TUNED

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Guidebook
Date and place

EADTU

Cyprus University of Technology

C2 GROUP

UNIVERSITY OF OULU

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EXECUTIVE SUMMARY

The TUNED project presents a transformative approach to addressing the challenges and opportunities posed by digital and blended learning in higher education, particularly in the context of the COVID-19 pandemic and its aftermath. By integrating cutting-edge pedagogical strategies such as Self-Regulated Learning (SRL) and Socially Shared Regulation of Learning (SSRL), the initiative empowers educators to create dynamic, student-centered learning environments that enhance motivation, collaboration, and lifelong learning skills.

Core Objectives and Methodology

The TUNED approach revolves around equipping educators with the knowledge and tools to facilitate SRL and SSRL, thereby enabling students to actively manage their learning processes. The methodology is deeply rooted in evidence-based practices and collaborative design, ensuring the approach is both innovative and practical.

The project's development unfolded in three interconnected phases:

Framework Development:

A robust theoretical and methodological foundation was established, articulated through a detailed guidebook. This guidebook offers actionable insights and tools to help educators integrate SRL and SSRL principles into their teaching practices, fostering adaptive and effective learning experiences.

Creation of Innovative Tools:

The **Massive Open Online Course (MOOC)** delivers comprehensive training in SRL and SSRL strategies, blending theoretical foundations with hands-on activities and real-world applications. Modules cover critical topics such as motivation, scaffolding, gamification, and digital tools for monitoring and assessing student learning.

The **Serious Game**, designed as an Alternate Reality Game (ARG), immerses educators in simulated teaching scenarios, allowing them to refine their skills in engaging and managing students while navigating challenges in both virtual and physical classrooms.

Testing and Dissemination: The tools were validated through rigorous small- and large-scale trials across multiple countries, involving diverse groups of educators, researchers, and PhD candidates. Feedback from participants highlighted the tools' effectiveness, usability, and adaptability while identifying areas for further improvement.

Key Findings and Impact

The trials demonstrated the success of the TUNED approach in improving educators' competencies in SRL and SSRL. Participants reported enhanced confidence in teaching methods, particularly in goal-setting, time management, and fostering student engagement. The MOOC's structured and modular design was well-received, while the Serious Game's interactive elements provided a valuable platform for experiential learning.

The large-scale trials, which involved over 300 educators, revealed overwhelmingly positive feedback, with participants praising the tools for their relevance, practicality, and ability to transform teaching practices. Recommendations included diversifying content, enhancing interactivity, and refining technical features to further improve accessibility and user experience.

Broader Implications and Recommendations

The TUNED approach is designed to be scalable and replicable across diverse educational contexts. The framework and tools cater to multiple target groups, including academic staff, instructional designers, teachers (pre-service, in-service, and in training), teacher educators, and researchers.

Recommendations for each group include:

Academic Staff: Incorporate SRL and SSRL strategies into teaching practices, supported by the MOOC and Serious Game for continuous skill development.

MOOC Designers: Focus on modular, user-friendly content that integrates interactive and collaborative elements, ensuring scalability and engagement.

Teachers: Leverage the tools to create inclusive, adaptive classrooms that promote active learning and self-regulation.

Teacher Educators: Embed TUNED principles into training programs, fostering the next generation of educators equipped for digital and blended learning environments.

Researchers: Advance the theoretical underpinnings of SRL and SSRL while contributing to the refinement and dissemination of the TUNED framework.

Scalability, Inclusion, and Sustainability

The TUNED project prioritizes inclusivity, diversity, and accessibility. All tools are freely available in multiple languages, ensuring broad reach and applicability. The design emphasizes inclusivity through features like speech synthesizers in the Serious Game and the use of gender-neutral, culturally sensitive language throughout the materials.

To maximize its impact, the TUNED framework incorporates strategies for lifelong learning through micro-credentialing, aligning with European standards to ensure portability and recognition across institutions. The cascading nature of the approach ensures its principles extend beyond the immediate target groups, creating a ripple effect that benefits educators, students, and institutions globally.

The TUNED project set a new benchmark for teacher training in the digital age, blending theoretical rigor with practical tools that empower educators to thrive in blended and online learning environments. By addressing the immediate challenges of digital education while laying the groundwork for long-term transformation, the project offered a sustainable, scalable model for fostering innovation and excellence in higher education. These guidelines provide a roadmap for adoption and replication, ensuring the TUNED approach continues to inspire and shape the future of teaching and learning.

TUNED PROJECT: AN OVERVIEW

The **TUNED approach** emerged as a thoughtful and innovative response to the evolving needs of higher education in the wake of the COVID-19 pandemic, which dramatically reshaped traditional teaching and learning practices. Designed to empower educators in navigating blended and online learning environments, TUNED focuses on developing critical competencies in self-regulated learning (SRL) and collaborative teaching. These pedagogical strategies aim to ensure that educators are not only proficient in digital teaching methodologies but also equipped to motivate and engage students effectively in these formats.

The heart of the TUNED approach lies in the integration of **self-regulated learning (SRL)** and **socially shared regulation of learning (SSRL)** as core pedagogical constructs. Self-regulated learning refers to a learner's mental process in which they set goals and plan strategically, monitor progress and control behaviours, and evaluate the learning experience and outcomes. SSRL extends this concept into collaborative spaces, where groups collectively manage their learning processes. TUNED applies these theories to train educators to create dynamic, adaptive, and student-centered learning environments. The project posits that when educators are attuned to these principles, they can effectively guide students through the complexities of learning in blended and digital settings.

The pedagogical strategy unfolds during the project lifetime, across several meticulously planned phases. In the **first phase**, the focus was on establishing a solid theoretical and methodological foundation. A pedagogical framework is developed, serving as a guide for educators to understand and implement SRL and SSRL in their teaching. This framework is complemented by a comprehensive handbook that offers practical tools, strategies, and insights. The handbook is specifically designed for higher education instructors, enabling them to manage online and blended courses with confidence and creativity.

The **second phase** of the TUNED project is where innovation truly took shape. At this stage, the team conceptualised a **Massive Open Online Course (MOOC)** and an integrated **serious game**. The MOOC serves as a cornerstone of the training, offering modules led by experts in SRL, collaborative learning, and motivation in teaching. It also includes contributions from educators who share best practices and examples of innovative teaching methods. This peer-to-peer aspect enriches the learning experience, fostering a sense of collaboration and shared purpose among participants.

What sets the TUNED MOOC apart is its practical orientation. Beyond theoretical lessons, it incorporates activities that simulate real-world challenges educators face in online teaching. The serious game, an integral part of the MOOC, uses **Alternate Reality Game (ARG) methodologies** to create immersive, hands-on scenarios. Educators are placed in lifelike teaching situations where they must apply SRL principles and experiment with motivational strategies. These simulations provide a safe space for experimentation, allowing educators to refine their approaches without the fear of real-world consequences. The game also fosters creativity and problem-solving skills, essential for navigating the unpredictable dynamics of virtual classrooms.

The **third and final phase** was devoted to testing, evaluating, and disseminating. The TUNED approach is validated through small-scale and large-scale trials involving educators from diverse contexts. These trials assess the usability, effectiveness, and impact of the MOOC and the serious game. Feedback from participants is meticulously analyzed to refine the program, ensuring its adaptability and relevance to a wide range of higher education institutions. The outcomes are then compiled into a detailed set of **guidelines**, providing a roadmap for other institutions to adopt and replicate the TUNED model.

Throughout its implementation, the TUNED project prioritizes the **well-being of educators**. Recognizing the stress and challenges that come with adapting to digital teaching, the program incorporates strategies to enhance teachers' resilience, psychological readiness, and technological confidence. By addressing these aspects, TUNED ensures that educators are not only skilled but also mentally and emotionally prepared to thrive in blended and online teaching environments.

A critical element of the TUNED approach is its commitment to **lifelong learning**. Participants receive **micro-credentials** upon completing the program, offering formal recognition of their new skills. These credentials are aligned with the European framework, ensuring they are widely recognized and portable across institutions and borders. This recognition not only validates the efforts of educators but also incentivizes ongoing professional development.

The TUNED initiative was designed to have a cascading impact. Initially targeting academic staff such as professors, lecturers, and teacher trainers, it ultimately benefits a much wider audience. Educators trained in TUNED principles bring their skills to their classrooms, enriching the learning experiences of students. Moreover, as institutions adopt the TUNED

model, its principles and practices spread, creating a ripple effect that transforms teaching and learning across disciplines and regions.

In summary, the TUNED approach offers detailed and adaptable guidelines for diverse audiences, ensuring its principles can be effectively replicated and scaled. By addressing the specific needs of academic staff, instructional designers, teachers, teacher educators, and researchers, TUNED fosters a collaborative and sustainable model for transforming teaching and learning in higher education. This narrative demonstrates not only the practical application of the framework but also its potential for driving long-term educational innovation.

More specifically the TUNED project aimed at addressing the immediate challenges of digital and blended learning while laying the groundwork for long-term transformation in higher education. By blending theoretical rigor with practical application, it equips educators to lead in a rapidly changing educational landscape. The integration of SRL, SSRL, and innovative digital tools ensures that TUNED not only meets the current demands of higher education but also prepares it for future challenges. This comprehensive, collaborative, and adaptive approach sets a new benchmark for teacher training in the digital age.

These guidelines are meant for the following target groups and beyond: academic staff; MOOC- instructional designer; teachers (in training; pre service and in service); teacher's educators and researchers.

Hoverver before derive precious recommendations for each of the group targeted in this project, these guidelines will provide:

1. a short summary of the SRL and key elements that are further developed in our previous report;
2. this is followed by a presentation of the TUNED MOOC and Serious Games;
3. Finally key findings of the large scale trials are presented.

On the basis of the work done the last session of these guidelines present recommendations for Academic Staff; MOOC Instructional Designers; Teachers; Teachers' Educators and researchers.

AN EXPLORATION OF SELF-REGULATED LEARNING (SRL), ITS SIGNIFICANCE, AND THE CONCEPT OF LEARNING AS AN ACTIVE PROCESS.

Self-regulated learning (SRL)is an essential skill for students in both academic settings and the modern workforce. SRL involves learners actively setting goals, planning strategies, and monitoring their progress, including their cognition, motivation, emotions, and behaviour. These competencies enhance not only content acquisition but also engage students in deep learning by fostering purposeful and goal-oriented participation, thus promoting lifelong learning skills, which are particularly important a rapidly changing world.

Similarly, digital competence has emerged as a critical skill for students, and COVID-19 pandemic has accelerated the shift towards online and blended learning environments, highlighting the need for SRL skills in digital settings. Adaptive, personalized learning approaches are increasingly valuable, and SRL plays a crucial role in helping students successfully navigate such flexible, technology-enhanced educational environments.

Accordingly, educational landscapes have become more collaborative, diverse, and technologically enhanced. In this context, students are no longer passive recipients of knowledge but active agents who co-create learning experiences and cultivate transversal competencies with peers from diverse backgrounds. To support these evolving educational paradigms, educators must be equipped with the skills to integrate digital tools effectively in teaching and learning as well as to teach students how to learn effectively by emphasizing the role of self-regulation.

In response to these challenges, the TUNED project seeks to empower educators by introducing evidence-based strategies for supporting students' SRL in digital learning environments. The project's framework draws on pedagogical approaches from learning science, including SRL and scaffolding, to enhance students' ability to regulate their learning. The project deliverables offer practical insights and strategies for educators, particularly in higher education, to improve students' SRL skills in online and blended learning contexts. Ultimately, the goal is to improve both teaching and learning experiences, preparing students to thrive in a digitally enriched and ever-changing world.

TUNED MOOC AND SERIOUS GAME

Starting from the 2020 COVID-19 pandemic the entire world faced new challenges, not only related to health and psycho-physical wellbeing but also related to new methodologies to approach the world itself in different fields, such as work, commerce, relationships, and, among the various, education. All the new challenges had one point in common: technology; thanks to it, all of us had the chance to live quite in a normal way, but we also had the opportunity to discover new ways of working and teaching, in general, new ways to approach life duties aided by technology, in fact most of these new approaches are still used, for example, home working or distance learning.

The co-funded by the European Union TUNED project focuses on this last point, it aims to improve the knowledge and skills of educators, teachers, professors, and experts by applying an innovative pedagogical approach: self-regulated learning. To reach this goal the TUNED partnership developed three tools to enhance self-regulated learning awareness among in-service, pre-service, and support teachers, or social workers, or, more, among students and education experts. The tools we are referring to are:

- Guidebook
- MOOC
- Serious Game

A lot has already been said in the previous chapters about what self-regulated learning is, how it is applied, its role in knowledge construction and about its importance. In this section of the guidelines, we want to focus on two of the three tools developed to spread awareness and knowledge about this methodology.

The first one is the MOOC: the acronym MOOC stands for Massive Online Open Courses. As the acronym itself suggests it refers to a course provided on an online platform that can be seen in an asynchronous way for free by a very wide audience. As far as the TUNED project is concerned, the partnership provided a MOOC for all the ones interested in SRL on the EduOpen platform, in depth, it aims to provide a strong understanding of self-regulated learning and motivation strategies that can be implemented, not only but above all, in distance learning environments. The course covers theoretical foundations, practical

techniques, and best practices for fostering students' engagement, motivation, and self-regulation. The course's subjects and topics have been divided among the project partners according to their own expertise. It is structured as follows: it is divided into six lessons, and each of them is composed of three units.

1. Lesson 1: The "why" of Self-Regulated Learning
    a. What is Self-Regulated Learning?
    b. Motivation and Self-Regulated Learning
    c. Regulation in collaborative learning
2. Lesson 2: Scaffolding Self-Regulated Learning
    a. Theoretical foundations of scaffolding
    b. Forms of scaffolding SRL
    c. SRL-specific instructional competencies for teachers
3. Lesson 3: 5E Instructional Model
    a. 5E Instructional Model
    b. Gee's principles
    c. Application of the 5E model
4. Lesson 4: Gamification opportunities and risks
    a. Gamification
    b. Problematic use of Internet
    c. Distance Teaching/Learning platforms
5. Lesson 5: Supporting and Assessing students' online and blended learning processes
    a. MOOC and distance learning methods
    b. Monitoring and assessing students' learning processes
    c. Useful digital tools for monitoring and assessing students' learning processes

6. Lesson 6: Game for teaching SRL

    a. Video Games and Serious Games

    b. How to implement gamification tools in distance learning: Google Classroom

    c. How to use TUNED Serious Game

Following the MOOC's lessons it is possible to learn about: the definition of SRL, the phases of regulation and the target for regulation, namely cognition, motivation, emotions, and behaviour; then it is analysed the role of motivation in SRL and how the regulation of learning in collaborative learning works. Then, the theoretical foundations of scaffolding self-regulated learning, namely metacognitive thinking, self-scaffolding, and how the motivation works and affects the scaffolding SRL, then there is an analysis of the different types of scaffolding SRL, how works the assessment in the field of SRL, and at the end of the chapter there are three important paragraphs: need for SRL-specific instructional competencies for teachers; Scaffolding in Computer-Based Learning Environments (CBLEs); and Scaffolding SRL through the 5E instructional model, with an explanation on the 5E model and its application. It is also possible to learn how to support students' distance learning through monitoring and assessment (different ways and strategies), and then there is an explanation about several useful digital tools supporting teachers in monitoring students' learning processes. In addition, how MOOCs and OERs can support continuous and inclusive learning, explaining what they are and analysing two case studies (DigiTeL Pro and Blue Arrow), then, there is an explanation of the potential of MOOCs and games in teaching practices, in order to support students' motivation, with a focus on the difference between video games and serious games.

The last unit of the last lesson, namely Lesson 6 – Unit 3: How to use TUNED Serious Game, ends with the Serious Game developed for the TUNED project in order to practice the just acquired theoretical knowledge through specific simulations.

Therefore, we are going to describe the last tool mentioned: the Serious Game. What is the difference between a video game and a serious game? Through a video game, a player is able to play a story in first person, taking the role of the protagonist of the game, and the purpose is to carry out all the tasks of the game for pure entertainment. The market for video games is growing rapidly, but why? The most important factors of this market growth are the increased involvement of companies in using serious games in management and training procedures, as well as the exponential growth in the use of mobile devices for educational

games and learning purposes. So, what are Serious Games? They are all games designed for a purpose other than pure entertainment. These kinds of games have educational/training elements. Regarding its pedagogical aspects, a Serious Game finds its theoretical foundation in constructivist learning theories, according to which knowledge is created through experience while exploring the world and performing activities in the game. In fact, virtual and real experiences are characterised by the acquisition of information, favouring behavioural changes through a learning-by-doing approach. According to what a serious game is, it is possible to say that all these elements make learning an interesting and engaging experience that increases the motivation and willingness of users to complete their training path.

Considering the TUNED project dimension, it is important to answer the question: Why is a Serious game necessary? After teachers attend the MOOC, we can assume they have all the theoretical knowledge about self-regulated learning, the Tuned Serious Game is the last part of the MOOC, thanks to it they can train themselves and apply the theoretical knowledge they have just acquired in real-like simulations. The game consists of ten scenarios related to virtual and face-to-face classrooms that cover from primary school to adult education.

Thanks to the game, the teacher can wear students' shoes and learn how to manage a classroom, achieving all the goals they planned for their students, maintaining a positive mood while reaching a good level of engagement and effort. In other words, the game has been developed from teachers' point of view.

Playing the game, in order to win it, teachers have to improve the 4 fundamental parameters:

1. Engagement: how students are actively engaged during the lessons or carrying out tasks.
2. Emotion: improving a positive mood.
3. Learning goal: finding the right way to achieve your goals during the learning path.
4. Effort: the effort required by students, in order to achieve goals.

According to this view, when opening the game application, the first thing to do is select a game scenario between the proposed ones; then, it will appear the context description, and on the same page players have to select the difficulty: easy, medium or hard. The most important difference between the levels is about the starting points, in other words, the game's goal is to win it by maintaining your score over 0, so selecting "easy" there are more starting points than selecting "medium" or "hard". After this first choice, another page appears, in which the game's goal is explained: "Don't drop the dimensions level below 0",

the dimensions are the four ones previously explained; each one has its starting points. Then, there is the context description, three possible answers appear on the screen, and players have to choose one according to the dimension they need or want to implement; it's important to underline that there are no right or wrong answers, all depends on what players need or want to improve. Each answer will increase or decrease the dimensions' points.

The three tools were designed to meet the diverse users' needs. In order to achieve this goal, we not only used our partners' expertise in the field of self-regulated learning and teaching but we also involved the different types of users we want to reach through these tools. In other words, the TUNED project proceeded to these tools' creation through co-design methodology, testing and validation.

The co-design methodology was used to create the Serious Game scenarios: for this aspect, the target group of the project becomes fundamental, namely teachers. We created a template in which to collect all the categories for the scenarios' creation, namely the names, the descriptions, and the answers. After the co-creation, our team of experts adjusted or approved the scenarios and implemented them in the game itself.

A similar process occurred for the validation of our MOOC: representatives for each partner company proceeded to record brief video lessons, collect materials for self-study, and create tests at the end of each module. After this first stage, we decided to involve different users to test and validate our MOOC through two kinds of trials before releasing it to the wide public: small-scale trials and large-scale trials, they are discussed in the dedicated section of these guidelines.

The three tools were designed to be the more effective, user-friendly and inclusive as possible. This means that all three of them are free (it is possible to download the Guidebook from the TUNED project website; the MOOC is for free on the EduOpen platform; and it is possible to download the Serious Game from Google Play or Play Store), in multiple languages (first of all in English, in order to reach a wider public, then they have been translated into the consortium's languages, namely Italian, Finnish, Greek and Dutch), and inclusive. The language used to create, write and translate the tools is an inclusive one, with respect for all genders, impairments, and ethnical and religious differences; the same principle was used in choosing the Serious Game background images.

According to the inclusiveness criteria, we included a speech synthesizer in the Serious Game, in order to make it accessible to those who have visual impairments.

The MOOC and the Serious Game were thought to be really easy to use: The EduOpen platform programmed all the steps necessary to end the course, and the Serious Game follows programmed steps that guide players through all the game's scenarios until the very end of the game.

- Methodology of tool development:
- A collaborative approach involving various stakeholders (students, gamers) to ensure pathways meet diverse needs.
- Co-design methodology, testing, and validation.
- Practical application in multiple languages, emphasizing diversity and inclusion.
- User-friendly format: accessible, educational, and engaging. Consideration of workload and inclusivity in the design of the SR tool.
- Recognition of technology's role in intelligent human learning and its potential to enhance learning outcomes

SUMMARY OF KEY FINDINGS FROM THE TRIAL

The TUNED project, aiming to assess the acceptance, the usability, and effectiveness of the MOOC and the serious game, conducted trials as follows: small-scale trials, follow-up evaluations, and large-scale trials. These trials have focused on usability, content quality, the tools' overall effectiveness, and their general acceptance from potential future users. The trials, conducted with diverse participant groups including educators, researchers, and PhD candidates, sought to assess how well the tools promote SRL concepts, identify areas for improvement, and ensure their relevance across varied educational contexts.

The small-scale trials, conducted in Cyprus with seven participants, revealed that the MOOC offers clear and comprehensive content, though participants recommended a series of revisions to enhance even more the effectiveness of the course. Navigation was intuitive, but several issues regarding the structure and usability of the platform were noted and taken into account. The serious game stood out for its engaging scenarios and personalized feedback, though participants expressed a need for tutorials, enhanced graphics, and continuous progress-tracking features to improve usability and engagement. In follow-up evaluations, participants from all the participating countries, praised the MOOC's structured learning experience and diverse resources, though technical issues like broken links and long video durations were noted as challenges. Meanwhile, the serious game reinforced SRL concepts effectively, offering real-life scenarios that supported critical decision-making and immediate feedback.

Overall, the trials demonstrated the tools' potential to enhance SRL skills while highlighting specific areas for refinement. Participants reported improved confidence in techniques like goal-setting, time management, and self-reflection. The MOOC's modular design and the serious game's interactive elements were well-received, emphasizing their relevance to SRL. However, structural adjustments to the MOOC and visual enhancements to the serious game will further strengthen their impact and accessibility.

The large-scale trials, which included 315 in-service teachers from Italy, demonstrate strong acceptance and positive feedback for both the MOOC and the Serious Game, with average scores for overall impression, ease of use, usefulness, and recommendation likelihood exceeding 4.5. Participants appreciated both tools equally, reflecting their complementary

nature and cohesive design. Open-ended responses highlighted the engaging and interactive qualities of the tools, which enhanced learning and motivation. Additionally, participants provided suggestions for improvement, such as diversifying content and increasing interactivity, pointing to areas for further development. Overall, the tools were well-received, indicating their potential for significant educational impact.

RECOMMENDATIONS

How to replicate the TUNED approach

The **TUNED approach** provides a robust and adaptable framework that ensures its principles can be replicated and scaled across different educational contexts. These guidelines are tailored to various key audiences: academic staff, MOOC instructional designers, teachers at different stages of their careers, teacher educators, and researchers. They also extend beyond these groups, offering pathways for broader adoption of the model. Below is a detailed narrative of how these target groups and others can implement and benefit from the TUNED approach.

Academic Staff: Transforming Teaching Practices

For professors, lecturers, and PhD students, the TUNED approach provides a comprehensive framework to revitalize teaching in higher education. The foundation lies in the application of **self-regulated learning (SRL)** and **socially shared regulation of learning (SSRL)**. These principles empower educators to create environments that encourage students to take control of their learning while fostering collaboration and peer engagement.

Academic staff are introduced to these principles through the **TUNED MOOC** and the **serious game**, which provide hands-on opportunities to experiment with new teaching methodologies. For example, the MOOC includes modules on designing blended courses that integrate SRL strategies, such as helping students set their own learning goals and monitor their progress. The serious game, an immersive role-play tool, allows educators to simulate real-world teaching challenges, such as managing a virtual classroom or addressing students' motivational barriers.

These tools are not only instructional but also reflective, encouraging educators to evaluate their teaching practices regularly. Through this process, educators refine their approaches, making their teaching more student-centered and impactful. The **micro-credentialing system** further supports academic staff by recognizing their efforts and providing them with tangible proof of their professional growth. This recognition can be instrumental in career development, as it aligns with European frameworks for validating digital and lifelong learning achievements.

MOOC Instructional Designers: Building Scalable and Engaging Tools

Instructional designers play a pivotal role in ensuring the TUNED approach is accessible and impactful. The MOOC, as a central component of the initiative, must be both theoretically robust and practically engaging. Designers are tasked with creating a platform that aligns with the TUNED framework while being user-friendly and scalable.

The MOOC's structure incorporates **expert-led lessons**, case studies, and participant-generated content. Instructional designers are encouraged to create a modular format that allows flexibility for learners to focus on topics most relevant to their contexts. The inclusion of the **serious game** within the MOOC is particularly innovative. By embedding **Alternate Reality Game (ARG)** methodologies, the game creates scenarios where participants must solve problems or navigate teaching challenges based on SRL and SSRL principles. For example, a professor might have to manage a scenario where disengaged students require motivational interventions, applying the strategies learned in the course.

The MOOC should also foster interaction and community building, with discussion forums, peer reviews, and collaborative projects that mirror the principles it teaches. Designers must ensure the platform remains adaptable for updates and future contributions, allowing it to evolve with the changing needs of educators and institutions.

Teachers: Enhancing Classroom Practices

For teachers—whether pre-service, in-service, or in training—the TUNED approach offers actionable strategies to transform their classrooms into hubs of active and collaborative learning. The emphasis is on integrating SRL into their daily teaching practices to help students become independent, motivated learners.

Pre-service teachers are introduced to these methods during their training programs, often through co-creation events and workshops. For instance, they might develop lesson plans that encourage students to set goals for a project, track their progress, and reflect on outcomes. These experiences prepare them to enter the teaching profession with a student-centered mindset.

In-service teachers, on the other hand, can use the MOOC and serious game to refine their skills and adapt to new challenges in blended or online teaching. The serious game, for

example, allows teachers to role-play scenarios like addressing diverse learning needs in a virtual classroom or fostering peer collaboration among students in a hybrid setting. Teachers in training benefit from similar tools, with a focus on bridging theoretical knowledge and practical application.

Moreover, TUNED encourages teachers to leverage digital tools to create blended learning environments. By participating in the program's activities, teachers gain exposure to innovative methods, such as gamified learning or cooperative digital projects, ensuring they remain effective and adaptable educators.

Teacher Educators: Preparing the Next Generation

Teacher educators are instrumental in scaling the TUNED approach. They integrate its principles into the curricula for teacher training programs, ensuring that future educators are well-versed in SRL and SSRL methodologies.

The TUNED framework encourages teacher educators to use the MOOC and serious game as core components of their training programs. For instance, during workshops, trainees might engage in co-creation activities where they design and test digital lesson plans or evaluate the effectiveness of peer-based learning strategies. These hands-on experiences help trainees understand the real-world applicability of the concepts they learn.

Teacher educators are also encouraged to adopt micro-credentialing as part of their programs, providing formal recognition of their trainees' achievements. This aligns with TUNED's emphasis on lifelong learning and ensures that newly trained teachers are equipped to meet the demands of contemporary education.

Researchers: Advancing the Framework

Researchers have a vital role in refining and expanding the TUNED approach. By studying the application of SRL and SSRL in diverse educational contexts, they contribute to the theoretical foundation of the framework. For example, researchers can analyze the data generated from the MOOC and serious game trials, examining factors such as user engagement, learning outcomes, and the effectiveness of specific strategies.

Collaborating with educators, researchers ensure their findings address practical challenges, making their work directly applicable to classroom settings. Dissemination is another crucial

aspect, as researchers share insights through academic publications, conferences, and policy discussions. These efforts not only validate the TUNED approach but also inspire its adoption by other institutions and stakeholders.

Scaling Beyond Target Groups: Broadening the Impact

The TUNED approach is designed to have a lasting and widespread impact. Beyond the immediate target groups, its principles are adaptable for diverse institutions, disciplines, and regions. To achieve this, the framework emphasizes building partnerships with universities, teacher training colleges, and educational organizations.

One key strategy for scaling the model is the use of **open-access resources**, such as the MOOC and serious game. By making these tools widely available, TUNED ensures that its benefits are not limited to project participants. Policy advocacy is another critical avenue, with stakeholders encouraged to incorporate SRL and SSRL principles into broader educational policies and training standards.

Multiplier events, such as international conferences and workshops, play a crucial role in showcasing the successes of the TUNED approach. These events serve as platforms for sharing best practices, engaging new stakeholders, and fostering a community of educators and researchers dedicated to innovation in education.