers suggestion of action verbs in each category to guide teacher.

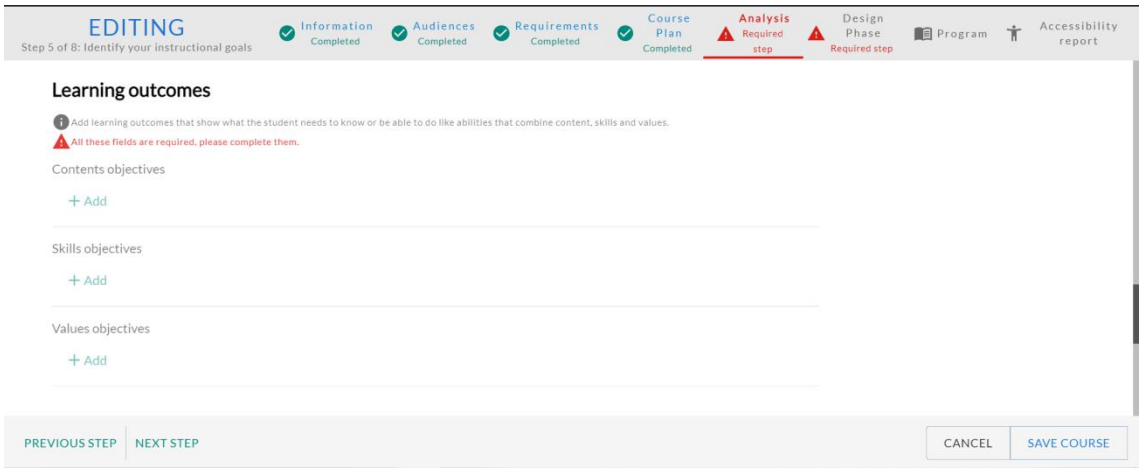

Figure 3. Learning outcomes in analysis phase

After the analysis phase is finished, the next step is to define the design phase. In the design phase the course structure is defined, its division by subjects and for each subject the learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection are detailed (Figure 4). The design phase should be systematic and specific. Systematic means a logical, orderly method of identifying, developing, and evaluating a set of planned strategies targeted for attaining the project's goals. Specific means each element of the instructional design plan needs to be executed with attention to details (Filatro 2008).

In SELI learning platform, the definition of the course structure offered in the design phase changes according to the course model chosen by the teacher when choosing the guided form. Currently the tool offers three course models: spiral model, consistent metaphor, and toy box, each with a different teaching methodology.

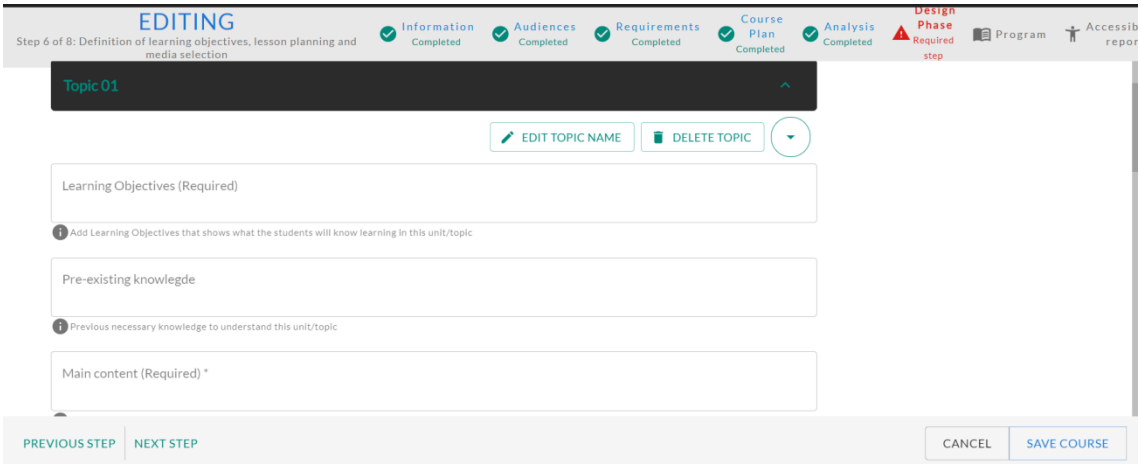

Figure 4. Design Phase

The next step, after the design phase is to develop and build the didactic content in the development phase. SELI learning platform, in this phase, facilitates and optimizes production time, since the entire structure defined in the previous phase, may come predetermined, that is, prepared to receive the predefined content, such as texts, videos, audios, materials activities, activities, etc. In this phase, the tool can guide the teacher to build teaching resources based on accessibility guidelines. Figure 5 shows an example of the program screen, where the teacher chose to use images and videos for the course content, in addition to the textual content.

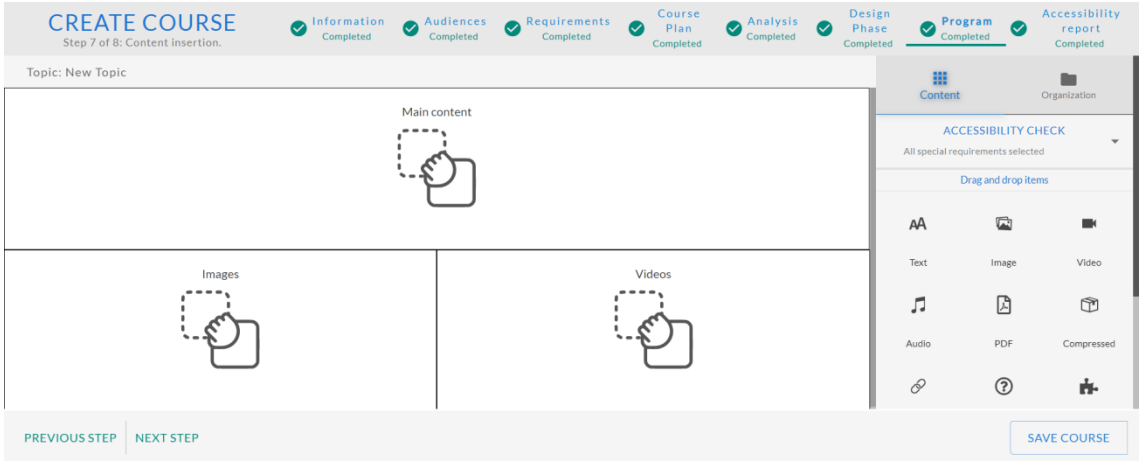

Figure 5. Program screen to Development phase

After the development of the didactic material, it can be made available to the student, in the implementation phase. If all the care with accessibility was taken in the previous phase, the student will receive teaching material that can adapt to his needs according to his limitations and deficiencies. Figure 6 shows some courses available on the platform.

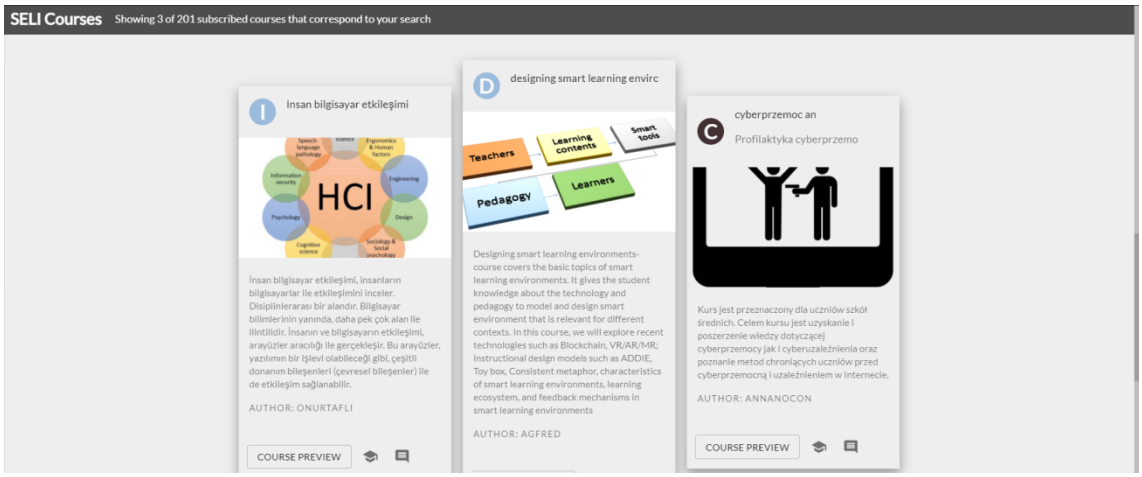

Figure 6. Courses SELI

Finally, the last phase of the ADDIE Framework is the evaluation phase to guarantee the quality of teaching. The evaluation phase can occur in all phases, from the analysis phase to the implementation phase. The content review and the analysis of the learning effectiveness in the evaluation phase must permeate the entire process of planning and construction of the didactic material, as well as accompanying the student's teaching-learning process. In addition, the evaluation phase can verify whether the accessibility goal has been met for each resource inserted in the didactic material and suggest improvements when necessary.

3. Courses Model

Pedagogical patterns are a way to systematize learning or instruction concerning principles and methods of teaching (Bergin et al. 2012). Although they were created for the development of the Computer Science course, they can be applied in other areas of Education. Pedagogical patterns facilitate the process of creating a course by indicating possibilities for presenting and communicating content based on active pedagogical techniques. In SELI learning platform three course models were implemented based on three pedagogical patterns: spiral, consistent metaphor and toy box (Figure 1). The teacher can choose some of these models as a guide in the organization of pedagogical content.

3.1 Spiral Model

In Spiral model, the course is organized in small units where concepts are introduced to facilitate the resolution of problems or activities by students. Each unit must introduce a concept, without going into details, that is, it uses an inductive strategy that starts from simpler concepts to more elaborate ones. This model can be applied to any course in which there are many concepts that must be mastered together.

Topics are organized as a spiral. On each cycle of the spiral more details are added to the content. The sequence of topics should be organized in order to provide skills for solving the problem. Students starts solving simple problems and then, on the second cycle, with the introduction of more depth content, they can solve more complex problems. The tutor can then return to each topic in turn, perhaps repeatedly, giving more of the information needed to master them (Bergin 2020; Bergin et al. 2012). To a learning more effective the tutor needs a plan, showing the order in which, the topics will be introduced and what will be deferred to later cycles. If the course content is small and it is not possible to have a commitment avoid this model.

3.2 Consistent Metaphor

Consistent Metaphor is good to teach complex content with a complex and consistent metaphor for the topic being taught. The basis of the metaphor needs to be known to the students (Bergin 2020; Bergin et al. 2012). This helps students relate the topic being taught to larger goals, that is, they realize how things fit together. The students need a way to think of the whole content. Especially when the details themselves are unfamiliar and new to them.

A consistent metaphor with the content being taught and its basic elements, will help students to reflect on the content by making valid inferences when thinking about the metaphor. The instructor must know the limits of the metaphor and communicate these to the students, so that they don't make improper inferences. A metaphor can be used for a small element of a topic or to give a view of the overall landscape. It is most useful when valid inferences can be drawn from it (Bergin 2020; Bergin et al. 2012).

3.3 Toy Box

In Toy Box, the content is given the students letting them "play" with pedagogical tools. Students work on problems and it's important to give them some examples and / or exercises to provide a rich set of experiences about what is important and what can be done to solve the problem (Bergin 2020; Bergin et al. 2012). The tutor should provide the framework for students' activities, such as a skeleton of the activity. The student can examine, interact and build the activity solution. These activities should give students a set of experiences about the content. In this way, the students work actively to solve a problem themselves. Toy Box can be used in several courses and at several levels.

4. Accessibility Requirements in SELI learning platform

The accessibility requirements were made according to the WCAG guidelines (Web Content Accessibility Guidelines), with the purpose of making the SELI learning platform accessible to students with cognitive, hearing, visual and physical disabilities, in addition to people who have a diversity of these disabilities, such as elderly.

For this purpose, in the teacher's view, the course creation was designed so that they can choose an accessibility goal and then include several alternatives for such audiences (Figure 7). Below there are the alternatives for each type of component.

- Images: textual alternative of short description and long description
- Texts: are produced in a way that a screen reader can read them correctly
- PDF Files: guidelines for the teacher to produce an accessible PDF and register the accessibility alternatives present in it
- Videos: textual alternative of short description and transcription, option to include captions, audio description, sign language and warning of seizure risk
- Audio: textual alternative of short description and transcription
- Quiz: disable or extend time restrictions and enable message to warn that the time is running out

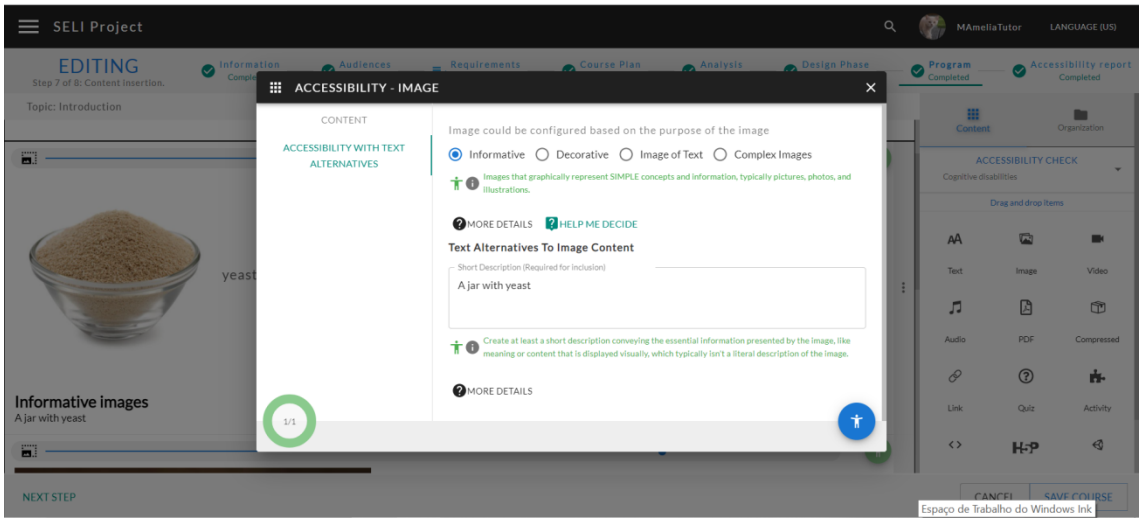

Figure 7. Image accessibility feature

In order for the teacher to be able to visualize the level of accessibility of the course, a report was designed at the end of its creation in which they can review how accessible (in percentage) it is for each type of disability in each topic/unit created and see if their goal for its previously defined audience was achieved (Figure 8).

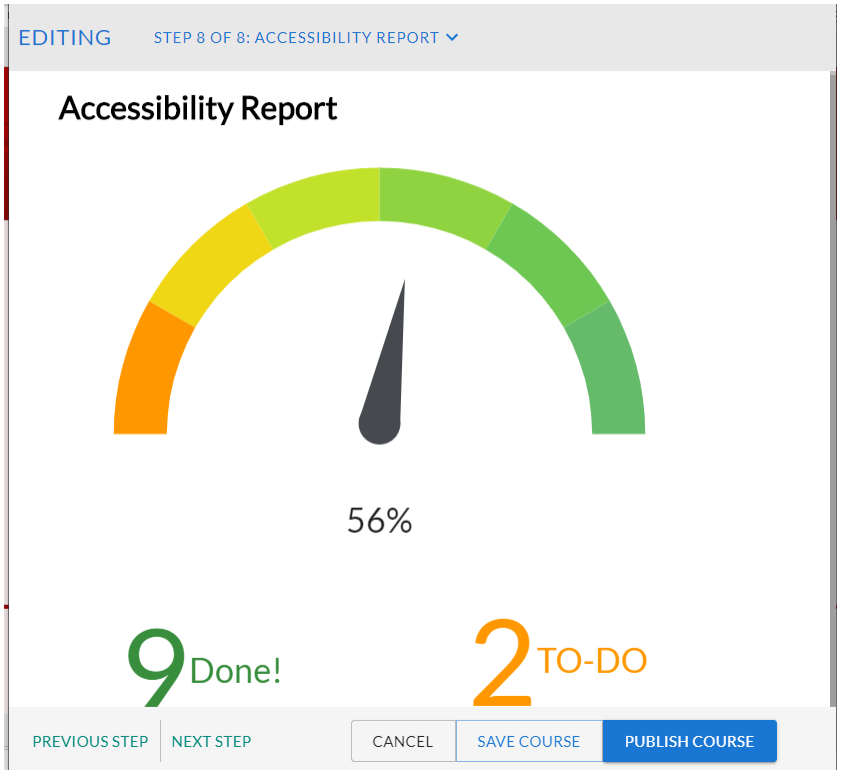

Figure 8. SELI learning platform accessibility report

In the student's view, some requirements were made so all the pages they can view are accessible. Among them, for users who need screen readers and navigate the website through the keyboard, the HTML (Hypertext Markup Language) code used has the lang language attribute, it should pass a parsing test, the code has an organization

without the use of CSS (Cascading Style Sheet) so that the focus of the page makes semantic sense, and correctly uses headings and aria-labels. For users who have low vision, it was requested that it be possible for users to adjust the line spacing and font size of the page without loss of content and that the colors on the web page have a good contrast. For users with cognitive disabilities, links and buttons with icons were requested to have tooltips to explain its functionality and that the use of unusual words be explained in simpler language.

5. SELI pilot courses

At the beginning of the SELI project, six pilot courses were defined, as shown in table 1. The objective of the pilot courses is to train teachers in the use of SELI learning platform functionalities, such as instructional design, accessibility resources, choice of course models. However, there were some changes and adjustments due to the needs of each country and the limitations imposed by the COVD-19 pandemic lockdown. Below we describe the pilot courses assigned to each partner country: Bolivia, Turkey, Poland, Uruguay, and Dominican Republic.

5.1 Bolivia

At first the Bolivian team would prepare the course "Training Teachers on How to Use new ICT tools", which was planned from the ADDIE framework, as shown in Appendix A. Planned for Pre-service teachers, teachers, undergraduate students who teach technical subjects in schools, this course would address topics such as "Analysis of state of the art ICT and Education in Bolivia", "Reflexion and discussion about ICT and education integration experiences: Expectations and disenchanted", "Understanding flipped learning", "Understanding Storytelling ", and" Storytelling and flipped learning experience beyond digital issues ".

However, the political instability and COVID-19 pandemic quarantine issues left the Bolivian school closed since March 12th. The school teachers were unreachable for the mixed face-to-face and virtual proposed course. The education minister demotivates teachers to follow another kind of training otherwise than minister promoted with Google and Microsoft. The digital divide plays an essential role due to Internet access in a pandemic economic crisis for teachers and students.

Nevertheless, the university courses remain in an on-line mode in Bolivia, and students of Computer Science were motivated to play an important role as study helper to their mates. To address this motivation and inclusion in the on-line university lectures, Bolivia changes the pilot course to one to train students as a helper of his mates in the first introduction to programming course with an inclusive platform like SELI.

The new pilot course is "Problem-solving by computational approach" (*Resolución de problemas con enfoque computacional*). It is a small course ruling the students to understand the basics of problem-solving and common basic statement

patterns in programming (Figure 9). To meet the needs of Bolivian students, this course was written in Spanish and was published in SELI learning platform.

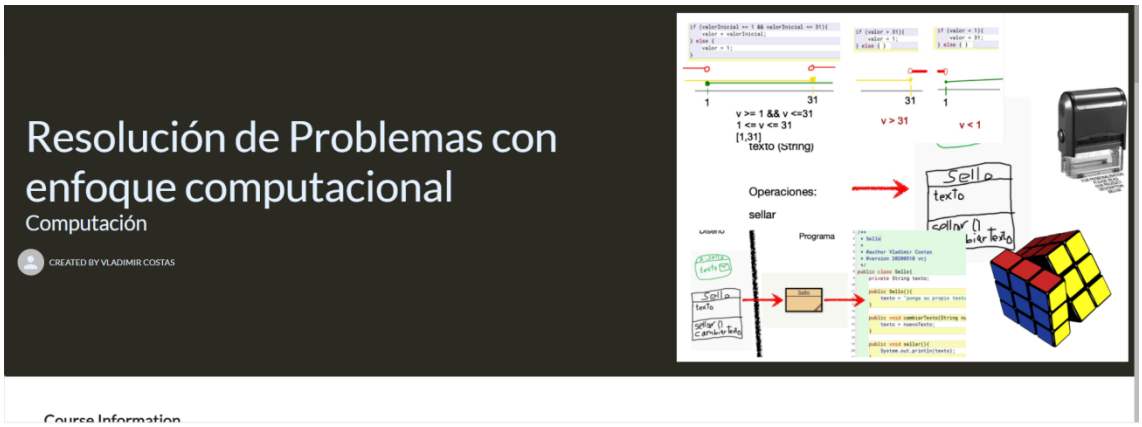

Figure 9. Problem-solving by computational approach course in SELI learning platform

5.2 Turkey

The theme of the Turkish team's pilot course was "Digital Storytelling training course with teachers" (*Dijital Hikaye Anlatımı*). The course was implemented in Turkish in the new version of the SELI learning platform to train pre-service physical education teachers and teachers promoting including education and increasing the efficiency of educational practices, in addition to raising awareness about digital stories and inclusion. Figure 10 shows the course initial screen in the student view.

Figure 10. Digital Storytelling course in SELI learning platform

The Turkish team developed another course named "Inclusive Education for Physical Education Teacher Education" (*öğretmenlik uygulaması*) which was implemented in the old version of the platform. This course has as the audience of pre-service physical education teachers who work with disadvantaged groups more specifically with immigrants in the state schools. This course addresses topics such as

social exclusion (cultural, geographic, economic), inclusion, and digital storytelling, as shown in Appendix B.

In addition to this, a course called “Diverse active living stories” is created as an example of interdisciplinary learning for meeting intercultural diversity. The course implemented within the physical education context however with a focus on intercultural aspects and learning as it aimed to improve communication competences throughout enhancing basic English, Turkish and Mathematics skills as shown in Figure 11.

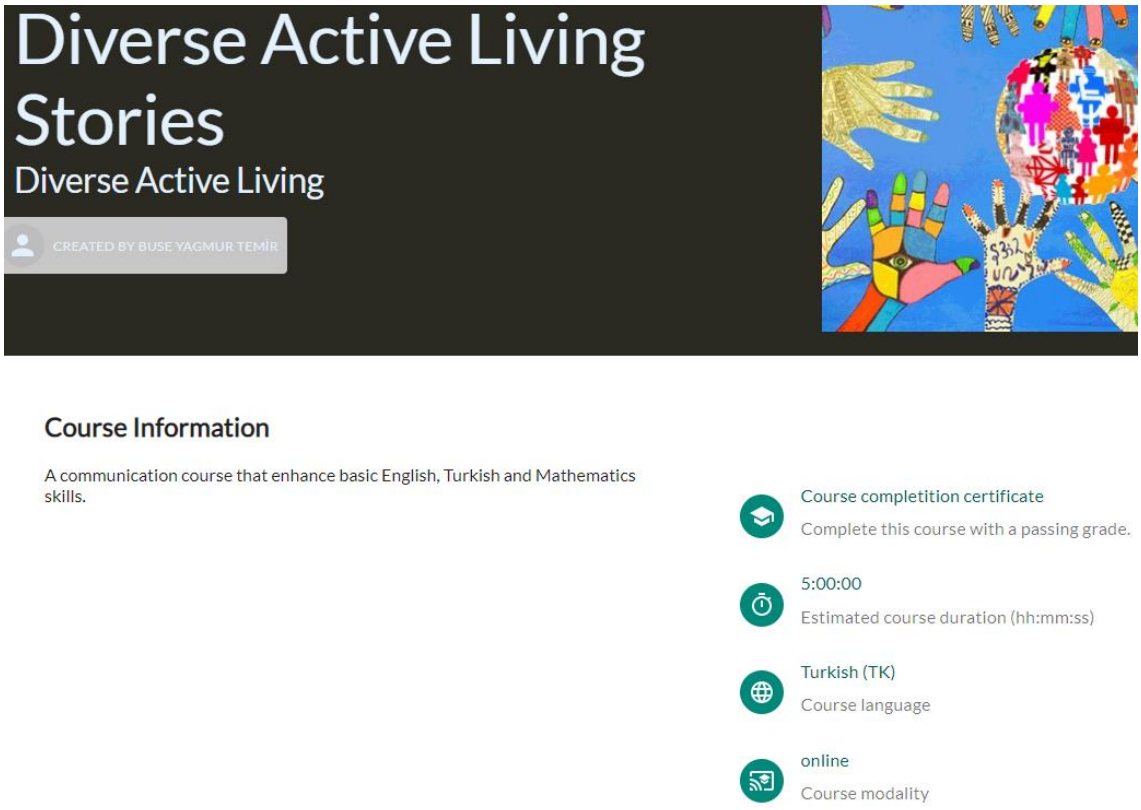

Figure 11. Diverse active living stories course in SELI learning platform

5.3 Brazil

The theme of the Brazilian team's pilot course was "Educational Games training course" but, from the beginning, the team made a slight change giving emphasis to the elderly to meet the needs of teachers who work with this audience. Therefore, the course theme changed to "Accessible Educational Materials for the Elderly" (*Materiais educacionais acessíveis para idosos*), aiming to train these teachers in creating accessible courses for the elderly with the SELI learning platform. This pilot course addresses topics such as: "introduce the educational games pedagogy for elderly", "study the cognitive and physical limitations of the elderly", and "understand accessibility features aimed at educational games for the elderly" as shown in Appendix C.

This course was implemented in Portuguese in two previous versions of the SELI learning platform. Figure 12 shows the initial screen of the course in the student's view in the new version of the platform. An English version of this course is being implemented in the new version of the platform.

Figure 12. Problem-solving by computational approach course in SELI learning platform

Due to the COVID-19 pandemic, Brazilian schools and universities have been closed since March 2020. That is why it was impossible to conduct a face-to-face training course for teachers. Even so, an invitation was made so that teachers could participate in the course implemented in the old version completely online, with 17 accepting to participate. Unfortunately, only five teachers took the whole course. This reduced number is understandable because, due to the pandemic and the change from face-to-face to remote classes, teachers were very concerned with the situation and professionally overwhelmed.

The teachers who participated in the course found it difficult to use the platform and to generate accessible teaching material. For instance, they pointed out some difficulties in learning to use the platform and knowing the applications to make each accessibility adaptation. The teachers agreed that the adaptation of the didactic material contributes to the inclusion of a larger number of students, however, there was some resistance on the part of some teachers who are not comfortable to deal with technology and, consequently, find the creation of this material difficult. accessible digital didactic. As for the SELI learning platform: it was considered useful, flexible and innovative for the daily practice of teachers, at the same time, the need for improvements was pointed out - how to facilitate access and greater clarity to find courses and resources, to make the material accessible . This data was used to guide the improvements implemented in the new version of the platform. The course was rebuilt on the new version of the platform, but it has not yet been tested with teachers.

5.4 Poland

The Poland team implemented two pilot courses: "Prevention of cyberbulling" and "Digital inclusion". Both are available in the new version of the SELI learning platform in English and Polish.

Prevention of cyberbulling course has the goal to prepare students and teachers will have the opportunity to acquire basic knowledge about the threat of cyberbullying among children and youth. Students and teachers will be able to know the mechanisms of cyberbullying, and to recognize the victim of cyberbullying and effectively help him/ her (Figure 13). Appendix D shows the planning for this course.

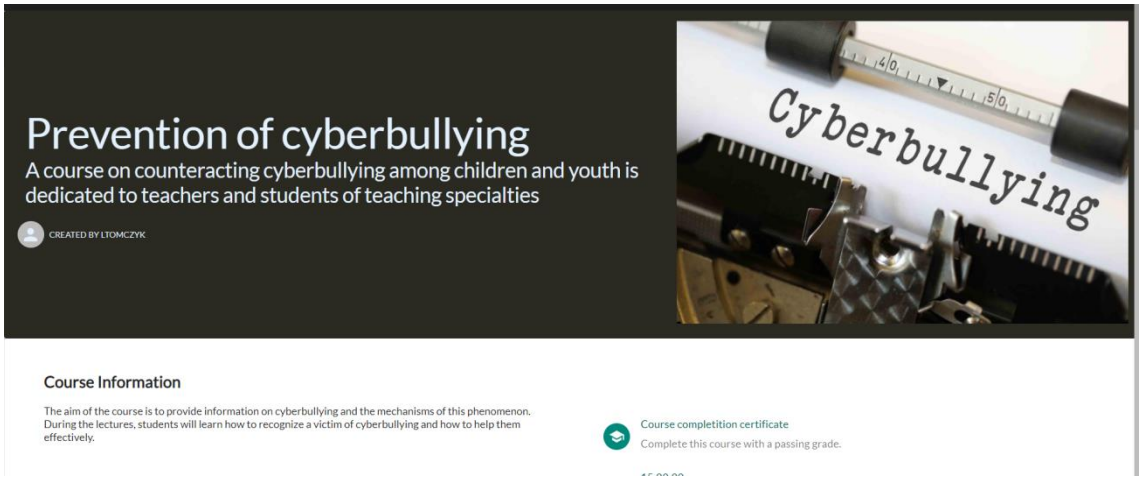

Figure 13. Prevention of cyberbulling course in SELI learning platform

Digital inclusion course is aimed at trainers developing digital competences in older people. It focuses on the most important theoretical information about the phenomenon of digital exclusion, the use of new media and technological solutions, the educational needs of seniors in this area and the most important methodological guidelines. The aim of the course is to acquire knowledge, skills and social competences in the field of media competence and practical preparation for didactic work with the oldest students. Senior citizens have specific needs and require special learning conditions. The course provides practical tips on how to plan the learning process for seniors and carry it out to the greatest possible benefit for the learners. All the most important elements of the learning process and the motivation of an adult learner are described. The most important modules of training in digital competence and informed and safe use of the Internet are also discussed (Figure 14).

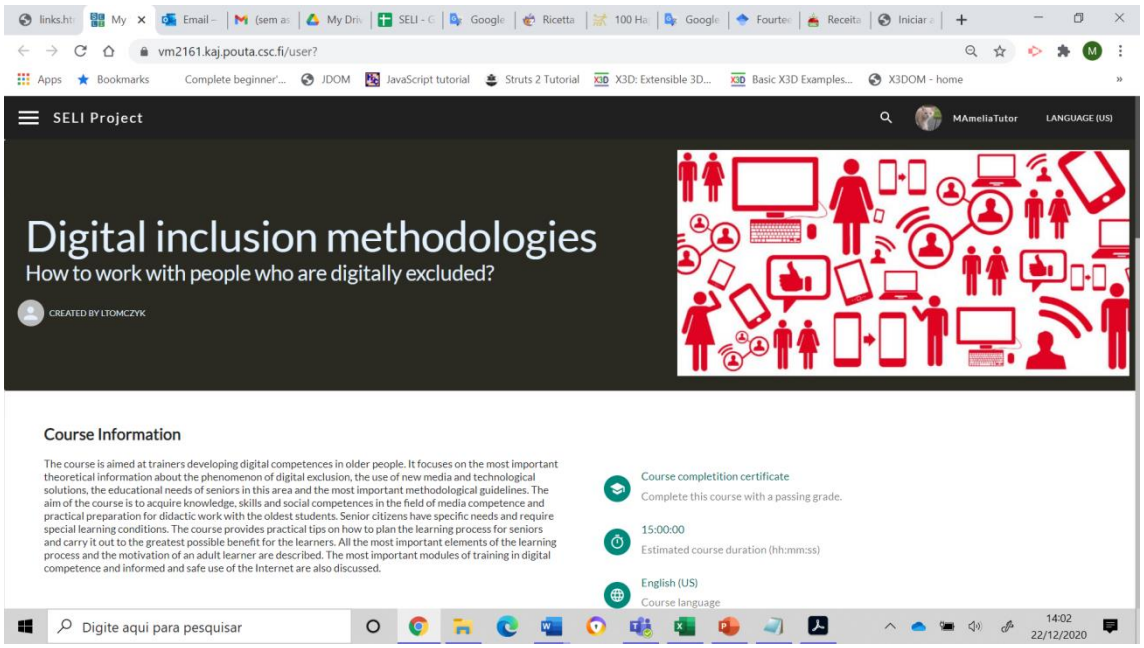

Figure 14. Digital inclusion methodologies course in SELI learning platform

With these courses, more than 300 students from the Polish pedagogy faculties learned about the SELI learning platform, learned to create and share courses. Each of the students was responsible for preparing their own mini courses, also available on the platform. With the feedback of these students in relation to the technical difficulties with the operation of the platform, measures were taken to improve its functionality and define other steps.

5.5 Uruguay

The Uruguayan team developed the course "ICT tools by teachers to teach new media and English as a second language" implemented in the old version of the SELI learning platform. This course aims to familiarize English's teachers with the notion of inclusive education and inclusive digital tools, experience the use of digital tools aiming at inclusion and develop ESL (English as Second Language) educational resources and class plans introducing including digital tools, as SELI learning platform. Appendix E shows the planning for this course.

In the new version of the SELI learning platform, the course "Teaching EFL with inclusive digital tools" was implemented (Figure 15). This course aims at: familiarizing with the SELI perspectives on educational inclusion with digital tools using DST (Digital Storytelling) in the class\es, integrated to the class plan to meet learning objectives, understanding the notion of easy reading, one of the important topics within accessibility and analyzing educational resources from the point of view of accessibility.

Figure 15. Teaching EFL with inclusive digital tools course in SELI learning platform

5.6 Dominican Republic

At first, the theme of the Dominican Republic team was "Training to teachers to teach the deaf and dumb", but to better meet the country's needs it was changed to "Inverted Classroom with the H5P Tool", a course for teachers who attend students with hearing impairment. Appendix F shows the planning for this course.

Due the covid-19 pandemic, the course audience – the deaf students – aren't back to schools until this moment, and they have a lot of limitations added to their special needs. Also, the team had some obstacles with the training of deaf teachers, and also some difficulties when delivering online classes for the implementation of the pilot (teachers' low tech skills, problems with power supply, bad internet connection, lack of proper devices, etc).

6. Other courses in SELI Platform

In addition to the pilot courses previously planned, other courses were being built on the SELI learning platform. An example is the "Designing Smart Learning Environments" course create by Finland team, shown in Figure 16. The course was designed for graduate students and post graduate Students. The purpose of this course is to cover the basic topics of smart learning environments. It gives the student knowledge about the technology and pedagogy to model and design smart environment that is relevant for different contexts. In this course, students will explore recent technologies such as Blockchain, VR / AR / MR; instructional design models such as ADDIE, Toy box, Consistent metaphor, characteristics of smart learning environments, learning ecosystem, and feedback mechanisms in smart learning environments.

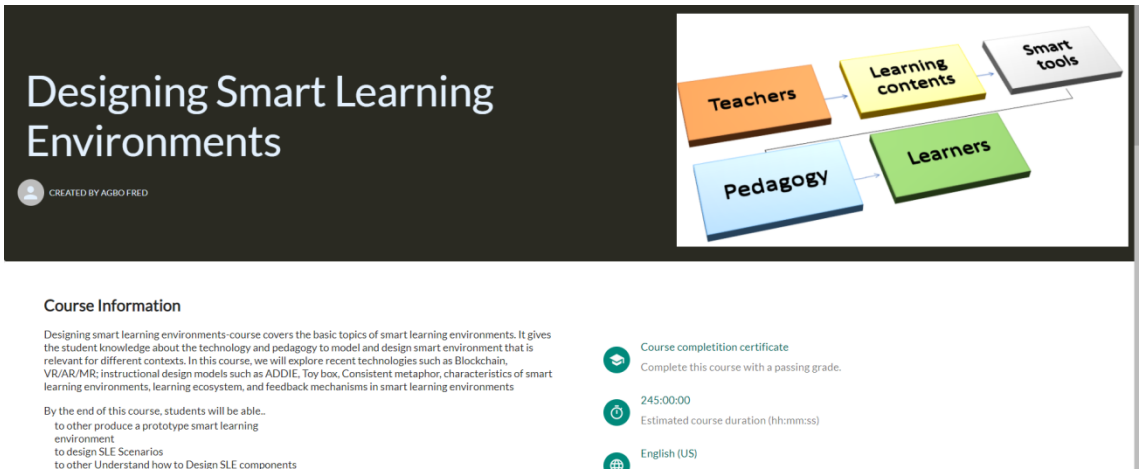

Figure 16. Designing Smart Learning Environments course in SELI learning platform

At the time of writing this report, there were about 100 courses available in the new version of the platform hosted on the Finnish server. Here are some of them.

- “Cyberprzemoc jak z nią walczyć?” by Joanna Bielska (Poland)
- “CYBERPRZEMOC” by Natalia Dyląg (Poland)
- “Hobby - Cykl rozwojowy i dokształcający” by Ewa (Poland)
- “Profilaktyka cyberprzemocy KF – Praktyczny” by Karolina Fedorczak (Poland)
- “Diverse Active Living Stories - Diverse Active Living” by Buse Yagmur TEMİR (Turkey)
- “İnsan Bilgisayar Etkileşimi” by Onur Taflı (Turkey)
- “Curso de C/C++” by Margarita Zambrano (Ecuador)
- “PIENSO, LEO Y APRENDO – MAESTROS EN ACCIÓN” by Verónica and Johana (Ecuador) in SELI learning platform old version
- Pensamiento Computacional by Cesar (Ecuador) – in SELI learning platform old version

7. Plans for future

The collaborative teamwork with partner countries for the development of the SELI ecosystem has enabled the international team to gain insight into issues related to inclusive education, contributing to the enrichment of good pedagogical practices. Regarding the SELI whole ecosystem, from the learning platform to the educational process behind it, it has proved to be a tool capable of assisting teachers in the planning and construction of accessible teaching materials.

Further works point out in the direction of developing new courses and improving the testing of the existent ones, in order to grab data enough to analyse the aspects related to their impact on inclusion and education, especially conducted by selected partners that will continue to received some support from their universities and respective national funding agencies.

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Appendix A

Training Teachers on How to Use new ICT tools

ADDIE MODEL INSTRUCTIONAL DESIGN

1. Analysis Phase

1.1 Who is the audience and their characteristics?

Pre-service teachers

Teachers

Undergraduate students who teach technical subjects

in schools

1.2 Identify the new behavioural outcome?

New or improved skills to build educational material helped by ICT tools and deploy it.

1.3 What types of learning constraints exist?

Low digital literacy

misconceptions about technology

low knowledge and skills to use online ICT tools for learning and teaching

1.4 What types of technology constraints exist?

Lack of access to computers in the school

Lack of or low access to the internet

1.5 What are the delivery options?

Online and face-to-face

1.6 What are the online pedagogical considerations?

Blended learning approach

face-to-face meetings with learners (to manage their times and evolution).

1.7 What is the timeline for project completion?

four weeks

2. Design Phase

2.1 Documentation of the project's instructional, visual and technical design strategy

2.1.1 Learning objectives (what is expected of each unit)

The students will understand and manage the flipped learning approach helped by ICT tools, they have awareness about face-to-face and ICT tools to integrate into the educational process. Understand and manage storytelling in order to take advantage of the cultural spoken transmission of knowledge by Bolivian people.

2.1.2 Pre-existing knowledge (amount of knowledge that the students will have to already know in order to complete the course)

- Basic knowledge of how to use a computer and access the internet
- Basic knowledge of working with the multimedia resource (design and build images, audio and video)
- Basic experience in teaching face-to-face

2.1.3 Materials (information to achieve the objectives)

2.1.4 Instructional Design Matrix

U	Objectives	Roles	Activities	duration	Tools	contents	Assessment
1	Analysis of state of the art ICT and Education in Bolivia	Teacher/ Student	Introduces results of SELI study Read the text Brief thought exposition Group discussion		Content presentation Text reading	SELI results about ICT in Bolivia ICT and Education in Bolivia papers from the ministry of education	Group discussion results summary Personal text notes
2	Reflexion and discussion about ICT and education integration experiences: Expectations and disenchanted	Teacher/ Student	Read the text Watch video Personal experience exposition Group discussion		Content presentation Text reading Video player	Text and video about ICT in education	Group discussion results summary Personal text notes
3	Understanding flipped learning	Teacher/ Student	Read text Watch video		Content presentation Text reading Video player	Concepts and methodology for flipped learning Guide for devices and tools	Personal text notes
4	Understanding Storytelling	Teacher/ Student	Read text Watch video		Content presentation Text reading Video player	Concepts and methodology for Storytelling Guide for devices and tools	Personal text notes
5	Storytelling and flipped learning experience beyond	Teacher/ Student	Produce storytelling about the teaching experience		Authoring tool	Practical activity	Learning synthesis

	digital issues				Picture recorder Audio recorder Video recorder		
6	Experience Synthesis	Teacher/ Student	Group discussion		Collaborative edition Text reading	Previous group results summary Learning synthesis feedback	Group results summary

Units: a course may give one or more elementary units of the teaching/learning process

Objectives: what is expected of each unit

Roles: who does what (student or teacher/tutor) in order to achieve the objectives

Activities: what is done to achieve the objectives

Duration: workload

Tools: services used during learning and support activities

Contents: learning objects, URLs, external files

Assessment: mechanisms and criteria for verifying that the objectives have been met

2.2 Apply instructional strategies according to the intended behavioural outcomes by the domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

Memorization: Knows basic concepts about ICT and education.

Analysis: Distinguish the approach and tools to use in education with the help of ICT tools against education without the help of ICT tools.

Comprehension: paraphrases the understanding of flipped learning and storytelling for educational purposes with the help of ICT tools.

Synthesis: Creates learning digital material using ICT tools oriented to flipped learning

Evaluation: compare the learning material created against application without the help of ICT tools.

2.2.2. Affective strategies

Raise awareness of the importance to be centred in the student and process instead of the ICT tools. See the ICT tools as a helper.

Share experiences and difficulties in the application of flipped learning and digital story.

Share a digital story about the flipped learning experience.

2.2.3. Psychomotor strategies

Not applicable

Smart Ecosystem for Learning and Inclusion

Appendix B

Inclusive Education for Physical Education Teacher Education

ADDIE MODEL INSTRUCTIONAL DESIGN

1.Analysis Phase

1.1 Who is the audience and their characteristics?

Pre-service physical education teachers who work with disadvantaged groups.

1.2 Identify the new behavioral outcome?

Pre-service teachers will promote active quality living of disadvantaged groups by using ICT tools through SELI by improving their knowledge about inclusion, quality of life and digital storytelling.

1.3 What types of learning constraints exist?

Pre-service physical education teachers have some constraints to use digital platforms effectively for reaching course objectives more specifically they have no experience in using digital storytelling for promoting those who are in need to improve their quality of life throughout physical activity and educational games

1.4 What types of technology constraints exist?

Lack of internet connection in schools and low interest in ICT pre-service teachers.

1.5 What are the delivery options?

We will have both face to face training sessions throughout digital storytelling workshops and digital story creation throughout SELI platform so digital storytelling functionality MUST work effectively when it comes to create digital stories.

1.6 What are the online pedagogical considerations?

Community of practice and blended learning with lenses of critical pedagogy

1.7 What is the timeline for project completion?

6 weeks

2. Design Phase

2.1 Documentation of the project's instructional, visual and technical design strategy

2.1.1 Learning objectives (what is expected of each unit)

Teachers will promote active quality living of disadvantaged groups through SELI by improving their knowledge about inclusion, quality of life and digital storytelling.

- Increasing awareness about active living learning area and quality of life framework,
- Increasing awareness about different ways of social exclusion(cultural, geographic, economic)
- Increasing awareness about inclusion,
- Increasing awareness about workshop based digital storytelling(listening, creating, sharing),
- Increasing awareness about civic and digital participation through digital storytelling,
- Experiencing digital storytelling through SELI

2.1.2 Pre-existing knowledge (amount of knowledge that the students will have to already know in order to complete the course)

- Basic knowledge of how to use a computer and access to the internet
- To have knowledge of developing educational programs for promoting physical activity
- Basic knowledge of working with multimedia resources(images, audio, video)

2.1.3 Materials (information to achieve the objectives)

Content Presentation: inclusion and active living materials will provide information to the students

- Presentation of İnclusion: Inclusive education guidelines for teachers who has foreign students in the classroom.
- Presentation of Individual Quality living and active living from curriculum
- Presentation of using digital storytelling tool of SELI

Exploration to acquire skills: it aims to make the student verify how much he understood the subjects presented so far.

- xx

Practical activities: planning and develop an educational game for the elderly. Tests and questions about the studied concepts.

- xx

Discussion and collaboration: the student should reflect on certain aspects and content presented in the course. The exchange of experiences between students and also between students and teachers is fundamental for the consolidation of learning.

Verification of acquired skills: allow a student to demonstrate the skill. The student will create a digital story with storytelling tool about the process of developing the game for the elderly.

2.1.4 Instructional Design Matrix

	Units	Objectives	Roles	Activities	Duration	Tools	Contents	Assessment

1	1	Increasing awareness about active living learning area and quality of life framework,	Teacher /tutor	Introduce the active living and individual quality of life.	1 hour	Content presentation with ppt and video; Video player	Introductory text about the state of art related to active living learning area and quality of life framework	-
2	2	Increasing awareness about different ways of social exclusion(cultural, geographic, economic)	Student	Group work; Group presentations.	1 hour	Text reading; Presentations	Text and vídeo to show information and samples	Question choice
3	3	Increasing awareness about inclusion,	Student /teacher	Analyze the inclusion guidelines for teachers http://egitimdebirliktesiz.org/CmsFiles/Materyaller/5/ogretmen_kilavuzu.pdf	1 hour	Text reading	Text about inclusion guidelines	Question choice
4	4	Increasing awareness about workshop based digital storytelling(listening,	Teacher	explain 6 phases of digital story telling and relevant research findings about it	1 hour	Presentations	Text about digital storytelling	Learnig synthesis

		creating, sharing),						
5	5	Increasing awareness about civic and digital participation through digital storytelling,	Students	Explain DST as a social movement and relevant research	1 hour	Presentations		
	6	Experiencing digital storytelling through SELI	Students		2 hour	Collaborative tool; Authoring tool; Video recorder	Practical Activity	

Units: a course may give one or more elementary units of the teaching / learning process

Objectives: what is expected of each unit

Roles: who does what (student or teacher/tutor) in order to achieve the objectives

Activities: what is done to achieve the objectives

Duration: workload

Tools: services used during learning and support activities

Contents: learning objects, URLs, external files

Assessment: mechanisms and criteria for verifying that the objectives have been met

2.2 Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

Memorization: Remember dimensions of individual quality of life

Comprehension: describe importance of promoting inclusion among different cultures in the classroom.

Analysis: relate inclusive education with individual quality of life

Synthesis / Creation: Creating a digital story related to inclusive education

2.2.2. Affective strategies

Raise awareness for importance of providing inclusive education for refugees

Share personal digital story about inclusion issues

2.2.3. Psychomotor strategies

Appendix C

Accessible Educational Materials for the Elderly

ADDIE MODEL INSTRUCTIONAL DESIGN

1. Analysis Phase

1.1 Who is the audience and their characteristics?

Teachers that teach to elderly people, preferably.

1.2 Identify the new behavioral outcome?

Teachers would be sensible to issues related to accessibility needs of elderly.

1.3 What types of learning constraints exist?

About the elderly, these people have constraints about memory, cognitive capabilities and sensitive and motor limitations.

About the teachers, these people could present some technical limitations about course creation. Then the authoring tool needs to be user-friendly.

1.4 What types of technology constraints exist?

Bad internet access, lack of computer of schools.

1.5 What are the delivery options?

This Course could be delivered both face-to-face and online.

1.6 What are the online pedagogical considerations?

Teachers that are not used to Distance Learning could prefer face-to-face delivery course.

1.7 What is the timeline for project completion?

3 weeks

2. Design Phase

2.1 Documentation of the project's instructional, visual and technical design strategy

2.1.1 Learning objectives (what is expected of each unit)

Students will be able to know the educational games pedagogy for the elderly; to study the cognitive and physical limitations of the elderly; to understand accessibility features aimed at educational games for the elderly; to develop an educational game for the elderly.

2.1.2 Pre-existing knowledge (amount of knowledge that the students will have to already know in order to complete the course)

Basic knowledge of how to use a computer and access the internet

Pre-acquired knowledge of developing educational games

2.1.3 Materials (information to achieve the objectives)

Content Presentation: materials that will provide the student with selected content for the class. Previously selected text readings, video lessons, and podcasts about concepts of educational games, cognitive and physical limitations of the elderly, accessibility guidelines for educational games specific for the elderly.

Exploration to acquire skills: it aims to make the student verify how much he understood the subjects presented so far.

Practical activities: planning and develop an educational game for the elderly. Tests and questions about the studied concepts.

Discussion and collaboration: the student should reflect on certain aspects and content presented in the course. The exchange of experiences between students and also between students and teachers is fundamental for the consolidation of learning.

Verification of acquired skills: allow a student to demonstrate the skill. The student will create a digital story with storytelling tool about the process of developing the game for the elderly.

2.1.4 Instructional Design Matrix

	Units	Objectives	Roles	Activities	Duration	Tools	Contents	Assessment
1	1	introduce the educational games pedagogy for elderly	Teacher/tutor	Introduce the subject		Content presentation with vídeo; Video player	Introductory text about the state of art related to educational games pedagogy for elderly	-
2	1	study the cognitive and physical limitations of the elderly	Student	Read the text; watch the video		Text reading; Vídeo player	Text and video to show information and samples	Question choice; tests

3	1	understand accessibility features aimed at educational games for the elderly	Student	Analyze the accessibility guidelines		Text reading	Text about accessibility guidelines	Question choice; tests
4	1	Put the acquired knowledge into practice	Student	develop an educational game for the elderly; make a video		Collaborative tool; Authoring tool; Video recorder	Practical Activity	Learning synthesis

Units: a course may give one or more elementary units of the teaching / learning process

Objectives: what is expected of each unit

Roles: who does what (student or teacher/tutor) in order to achieve the objectives

Activities: what is done to achieve the objectives

Duration: workload

Tools: services used during learning and support activities

Contents: learning objects, URLs, external files

Assessment: mechanisms and criteria for verifying that the objectives have been met

2.2 Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

Memorization: list accessibility guidelines for elderly.

Comprehension: describe the physical and cognitive limitations of the elderly.

Analysis: relate accessibility guidelines to the development of an educational game for the elderly.

Synthesis / Creation: developing an educational and accessible game for the elderly.

2.2.2. Affective strategies

Raise awareness of the importance of knowledge of the physical and cognitive limitations of the elderly when developing an educational game for them.

Share accessibility guidelines for the elderly.

2.2.3. Psychomotor strategies

Not applicable

Appendix D

Course on preventing and combating cyberbullying among children and youth

Course for teachers and students

1. Analysis Phase

1.1 Who is the audience and their characteristics?

Early school teachers, teachers in primary and secondary schools, educators.

1.2 Identify the new behavioral outcome?

Techers will have basic knowledge of the mechanisms of cyberbullying, they will know how to recognize a victim of cyberbullying and how to offer effective help. Teachers will also be more sensitive to addressing threats to children and young people.

1.3 What types of learning constraints exist?

Teachers may be overloaded with mandatory tasks and don't have time for e-learning courses. The e-learning course should enable them to become familiar with the subject in a flexible way.

Students should not have any restrictions on the implementation of the e-learning course.

1.4 What types of technology constraints exist?

Bad internet access.

1.5 What are the delivery options?

This course could be delivered online mainly for teachers, face-to-face and online for students.

1.6 What are the online pedagogical considerations?

Teachers that are not used to Distance Learning could prefer face-to-face delivery course.

1.7 What is the timeline for project completion?

2 weeks

2. Design Phase

2.1 Documentation of the project's instructional, visual and technical design strategy

2.1.1 Learning objectives (what is expected of each unit)

Students and teachers will have the opportunity to acquire basic knowledge about the threat of cyberbullying among children and youth. Students and teachers will be able to know the mechanisms of cyberbullying, and to recognize the victim of cyberbullying and effectively help him/ her.

2.1.2 Pre-existing knowledge (amount of knowledge that the students will have to already know in order to complete the course)

Basic knowledge of how to use a computer and access the Internet.

2.1.3 Materials (information to achieve the objectives)

Content Presentation: slides on which the main issues are presented. The material was divided into separate lessons, at first explaining what cyberbullying is, then moving on to the issues of how to recognize a victim of cyberbullying and concluding on the subject how to help effectively. The first lesson is preceded by short films in Polish and English. The data cited on the slides contains links to original scientific publications. Each lesson ends with a summary. In some lessons the student will be asked to complete a short task.

Exploration to acquire skills: it's aimed to make the students verify how much they understood the subjects presented so far.

Practical activities: planning educational work with children and young people at school to prevent cyberbullying.

Discussion and collaboration: the student should reflect on certain aspects and content presented in the course. The exchange of experiences between students and teachers is fundamental for the consolidation of learning.

Verification of acquired skills: allow a student to demonstrate the skill. The student will know the basic steps to take in the event of cyberbullying at school.

2.1.4 Instructional Design Matrix

Units	Objectives	Roles	Activities	Duration	Tools	Contents	Assessment
1	Introduce the problem of cyberbullying among children and youth	Teacher/ tutor/ student	Introduce the subject, read the text on slides		Slides, short films	Introductory text about the characteristic of cyberbullying	-
2	Where does the cyberbullying come from?	Student	Read the text on slides		Text reading	The text presents psychological and social mechanism that may be the cause of cyberbullying	-

3	Understanding the effects of cyberbullying among children and youth	Student	Text analysis, charts, diagrams		Text reading	Text about emotional effects, mental health disorders, self-esteem effects	Summary task
4	Shows the characteristics of a victim of cyberbullying	Student	Text analysis, analysis data of scientific research		Text reading	Text presents types of electronic aggression	Summary
5	Shows who is the perpetrator of cyberbullying	Student	Text analysis, diagrams and data of scientific research		Text reading	Text presents the characteristic of the perpetrator of cyberbullying	Summary
6	Shows how to recognize cyberbullying	Student	Text analysis, data of scientific research		Text reading	Texts presents basic symptoms of cyberbullying	Summary task
7	Shows how to help a victim of cyberbullying	Student	Text analysis, best known cyberbullying prevention programs		Text reading	The lesson deals with the support of cyberbullying victims by school teachers and educators	Summary task

8a	Understanding the counteracting cyberbullying; prevention	Student	Text analysis		Text reading	The lessons show what is the cyberbullying prevention and how to prevent of cyberbullying among children and youth	Summary task
9b	Understanding the counteracting cyberbullying; victim support	Student	Text analysis		Text reading	The lesson shows how to support a victim of cyberbullying	Summary task
10c	Understanding the counteracting cyberbullying; witnesses behavior	Student	Text analysis, data of scientific research		Text reading	This lesson show how to a cyberbullying witness should behave and what actions teachers should take towards a witness	Summary

Units: a course may give one or more elementary units of the teaching / learning process

Objectives: what is expected of each unit

Roles: who does what (student or teacher/tutor) in order to achieve the objectives

Activities: what is done to achieve the objectives

Duration: workload

Tools: services used during learning and support activities

Contents: learning objects, URLs, external files

Assessment: mechanisms and criteria for verifying that the objectives have been met

2.2 Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

Memorization: the student will remember the main steps in dealing with a victim of cyberbullying. The student will know the procedure for reporting cyberbullying.

Comprehension: cyberbullying mechanisms and the importance of counteracting this type of violence.

Analysis: link the acquired knowledge to experiences of online violence encountered at school.

Synthesis/ Creation: planning educational activities aimed at preventing cyberbullying.

2.2.2. Affective strategies

Raise awareness of the dangers of cyberbullying among children and young people. Showing the way to proceed in the event of diagnosing cyberbullying at school.

2.2.3. Psychomotor strategies

Not applicable.

Smart Ecosystem for Learning and Inclusion

Appendix E

Teaching EFL with inclusive digital tools

ADDIE MODEL INSTRUCTIONAL DESIGN

workshop dates:

Montevideo: February 12 at 2:00 pm

Melo: February 14 at 2:00 pm

Rivera: February 17 at 2:00

It is the same workshop repeated three times.

Workshop leaders:	Lukasz, Mariana and Maria
Analysis Phase In the analysis phase, instructional problem is clarified, the instructional goals and objectives are established and the learning environment and learner's existing knowledge and skills are identified.	
audience and their characteristics	teachers of English of all levels and systems, private and public education. Students of teacher training courses Teachers in general who are able to follow a workshop in English
new behavioral outcomes	Familiarizing with the SELI perspectives on educational inclusion with digital tools Using DST in your class\es, integrated to your class plan to meet learning objectives

	Understanding the notion of easy reading as one of the important topics within accessibility. Analyzing educational resources from the point of view of accessibility
possible learning constraints	availability of devices to be used at the moment in the face to face instance. large size of the group in Montevideo diversity of backgrounds and levels of digital literacy
delivery options	face to face 4 hour workshop
online pedagogical considerations	the SELI platform will be used
timeline for workshop completion	face to face: 4 hours online: 16 hours

Design Phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection. The design phase should be systematic and specific. Systematic means a logical, orderly method of identifying, developing and evaluating a set of planned strategies targeted for attaining the project's goals. Specific means each element of the instructional design plan needs to be executed with attention to details.

educational principles applied	Make learning meaningful Encourage active learning and learning by doing

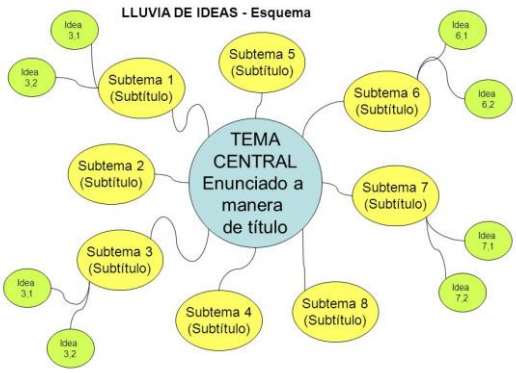
	Foster collaborative work Respect diversity Raise awareness about inclusion issues
instructional design strategy	spiral approach to the concept of inclusion and its application to teaching EFL with digital tools 1. first the concept of inclusion is discussed, focusing on the diversity of the issue of inclusion throughout the different countries that participate in the project. 2. Inclusion is addressed related to EFL teaching 3. Inclusion is addressed through inclusive tools to be used in a language class 4. Inclusion is addressed through SELI platform tools storytelling. 5. Inclusion is addressed as connected to accessibility and easy reading
resources used in 4 hour- face to face workshop	visitors participation presentations with powerpoint SELI platform on display other educational resources provided by teachers
resources used in the two week online follow up	SELI platform
online environment/platform used	SELI, Acessible Moodle
techniques and activities	brainstorming group work discussions storytelling: creating a storyline storytelling: using a platform to create a story modelling applying a model of easy reading to analyzing resources both online and print

Objectives:

Familiarize with the notion of inclusive education and inclusive digital tools

Experience the use of digital tools aiming at inclusion

Develop educational resources and class activities introducing inclusive digital tools

Warm up: Introducing each other to break the ice with an activity a)Get in pairs and communicate to your partner something about yourself (anything!) without speaking. You can draw, mimic, make noises, etc. b) what have you learned about your partner.	**10 minutes**
Briefly introduce the project and the workshop objectives, together with foreign participants (Solomon or Lukasz)	**15 minutes**
1. Brainstorming: 1. What are some of the many ways in which you think a person can be excluded from education? 2. How can the learning of English work as a tool for inclusion? Volunteer creates a brain pattern to answer the second question (lluvia de ideas) on the whiteboard with ideas from participants (very brief, 3 minutes)  	**10 minutes**

2. Brief presentation on the topic of exclusion/inclusion and the perspectives of the SELI project (20 minutes) Count on the participation of specialists from the SELI project who are present: Lukasz: clarifies the many forms of inclusion taken into account in SELI. Also refer to some ways inclusion needs to be addressed in Europe and compare to the case of our country. And what other cases?	**15 to 20 minutes**
3. The SELI platform: Show	
3. Activity: using storytelling: Create a story of inclusion you have witnessed, been part of or somehow participated in. show model. Workshop moderator shares her digital story https://docs.google.com/document/d/11ZEludlhJ_cxehTifLmxG_hxBXtBhoDn1QNGLiXUhAM/edit a) Give them 30 minutes to draft a story. Emphasize that authentic stories might be easier to develop b) write a brief text of moments in the story c) take notes of the images you would include in it d) share your story in the group	**30 minutes**
4. Show how to create the story in the SELI platform, follow through step by step giving participants time to develop their own. Develop the story in the SELI platform, careful step by step process Share two or three stories or beginnings of stories they have created 20 minutos	**30 minutes**
6) Debriefing of activity as a tool for English teaching (30) **3 topics:** **storytelling as a tool to teach English**	**15 minutes**

storytelling as an inclusive tool from different perspectives **storytelling in SELI platform: what is inclusive about it?** ● Comments and discussion (20''). ● https://docs.google.com/presentation/d/1p5hsqP_mCQNxMr56e3GxSYTFOmmiMw7gw31q53U95ZA/edit#slide=id.g6eb237376c_0_0 ● Brief reflective writing; Summarize 3 new perspectives, aspectos, issues you have come to learn or realize with this activity (optional) ● Share your reflection with the group	
COFFE BREAK 15 minutes	
7) Digital accessibility and accessibility of educational resources general concepts Focus on easy reading: brief presentation delivered by Maria **Maria** shows models and samples	**20 minutes**
8) Group activity applying principles of universal design to reading, (easy reading) a)Teachers work in groups of 4. Each group gets a page of the guidelines an discusses its content following the instructions. Ex. Observe this software created to make presentations. Does it follow these guidelines? Why or why not? Support Share your conclusions with the rest of the group	**20 minutes**
9) Share with the group and get feedback from the rest and from Maria	**10 minutes**

10) Clarify the workshop follow up in the two weeks that they will be working online **Give instructions for activities proposed online in SELI.** Explain to participants that the main objective of the 2 week course will be to develop a unit to be taught using the SELI platform. The second objective will be to develop a resource that intends to be inclusive in a way you specify. 1. Show course online and explain how to create a username 2. Go through proposed activities and resources available in the website 3. Explain the testing objective	**10 minutes**
workshop evaluation **deliver handouts.**	**10**

2.2 Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

2.2.2. Affective strategies

2.2.3. Psychomotor strategies

Smart Ecosystem for Learning and Inclusion

Appendix F

Aula Invertida con la Herramienta H5P

Inverted Classroom with the H5P Tool

ADDIE MODEL INSTRUCTIONAL DESIGN

1. Analysis Phase

1.1 Who is the audience and their characteristics?

Teachers who attend students with hearing impairment,

1.2 Identify the new behavioral outcome?

Teachers will appreciate the importance of accessibility and inclusion of people with hearing impairment

1.3 What types of learning constraints exist?

There are no sign translators and specialized equipment for the deaf.

1.4 What types of technology constraints exist?

Microphones and speakers

1.5 What are the delivery options?

Online course

1.6 What are the online pedagogical considerations

That is constructivist, accessible, didactic, interactive and allows to register the process of the students.

1.7 What is the timeline for project completion?

3 weeks

2. Design Phase

2.1 Documentation of the project's instructional, visual and technical design strategy

2.1.1 Learning objectives (what is expected of each unit)

Unit. 1.-Advice to teachers in the phases of the instructional design model for the preparation of academic content.

Unit. 2 .- Provide teachers with the inverted classroom model as a strategy for the learner

Unit. 3 .- Boost interactive videos as a learning tool in H5P.

2.1.2 Pre-existing knowledge (amount of knowledge that the students will have to already know in order to complete the course)

Basic knowledge of how to use a computer and access the internet

2.1.3 Materials (information to achieve the objectives)

Instructional material, interactive videos on H5P, Projector, Seli Platform

2.1.4 Instructional Design Matrix

	Units	Objectives	Roles	Activities	Duration	Tools	Contents	Assessment
1	1	Advice to teachers in the phases of the instructional design model for the preparation of academic content.	Teacher/tutor Student	Through an exhibition and demonstration the teacher explains the contents, and uses the brainstorm for students to socialize the contents.	1Hrs	Computer, internet access, Projector	Introduction to instructional design, constructive alignment, program contents and evaluation	Co-evaluation and self-evaluation will be carried out in Kahoot, to validate the acquisition of the developed contents.

	2	Provide teachers with the inverted classroom model as a startegy for the learner	Teacher/tutor Student	Through an exhibition and demonstration the teacher explains the contents, and uses the brainstorm for students to socialize the contents.	1Hs	Computer, internet access, Projector	Conceptualization of Inverted Classroom, model approach	Question choice; tests
	3	Boost interactive videos as a learning tool in H5P.	Teacher/tutor	Through an exhibition and demonstration the teacher explains the contents, socialize the contents. Students will work with the H5P tool, and make an	1: 30 Hrs	Computer, internet access, Projector	Conceptualization of Interactive Video and H5P, Iconography of H5P, Demonstration of Interactive video functions of H5P	Eleaboration of an intractive video.

			Student	interactiv e video.				

2.2 Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).

2.2.1 Cognitive strategies

Memorization: Identify the phases of the Instructional desing, the stages of the inverted classroom model and the steps for the elaboration of interactive videos in H5P.

Comprehension: Demonstrate practically studying them by elaboration an instructional design, structuring a class under the inverted class model and properly designing an interactive video

Analysis: How it influences the development of projected content.

2.2.2. Affective strategies

Tony Melendez video to raise public awareness

2.2.3. Psychomotor strategies

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