

D4.4: Use of gamification for the implementation of the action plan





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TABLE OF CONTENTS

2. Objectives of the Gamification Strategy	4
3. Target group	
4. Methodology	6
5. Gamification	
5.1 Definition	
5.2 The Game Design Elements	
5.3 Structural Gamification vs. Content Gamification	9
5.4 The GAFCC model for gamification	1
6. Theoretical Foundations for Gamification	12
6.1 Playfulness and Playful Learning	12
6.2 Psychological theories of motivation	12
6.3 Pedagogical theories	14
6.4 Multimedia Instructional Theories	10
7. Prioritizing Theoretical Foundations	19
8. Self-Determination Theory and Its Application in the PIPE Project	20
8.1 Understanding Self-Determination Theory (SDT)	20
8.2 Applying SDT to the PIPE Gamification Strategy	20
1. Supporting Autonomy	22
2. Building Competence	22
3. Fostering Relatedness	22
8.3 Conclusion: SDT as a Foundation for Sustainable Engagement	22
9. Flow Theory in the PIPE Project's Gamification Strategy	22
9.1 Understanding Flow Theory	22
9.2 Applying Flow Theory to the PIPE Gamification Strategy	22
1. Balancing Challenge and Skill	22
2. Clear Goals and Immediate Feedback	22
3. Minimizing Distractions and Enhancing Focus	23
4. Encouraging Deep Engagement and Persistence	23
9.3 Conclusion: Flow as a Design Principle for Empowerment	23
10. A Gamified ADDIE Framework	23
10.1 The ADDIE Framework	24
10.2 The ADDIE Strategy in the PIPE project	25
11. Final Gamification Strategy for the PIPE Project	20
11.1 Structuring the Strategy with ADDIE	20
11.2 Embedding SDT Principles	27
11.3 Sustaining Engagement with Flow Theory	27
	27
11.4 PIPE Gamification Strategy ADDIE Framework	
- '	
- '	30
12. Integrating the New European Bauhaus Initiative into the PIPE Gamification Strategy	30
12. Integrating the New European Bauhaus Initiative into the PIPE Gamification Strategy	30 31
12. Integrating the New European Bauhaus Initiative into the PIPE Gamification Strategy. 12.1 What is the New European Bauhaus?	30 31 31
12. Integrating the New European Bauhaus Initiative into the PIPE Gamification Strategy	





1. Introduction: The Role of Gamification in Enhancing Engagement for Migrant Support Tools

In recent years, gamification has emerged as a **transformative approach in digital learning and user engagement**, particularly in contexts where motivation, accessibility, and sustained interaction are critical. Defined as the application of game-design elements in non-game environments, gamification leverages the psychological drivers of play-such as achievement, curiosity, competition, and reward-to create more engaging and effective user experiences. Within the framework of the PIPE project, which aims to support the integration of migrants, refugees, and asylum seekers into European societies, gamification is not merely a design enhancement-it is a strategic necessity.

Migrants often face a multitude of challenges upon arrival in a new country: unfamiliar bureaucratic systems, language barriers, cultural disorientation, and limited access to reliable information. These challenges can lead to feelings of isolation, frustration, and helplessness, which in turn hinder integration and participation in society. The PIPE mobile application, envisioned as a comprehensive digital guide to services, rights, and opportunities, seeks to address these barriers. However, to ensure that the app is not only informative but also actively used and trusted by its target audience, it must be designed with user engagement at its core. This is where gamification becomes essential.

Gamification transforms passive information consumption into an active, rewarding journey. For migrant users - many of whom may have limited digital literacy or experience with formal education systems - these elements provide a sense of structure, encouragement, and accomplishment. Completing a module on healthcare access, for example, can be framed as a "mission" with a clear goal and a tangible reward, making the learning process more intuitive and less intimidating.

Moreover, gamification supports the PIPE project's broader goals of inclusion, empowerment, and sustainability. By encouraging repeated use of the app, it fosters familiarity with essential services and rights. By rewarding progress, it builds confidence and autonomy. And by incorporating culturally sensitive narratives and multilingual support, it ensures that users feel seen, respected, and motivated to continue their learning journey. In this way, gamification becomes a bridge-not only between users and information, but between migrants and the societies they are striving to join.

Importantly, gamification also aligns with the digital transformation goals of the Erasmus+ program and the European Commission's Digital Education Action Plan. As digital tools become increasingly central to education and civic participation, ensuring that these tools are accessible, engaging, and effective for all-including vulnerable populations-is a matter of equity and social justice. The PIPE app, through its gamified design, contributes to this vision by making critical knowledge about integration not only available but also approachable and empowering.





In summary, the integration of gamification into the PIPE app is a deliberate and evidence-based strategy to enhance user engagement, promote learning, and support the long-term integration of migrants. It transforms the app from a static repository of information into a dynamic, user-centered experience that motivates, educates, and empowers.

2. Objectives of the Gamification Strategy

The gamification strategy in the PIPE project is designed to transform the mobile application into a dynamic, user-centered tool that not only informs but also motivates and empowers migrant users. By embedding game elements into the app's structure and content, the strategy aims to address the unique challenges faced by migrants-such as unfamiliarity with local systems, language barriers, and digital exclusion-while promoting sustained engagement and learning. The following objectives guide the development and implementation of this strategy:

1. Increase User Engagement Through Interactive and Rewarding Experiences

One of the primary goals of gamification is to make the app more engaging and enjoyable to use. Migrants often encounter overwhelming and emotionally taxing situations when navigating new environments. By introducing interactive features such as missions, quizzes, and progress tracking, the app transforms passive information consumption into an active and rewarding experience. These elements encourage users to return regularly, explore new content, and complete learning paths, thereby increasing the app's overall impact and reach.

2. Improve the User Experience Through Intrinsic and Extrinsic Motivators

Gamification uses both intrinsic motivators (such as curiosity, mastery, and autonomy) and extrinsic motivators (such as points, badges, and rewards) to enhance the user experience. For example, a user might feel intrinsically motivated to complete a module on healthcare access because it empowers them to care for their family, while also receiving a badge that acknowledges their progress. This dual-motivation approach ensures that users feel both personally invested and externally recognized, which is especially important for individuals who may lack confidence or familiarity with digital tools.

3. Enhance Learning and Retention of Critical Information

Migrants need to absorb and retain a wide range of essential information-from legal rights and residency procedures to cultural norms and public services. Gamification supports this learning process by breaking down complex topics into manageable, goal-oriented tasks. Interactive quizzes, scenario-based challenges, and visual storytelling can reinforce key messages and improve memory retention. By making learning more engaging and less intimidating, the app helps users internalize information that is vital to their integration and well-being.

4. Encourage Exploration of the App's Features and Resources

Many digital tools fail to reach their full potential because users do not explore beyond the most obvious features. Gamification addresses this by incentivizing exploration. For instance, users might earn points for discovering new sections of the app or unlock hidden content by completing





certain tasks. This approach not only increases the visibility of the app's full range of resources but also empowers users to take initiative in their learning journey.

5. Foster a Sense of Progress and Achievement

A clear sense of progress is essential for maintaining motivation, especially in long-term learning or adaptation processes. The gamification strategy includes visual progress bars, milestone markers, and achievement badges that provide users with immediate feedback and a sense of accomplishment. These elements help users track their development, celebrate small wins, and stay motivated to continue engaging with the app over time.

6. Support Digital Literacy and Confidence in Using Mobile Technology

Many migrants may have limited experience with smartphones or digital platforms. Gamification can serve as a gentle introduction to digital interaction by guiding users through intuitive, game-like experiences. As users' complete tasks, navigate menus, and interact with content, they build not only knowledge but also digital confidence. This contributes to broader goals of digital inclusion and prepares users to engage more fully with other online services and tools in their host countries.

3. Target group

The PIPE project's gamified mobile application is designed to serve a diverse and often digitally underserved audience. Its primary users are **newly arrived migrants**, **refugees**, **and asylum seekers** in Spain, Greece, Germany, Italy and Denmark - individuals navigating unfamiliar systems while facing linguistic, cultural, and technological barriers. For these users, access to accurate, understandable, and engaging information is not just helpful-it is essential for survival, integration, and well-being.

According to the OECD's 2024 International Migration Outlook, over 6.5 million permanent migrants arrived in OECD countries in 2023 alone, with a significant share settling in EU countries (OECD, 2024). This includes a growing number of asylum seekers and displaced persons, particularly from Ukraine, Syria, Afghanistan, and parts of Africa. The UNHCR's 2024 Mid-Year Trends report also highlights that forced displacement continues to rise, with millions seeking protection and stability across Europe (UNHCR, 2024).

A significant portion of this audience includes **migrants with limited digital skills or language proficiency**. While smartphone ownership is high among migrants-especially as mobile phones are often their only link to family, information, and services-**only around 60% of migrants report having basic digital skills**, and this figure is even lower among newly arrived or forcibly displaced individuals (OECD, 2024). Many rely solely on smartphones for internet access yet struggle with navigating apps that are not designed with their needs in mind. This digital divide can lead to exclusion from vital services, including healthcare, education, and employment opportunities. Gamification offers a "game-changing" solution to this challenge. By transforming the app into an interactive, intuitive, and rewarding experience, it helps users overcome initial hesitation and builds confidence in using digital tools. Game elements such as progress bars, badges, and guided





missions provide structure and motivation, making the learning process feel less like a bureaucratic task and more like a personal journey of growth.

The app also targets **professionals and volunteers** who support migrant integration-social workers, educators, NGO staff, and community organizers. These individuals often face difficulties in maintaining engagement with their clients, especially when resources are scattered or difficult to explain. A gamified app becomes a valuable tool in their hands, offering a structured, user-friendly platform that can be used in workshops, onboarding sessions, or one-on-one support. It also allows them to track progress and recommend specific modules tailored to individual needs. Engagement is one of the most persistent challenges in digital tools for social inclusion. Many well-intentioned apps fail because users do not return after the first visit. Gamification directly addresses this issue by making the experience enjoyable, motivating, and emotionally resonant. It taps into the universal human desire for achievement, recognition, and progress-regardless of background or education level. For migrants who may feel invisible or powerless in their new environment, the app becomes more than a tool; it becomes a companion on their journey toward integration.

By centering the needs, limitations, and aspirations of its target audience, the PIPE project's gamification strategy ensures that the app is not only accessible but also meaningful. It turns engagement from a barrier into a bridge-connecting people to knowledge, services, and ultimately, a sense of belonging.

4. Methodology

This study explores the potential of gamification to enhance the integration process of migrants, refugees, and asylum seekers through a mobile application developed within the PIPE project. While gamification has been increasingly applied in educational contexts, its use in social inclusion and migrant support remains underexplored. The PIPE project addresses this gap by embedding gamified elements into a digital guide designed to help migrants navigate essential services, develop soft skills, and build cultural awareness in their host countries.

In this context, the development of the gamification strategy in the PIPE project follows a structured, three-step methodology designed to ensure that the approach is both theoretically grounded and practically aligned with the needs of the target audience. This methodology supports the creation of a gamified experience that is inclusive, engaging, and capable of enhancing the integration journey of migrants, refugees, and asylum seekers. The three steps are as follows:

Step 1: Mapping Existing Gamification Frameworks and Strategic Design Models

The first step involved a comprehensive review of existing gamification frameworks and strategic design models to identify best practices and adaptable structures. This included analyzing how gamification has been applied in other educational, social, and digital inclusion contexts, with a focus on user engagement, motivation, and behavioral change. The goal was to extract actionable design principles that could be tailored to the PIPE context. This step also involved identifying gaps





in current models, particularly in their application to vulnerable populations with limited digital literacy or language proficiency.

Step 2: Cross-Disciplinary Integration of Supporting Theories

In the second step, insights from adjacent disciplines were integrated to strengthen the strategic foundation of the gamification approach. This included drawing from adult learning theory, behavioral science, and user experience design to ensure that the strategy would not only engage users but also support meaningful learning and empowerment. For example, the strategy incorporates principles of microlearning to reduce cognitive load, scaffolding to support gradual skill development, and motivational triggers to sustain long-term engagement. This interdisciplinary lens ensured that the gamification design would be sensitive to the psychological, cultural, and practical realities of the target audience.

Step 3: Development of the Gamified ADDIE Strategy

The final step was the formulation of the Gamified ADDIE Strategy of the PIPE project - a customized adaptation of the traditional ADDIE instructional design model (Analysis, Design, Development, Implementation, Evaluation) for the PIPE project. This strategy embeds gamification principles into each phase of the design process:

- Analysis: Assessing user needs, digital readiness, and motivational drivers through stakeholder consultation and field research.
- Design: Structuring content into gamified learning paths, defining user journeys, and selecting appropriate game mechanics.
- Development: Creating modular, multilingual, and mobile-friendly content with embedded rewards, feedback, and progression systems.
- Implementation: Piloting the gamified experience with real users, gathering feedback, and refining the design iteratively.
- Evaluation: Measuring engagement, learning outcomes, and user satisfaction through both qualitative and quantitative methods.

This methodology ensures that the PIPE gamification strategy is not only evidence-informed but also adaptable, scalable, and deeply aligned with the project's mission to foster inclusion, autonomy, and digital empowerment among migrant communities.





5. Gamification

5.1 Definition

Gamification has emerged as a powerful tool in education, leveraging game design elements to enhance engagement, motivation, and learning outcomes. Most commonly defined as "the use of game design elements in non-game contexts" (Deterding et al., 2011), gamification draws on theories and insight from diverse disciplines such as game design, instructional design, psychology, playful design, serious games, and simulations to create interactive learning environments (Kapp, 2012; M. Kapp et al., 2014). Gamification has garnered significant attention due to its potential to improve users' engagement, practice, feedback, and enjoyment, thus fostering a conducive environment for knowledge-building (Partovi & Razavi, 2019).

5.2 The Game Design Elements

Central to gamification are the game design elements (sometimes referred to as game mechanics), which can include points, badges, leaderboards, avatars, narratives, challenges, and cooperation (see examples in figure 1) (Alzahrani & Alhalafawy, 2022; Bernardes et al., 2022b; Khaldi et al., 2023; Manzano-León et al., 2021).

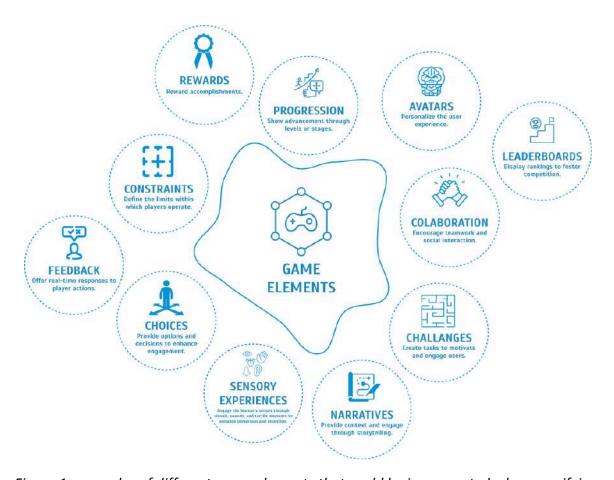


Figure 1: examples of different game elements that could be incorporated when gamifying.





Various models, such as the MDA (Mechanics, Dynamics, Aesthetics) model proposed by Hunicke et al., the DMC (Dynamics, Mechanics, Componens) model by Werbach & Hunter, and the MAT (Mechanics, Aesthetics, Game Thinking) model by Kapp, provide frameworks for understanding how these elements contribute to the overall gamified experience (Hunicke et al., 2004; Kapp, 2012; Werbach & Hunter, 2012). The frameworks share more similarities than differences and are all helpful to better understand what needs to be included and taken into consideration when gamifying something.

5.3 Structural Gamification vs. Content Gamification

However, gamification is not simply about superficially adding extrinsic motivators like badges and points to activities that could be intrinsically motivating (Bernardes et al., 2022b; Werbach & Hunter, 2012). It transcends these elements to encompass engagement, storytelling, visualization of characters, and problem-solving, aiming to accelerate learning, immersing users, and foster systems thinking (Bernardes et al., 2022b; Werbach & Hunter, 2012). Additionally, gamification is not a trivialization of learning; rather, it is a serious approach with historical roots in military war games and simulations, incorporating techniques such as embedding stories and creating challenges to enhance educational experiences (Kapp, 2012). To better understand the nuances of gamification, Kapp et. al introduced the concepts of structural gamification and content gamification (see figure 2) (Kapp, 2012; M. Kapp et al., 2014).

Structural gamification involves the application of game elements to the framework surrounding the educational content, without altering the content itself (M. Kapp et al., 2014). The primary focus is to motivate learners to progress through the content and engage them in the learning process through rewards and incentives. Examples of structural gamification include earning points for completing assignments or watching videos within a course. Structural gamification comprises several key components, including rules, reward structures, leaderboards, currency, badges, levelling up, and social sharing. These elements are designed to define the parameters within which participants operate, establish a reward system for achievements, and foster healthy competition among learners.

Content gamification, on the other hand, involves the application of game elements and game thinking to alter the educational content itself, making it more game-like (M. Kapp et al., 2014). The primary focus is to motivate learners by immersing them in an engaging and enjoyable learning experience. Examples of content gamification include adding story elements, challenges, and interactivity to educational content. Content gamification encompasses narrative elements, challenges, curiosity, characters, interactivity, feedback, and freedom to fail. These elements are incorporated into the educational content to create a more immersive and memorable learning experience, sparking learners' curiosity and facilitating active engagement.

While structural and content gamification can be effective on their own, combining these approaches often yields the most impactful results (M. Kapp et al., 2014). By integrating game elements into both the framework surrounding the content and the content itself, educators can





create a comprehensive gamified learning environment that motivates learners and enhances their engagement and retention of course material.

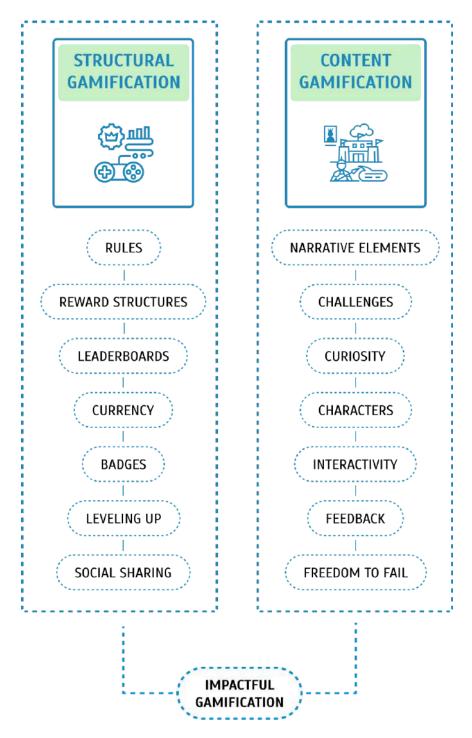


Figure 2: the difference between structural and content gamification, and their main components.





5.4 The GAFCC model for gamification

To further explain the mechanisms behind the benefits of gamification and how one can apply it successfully, Huang and Hew propose the GAFCC (Goal-Access-Feedback-Challenge-Collaboration) model that integrates motivational theories into a gamification design framework for educational settings, particularly in the context of flipped learning (B. Huang & Hew, 2018). By aligning gamification strategies with the principles of motivational theories, the intention is that educators can effectively enhance student engagement and participation, ultimately improving learning outcomes in diverse educational contexts. The GAFCC model encompasses five key stages: examine, decide, match, launch, and evaluate, each of which plays a crucial role in the practical implementation of gamification strategies.

The initial stage – Examine - involves a comprehensive examination of instructional objectives, learner context, and the gamification landscape. Educators analyze the specific learning goals they aim to achieve through gamification, consider the characteristics and preferences of their student population, and assess the suitability of gamification elements for their educational context.

In the decision-making stage, educators determine the motivating elements and game design features that align with their instructional objectives and learner needs. This process involves selecting appropriate gamification strategies, such as badges, leaderboards, or quest-based activities, based on their potential to enhance student engagement and motivation.

The matching stage focuses on aligning motivating elements with game design elements to create a cohesive and engaging gamified learning environment. Educators identify how each selected gamification strategy contributes to fostering student motivation, autonomy, and competence, ensuring a successful integration of game elements with educational content.

Once the gamification design is finalized, educators proceed to the launch stage, where they implement the gamified learning activities within their instructional framework. This phase involves introducing users to the gamified elements, providing clear instructions on how to participate, and integrating gamification seamlessly into existing teaching practices.

The final stage of the GAFCC model involves evaluating the effectiveness of the gamification implementation through ongoing assessment and feedback mechanisms. Educators monitor student engagement, motivation, and learning outcomes, gathering data to measure the impact of gamification on student performance and satisfaction. This evaluation process informs iterative improvements to the gamification design and ensures its alignment with educational goals.

This model is one of few that try to give a practical approach on how to apply gamification in educational environments at the same time as providing a deeper psychological explanation of what each element of gamification is contributing with.





6. Theoretical Foundations for Gamification

Further expanding our understanding of gamification requires delving into the diverse theories that explain its effectiveness in educational settings. This paper builds on existing frameworks, introducing a variety of theories from different disciplines to enhance student motivation and learning. Gamification is supported by numerous theories, reflecting its complex nature. The following theories we present are not exhaustive but provide a solid foundation for understanding the intricate mechanisms behind successful gamification.

6.1 Playfulness and Playful Learning

Playfulness is a central part of gamification, encompassing elements of fun, enjoyment, and low-risk experimentation (Högberg et al., 2019; Patricio et al., 2018). Playful learning approaches, including games, game-based learning, and serious games, adopt a lusory attitude towards teaching and learning, encouraging reflection, immersion, and exploration in the learning process (Bernardes et al., 2022a). By embracing playfulness, educators can create safe spaces for learning, promoting active participation and reducing anxiety associated with challenging subjects (Fisher et al., 2012).

The concept of the "magic circle," introduced by Huizinga (1955) is an example of how playfulness can be applied in higher education (Huizinga, 1955). It refers to a symbolic boundary where the rules and dynamics of a game apply, encouraging a playful mindset. In education, introducing this concept can create a mental space where users feel free to explore concepts with curiosity and enjoyment. This approach can foster a positive attitude towards learning, reduce anxiety associated with challenging subjects, and promotes a more immersive and engaging educational experience (Fisher et al., 2012).

6.2 Psychological theories of motivation

Like introduced in the GAFCC Model, motivational theories serve as the foundation for understanding how gamification can effectively enhance student engagement and performance in educational settings. Huang, Hew, and Kapp have identified several key motivational theories that support the implementation of gamification: self-determination theory, flow theory, goal-setting theory, social comparison theory, behavior reinforcement theory, and expectancy theory (B. Huang & Hew, 2018; Kapp, 2012; M. Kapp et al., 2014). See table 1 for further explanation of the different theories and their possible usage in gamification and figure 4 for visualization.





PSYCHOLOGICAL THEORIES THAT SUPPORT GAMIFICATION



Figure 3: Key psychological theories of motivation contributing to successful gamification.

Table 1: Key psychological theories of motivation contributing to successful gamification.

Theory	Description	Example of usage in a gamified activity
Flow Theory	Describes a state of total immersion	Designing tasks that progressively
	and engagement in an activity,	increase in difficulty, ensuring that users
	resulting from a balance between	are continually challenged yet capable
	challenge and skill (Beard &	of succeeding, thus maintaining their
	Csikszentmihalyi, 2015;	engagement and focus.
	Csikszcntmihalyi, 1990).	
Self-Determinat	Focuses on the intrinsic and	Implementing a system where users
ion Theory	extrinsic motivations behind human	choose their own tasks, receive
(SDT)	behavior, emphasizing the	competence-based badges, and engage
	fulfillment of psychological needs	in collaborative problem-solving
	for autonomy, competence, and	activities to fulfill their psychological
	relatedness (Ryan & Deci, 2000).	needs.





Goal-Setting Theory	Empathizes the importance of setting specific and challenging goals to enhance motivation and performance (E. A. Locke & Latham, 2002; E. Locke & Latham, 2006).	Setting clear, challenging goals for users such as completing a series of problems within a time limit, and providing immediate feedback on their progress to help them stay focused and motivated.
Social	Suggests that individuals evaluate	Creating leaderboards that rank users
Comparison	their abilities and opinions by	based on their performance in quizzes
Theory	comparing them to those of others	and assignments, encouraging them to
	in their social environment	improve their standing through friendly
	(Festinger, 1954).	competition.
Behavioural	Posits that behaviors can be	Using a reward system where users earn
Reinforcement	strengthened or weakened through	points for completing problems
Theory	positive or negative reinforcement	correctly, which can then be exchanged
	(Skinner, 1965, 1989).	for privileges or small prizes, thus
		reinforcing their efforts to practice.
Expectancy	Expectancy theory, developed by	Providing a clear connection between
Theory	Vroom, emphasizes the link	effort (e.g., completing extra practice
	between effort, performance, and	problems) and rewards (e.g., extra
	desired outcomes, suggesting that	credit or recognition), helping users
	individuals are motivated when	understand how their efforts can lead to
	they believe their efforts will lead to	tangible benefits.
	valuable rewards (Vroom, 1964).	

These theories are instrumental in designing gamified learning experiences that effectively engage users. By incorporating these psychological theories, gamification can create dynamic and engaging learning environments that motivate users to actively participate and excel in their educational pursuits.

6.3 Pedagogical theories

Understanding gamification in education requires exploring various pedagogical theories. Bíró asserts that gamification integrates elements from multiple learning theories, particularly behaviorist, constructivist, and connectivist approaches, and even argues that it is possible to view it as an entirely new learning theory (Bíró, 2014). The integration of diverse pedagogical theories when gamifying can help tailor learning experiences to meet diverse learner needs. See table 2 for further explanation of the different theories and their possible usage in gamification and figure 5 for visualization.





PEDAGOGICAL THEORIES THAT SUPPORT GAMIFICATION

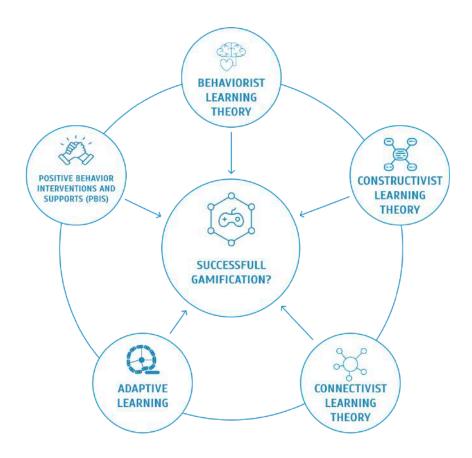


Figure 4: Key pedagogical theories contributing to successful gamification.

Table 2: Key pedagogical theories contributing to successful gamification.

Theory	Description	Example of usage in gamified activity
Behaviorist Learning Theory	Focuses on positive reinforcements and immediate feedback (Bíró, 2014).	Using a system of rewards and punishments to reinforce desired behaviors, such as providing immediate feedback and rewards for correct answers in quizzes.
Constructivist Learning Theory	Knowledge is constructed by learners through interactions (Bíró, 2014).	Designing projects where users explore and discover concepts themselves and then discuss and reflect on their findings with peers.
Connectivist Learning Theory	Learning is connecting information across networks (Siemens, 2008)	Creating an online community where users share and discuss problems and solutions, leveraging social networks to





		enhance their understanding and learning.
Adaptive Learning	Tailors instruction to individual learner's needs (Yarandi et al., 2013).	Utilizing adaptive learning software that adjusts the difficulty of problems based on each student's performance, ensuring personalized learning paths.
Positive Behavior Interventions and Supports (PBIS)	A framework for implementing interventions to improve academic and behavioral outcomes based on individual needs of users and student groups. Emphasizes a multi-tiered system of support (Sugai & Simonsen, 2012).	Implementing a points system that rewards users for demonstrating positive behaviors, such as supporting other users with understanding difficult concepts.

By incorporating these pedagogical theories, gamified learning environments can be designed to support effective teaching and enhance student engagement and motivation.

6.4 Multimedia Instructional Theories

Lameras emphasizes the importance of combining pedagogical approaches with ICT tools to create successful digital learning experiences, which is highly relevant when gamifying online and hybrid settings (Lameras, 2015). By engaging in the creation of digital artifacts like games, narratives, simulations, or rich media presentations, users can achieve deep learning and encounter critical concepts and methods (Lameras, 2015). Multimedia instructional design theories are crucial for understanding how this can be done as they provide guidelines for designing and using ICT tools effectively. See table 3 for further explanation of the different theories and their possible usage in gamification and figure 6 for visualization.





MULTIMEDIA INSTRUCTIONAL THEORIES THAT SUPPORT GAMIFICATION



Figure 5: Key multimedia instructional theories contributing to successful gamification.

Table 3: Key multimedia instructional theories contributing to successful gamification.

Theory	Description	Example of usage in Gamification
Segmenting	Breaking content into smaller, manageable units (Mayer, 2009).	Dividing complex concepts into smaller, easily digestible modules or units that users can complete sequentially.
Personalization	Tailoring content to individual learner	Allowing users to choose topics or types of problems they find most interesting,





	preferences (Clark &	providing personalized feedback and
	Mayer, 2016).	resources based on their choices.
Repetition and	Allowing learners to revisit	Providing opportunities for users to retake
Reinstatement	content to reinforce	quizzes and revisit practice problems to
	learning (Mayer, 2009).	reinforce their understanding of key
		concepts.
Access to Prior	Providing access to	Creating an online repository of past lessons,
Instructional	previously covered	problem sets, and solutions that users can
Content	material (Clark & Mayer,	access anytime to review and reinforce
	2016).	previous learning.
Coherence	Presenting material in a	Ensuring that problems and instructional
	logical, organized manner	videos are presented in a clear, logical
	(Mayer, 2009).	sequence that builds on previously learned
		concepts.
Signaling	Highlighting important	Using visual cues, such as arrows or
	information to direct	highlighted text, to draw users' attention to
	attention (Mayer, 2009).	critical steps in solving a problem.
Redundancy	Avoiding unnecessary	Streamlining instructional materials by
	repetition of information	removing repetitive explanations, ensuring
	(Mayer, 2009).	that each piece of content adds new value to
		the learning experience.
Spatial and	Presenting related	Placing equations and their graphical
Temporal Contiguity	elements together in time	representations close to each other in both
	and space (Mayer, 2009).	time (e.g., in the same lesson) and space
		(e.g., on the same page or screen).
Modality	Using multiple sensory	Combining video explanations with written
	channels (e.g., visual,	instructions and interactive simulations to
	auditory) (Mayer, 2009).	cater to different learning styles and
		reinforce understanding through multiple
		channels.
Pretraining	Introducing key concepts	Providing introductory videos that explain
	before presenting complex	basic concepts before users tackle more
	material (Mayer, 2009).	complex problems that build on these
		foundational ideas.
Voice and Image	Using human voice and	Incorporating narrated video tutorials with
	relevant visuals to	visual aids, such as diagrams and
	enhance understanding	animations, to help explain challenging
	(Mayer, 2009).	concepts.

These theories help ensure that educational content is engaging and accessible, reducing cognitive load and enhancing learning, especially in online and hybrid contexts.





7. Prioritizing Theoretical Foundations

In the development of the PIPE project's gamification strategy, a wide array of psychological, pedagogical, and multimedia instructional theories were explored. Each of these frameworks offers valuable contributions to the design of engaging, inclusive, and effective learning environments. From behaviorist reinforcement models to constructivist and connectivist learning theories, and from multimedia principles like segmentation and signaling to adaptive learning systems, the theoretical landscape is rich with possibilities. All these approaches can be useful and, in many cases, complementary.

However, for the specific context of the PIPE project-supporting the integration of migrants, refugees, and asylum seekers-we have chosen to focus on two theories in particular: **Self-Determination Theory (SDT) and Flow Theory**. This decision is not a dismissal of other models, but a strategic alignment with the psychological and emotional realities of our target users, and with the practical demands of sustaining engagement in a mobile learning environment.

Why Self-Determination Theory?

Migrants often arrive in host countries under conditions of uncertainty, vulnerability, and disempowerment. They may face language barriers, unfamiliar bureaucratic systems, and social isolation. In this context, a theory that centers on restoring a sense of agency, competence, and connection is not only appropriate-it is essential.

SDT provides a framework that aligns closely with the emotional and motivational needs of migrants. It supports the design of experiences that are not only informative but also empowering. By allowing users to make choices, track their own progress, and engage with content that reflects their lived experiences, the PIPE app becomes a tool for rebuilding confidence and autonomy. This is particularly important for users who may feel overwhelmed or marginalized in their new environments. SDT helps ensure that the app is not just a source of information, but a space where users feel respected, capable, and connected.

Why Flow Theory?

While SDT addresses the deeper psychological needs of users, Flow Theory offers a powerful mechanism for sustaining their engagement. One of the most persistent challenges in digital learning tools-especially those aimed at vulnerable populations-is user retention. Many apps are downloaded, opened once, and never used again. Flow Theory helps counter this by guiding the design of experiences that are immersive, rewarding, and intrinsically motivating.

The PIPE app deals with complex and sometimes intimidating content: legal rights, healthcare systems, housing regulations, and more. Flow Theory enables us to present this information in a way that feels manageable and even enjoyable. By carefully calibrating the difficulty of tasks, providing immediate feedback, and structuring content into progressive levels, we can keep users





engaged without overwhelming them. This is especially important for users with limited digital literacy or formal education, who may otherwise disengage early in the process.

A Complementary Pair

Together, SDT and Flow Theory form a complementary foundation for the PIPE gamification strategy. SDT ensures that the app is emotionally supportive and user-centered, while Flow Theory ensures that it is engaging and effective over time. This combination allows us to design a digital experience that is not only functional but also transformative-helping users build the knowledge, confidence, and motivation they need to navigate their new lives.

By focusing on these two theories, we are not limiting our approach but rather deepening it - ensuring that every design decision is grounded in a clear understanding of what our users need to feel empowered, connected, and capable of growth. In the following we will examine in more details the SDT and Flow Theory.

8. Self-Determination Theory and Its Application in the PIPE Project

8.1 Understanding Self-Determination Theory (SDT)

Self-Determination Theory (SDT), developed by psychologists Edward Deci and Richard Ryan, is a widely recognized framework for understanding human motivation. At its core, SDT posits that individuals are most motivated and engaged when three basic psychological needs are fulfilled: **autonomy**, **competence**, and **relatedness**. These needs are considered universal and essential for psychological growth, well-being, and optimal functioning across cultures and contexts.

- Autonomy refers to the feeling of being in control of one's own actions and decisions.
- Competence involves the sense of mastery and effectiveness in one's activities.
- Relatedness is the experience of connection and belonging with others.

SDT distinguishes between **intrinsic motivation**-engaging in an activity for its inherent satisfaction-and **extrinsic motivation**, which is driven by external rewards or pressures. The theory emphasizes that environments which support autonomy, competence, and relatedness foster more sustainable, self-driven motivation, even when tasks are challenging or unfamiliar.

8.2 Applying SDT to the PIPE Gamification Strategy

The PIPE project aims to support the integration of migrants, refugees, and asylum seekers through a gamified mobile application that provides access to essential information, services, and learning opportunities. Many of these users face significant barriers: unfamiliar legal systems, language difficulties, limited digital literacy, and social isolation. In this context, SDT offers a powerful lens





for designing a gamification strategy that not only engages users but also empowers them to take ownership of their integration journey.

1. Supporting Autonomy

Migrants often experience a loss of control over their lives due to displacement, legal uncertainty, and dependency on external systems. The PIPE app can help restore a sense of autonomy by allowing users to choose their own learning paths, explore content at their own pace, and set personal goals. Gamified features such as optional challenges, customizable avatars, or branching scenarios give users meaningful choices, reinforcing the idea that they are active agents in their own development. Autonomy-supportive design also includes clear, respectful communication and culturally sensitive content that acknowledges users' diverse backgrounds and experiences.

2. Building Competence

The PIPE app is designed to help users acquire practical knowledge and skills-such as understanding healthcare systems, navigating public services, or improving language proficiency. Gamification can enhance the sense of competence by breaking down complex information into manageable tasks, providing immediate feedback, and celebrating progress through badges, levels, or certificates. These elements help users see tangible evidence of their growth, which is especially important for those who may feel overwhelmed or underqualified in their new environment. By scaffolding learning and offering achievable milestones, the app builds confidence and encourages continued engagement.

3. Fostering Relatedness

Social connection is a critical factor in successful integration. Many migrants experience isolation, especially in the early stages of resettlement. The PIPE app can foster relatedness by incorporating features that simulate or facilitate social interaction-such as digital mentors, community stories, or peer challenges. Even simple elements like encouraging messages, shared progress boards, or testimonials from other migrants can create a sense of belonging and shared purpose. For professionals and volunteers using the app to support migrants, these features also provide a bridge for more empathetic and personalized engagement.

8.3 Conclusion: SDT as a Foundation for Sustainable Engagement

By aligning the gamification strategy with the principles of Self-Determination Theory, the PIPE project ensures that its digital tool is not only engaging but also psychologically supportive. Rather than relying solely on external rewards to drive behavior, the app is designed to nurture internal motivation by addressing users' core psychological needs. This approach is particularly well-suited to the migrant context, where empowerment, confidence, and connection are essential for long-term integration.

In summary, SDT provides a robust foundation for designing a gamified experience that is inclusive, respectful, and transformative. It shifts the focus from simply delivering information to creating a meaningful, motivating, and human-centered journey-one that supports migrants not just in accessing services, but in reclaiming agency and building a new life with dignity.





9. Flow Theory in the PIPE Project's Gamification Strategy

9.1 Understanding Flow Theory

Flow Theory, introduced by psychologist Mihaly Csikszentmihalyi, describes a mental state of deep focus and immersion in an activity. When individuals are in a state of "flow," they are fully engaged, lose track of time, and experience a sense of enjoyment and purpose. This state occurs when there is a balance between the challenge of a task and the individual's skill level-too easy, and the task becomes boring; too difficult, and it becomes frustrating. Flow is most likely to occur when goals are clear, feedback is immediate, and the individual feels in control of their actions.

In digital environments, especially those involving learning or personal development, flow is a powerful driver of sustained engagement. It transforms passive users into active participants and helps them persist through challenges. For the PIPE project, which aims to support the integration of migrants, refugees, and asylum seekers through a gamified mobile application, Flow Theory provides a valuable framework for designing experiences that are not only informative but also immersive and motivating.

9.2 Applying Flow Theory to the PIPE Gamification Strategy

The PIPE app is intended to guide users through essential knowledge and skills related to integration-such as understanding legal rights, accessing healthcare, navigating public services, and developing cultural awareness. These topics can be complex, unfamiliar, and emotionally taxing for newly arrived migrants. Flow Theory offers a way to design the app so that users remain engaged, motivated, and confident as they progress through this content.

1. Balancing Challenge and Skill

One of the core principles of Flow Theory is the alignment between task difficulty and user ability. In the PIPE app, this balance is achieved by offering content in modular, progressive levels. Users can begin with basic orientation modules and gradually move toward more advanced topics. Each module is designed to be just challenging enough to stimulate learning without overwhelming the user. This is particularly important for users with limited language proficiency or digital skills. By scaffolding content and allowing users to choose their own pace, the app helps maintain the optimal challenge-skill balance that supports flow.

2. Clear Goals and Immediate Feedback

Flow is facilitated when users know what they are working toward and receive timely feedback on their progress. The PIPE app incorporates clear objectives for each module-such as "Complete the housing checklist" or "Pass the healthcare access quiz"-so users understand what success looks like. Gamified elements like progress bars, achievement badges, and instant quiz results provide immediate feedback, reinforcing a sense of accomplishment and guiding users toward the next step. This clarity and responsiveness help users stay focused and motivated.





3. Minimizing Distractions and Enhancing Focus

To support flow, the user interface of the PIPE app is designed to be clean, intuitive, and free from unnecessary distractions. Visual cues, simple navigation, and consistent design patterns help users stay oriented and immersed in the content. The app also uses storytelling and scenario-based learning to create emotionally engaging experiences that draw users in and make the learning process more relatable and memorable.

4. Encouraging Deep Engagement and Persistence

Flow encourages users to persist through challenges because the experience itself is rewarding. In the context of the PIPE project, this is especially valuable. Migrants often face discouragement when trying to understand complex systems or overcome bureaucratic hurdles. By designing the app to support flow, users are more likely to stay engaged, complete learning paths, and return to the app over time. This sustained engagement is critical for building the knowledge and confidence needed for successful integration.

9.3 Conclusion: Flow as a Design Principle for Empowerment

Incorporating Flow Theory into the PIPE project's gamification strategy ensures that the app is not only functional but also deeply engaging. It transforms the user experience from a series of tasks into a meaningful journey-one that respects the user's pace, builds their confidence, and keeps them motivated through challenges. For migrants navigating the complexities of a new life, this kind of experience can be transformative.

By designing for flow, the PIPE project creates a digital environment where users are not just informed, but empowered-where learning is not a burden, but a source of momentum and self-efficacy. In this way, Flow Theory becomes a cornerstone of a gamification strategy that is both human-centered and impact-driven.

10. A Gamified ADDIE Framework

The goal of the gamification strategy in the PIPE project is to design and implement a structured, motivational, and user-centered digital experience that enhances the integration journey of migrants, refugees, and asylum seekers. To do this, we propose a novel gamified ADDIE framework designed to incorporate various theories and methods while still maintaining flexibility and applicability. The framework serves as a general template where different theories can be utilized or substituted without losing its core purpose. This adaptability ensures that educators can tailor the framework to their specific needs and contexts.

Think of this framework as a menu template: the structure is set, and the process is clear, but the content can be customized to suit the specific requirements. Our intention is to provide a concrete and clear framework that can be applied practically, unlike many abstract models that lack practical examples and directions. We encourage educators to use this framework as a "cookbook," where they can modify specifics, remove parts, and adjust ingredients based on their unique





circumstances. To illustrate this, we will hypothetically apply the framework to a blended learning scenario of an image processing course.

To address the challenges, we propose this gamified ADDIE framework, which extends the original ADDIE model by integrating the GAFCC model for gamification along with relevant theories at each stage. We first introduce the original ADDIE framework before elaborating on the new gamified model.

10.1 The ADDIE Framework

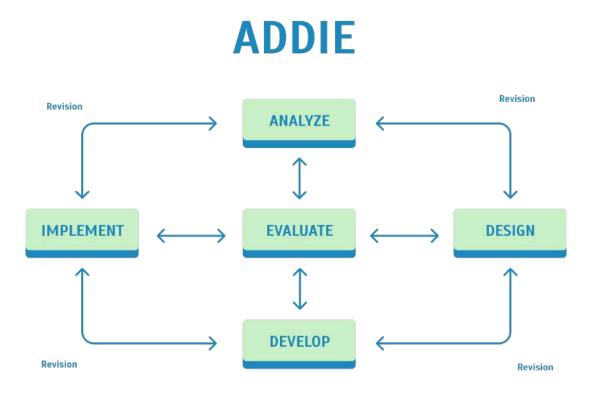


Figure 6: ADDIE framework.

The original ADDIE model consists of five phases that can be followed both sequentially and iteratively: Analyze, Design, Develop, Implement, and Evaluate (Branch, 2010; Molenda, 2003). During the analysis phase, instructors identify student needs, learning objectives, and course content, considering factors such as existing knowledge and preferred learning styles. In the design phase, the focus shifts to structuring the learning experience, outlining instructional strategies and content delivery methods. The development phase involves creating instructional materials based on the design specifications, including the production of content and resources. Implementation entails the delivery of the instructional materials to learners, ensuring proper instruction and support are provided. Finally, the evaluation phase assesses the effectiveness of the instructional materials and delivery methods, gathering feedback to inform revisions and improvements for future iterations.





10.2 The ADDIE Strategy in the PIPE project

The ADDIE model-Analysis, Design, Development, Implementation, and Evaluation-serves as the backbone of the PIPE project's gamification strategy. By adapting this instructional design framework to the context of migrant integration, the project ensures that gamification is not an afterthought but a core component of the user experience. Below is a breakdown of how each phase is applied in the PIPE context:

1. Analysis

In this phase, the project team conducts a thorough assessment of the target audience's needs, digital readiness, and motivational drivers. This includes consultations with stakeholders such as NGOs, educators, and migrants themselves. The goal is to understand the barriers migrants face-such as language, digital literacy, and bureaucratic complexity-and to identify what types of gamified experiences would be most meaningful and accessible. This phase also involves mapping out the integration journey and identifying key moments where gamification can provide support, encouragement, or clarity.

2. Design

Based on the insights gathered, the design phase focuses on structuring the app's content into gamified learning paths. This includes defining user personas, mapping user journeys, and selecting appropriate game mechanics-such as badges, progress bars, challenges, and feedback loops. The design also considers accessibility and inclusivity, ensuring that the gamified elements are intuitive and culturally sensitive. For example, users might be able to choose between different "missions" such as learning how to register for healthcare or understanding tenant rights, each with its own set of interactive tasks and rewards.

3. Development

During development, the gamified content is created and integrated into the mobile app. This includes building modular, multilingual learning units that are mobile-friendly and visually engaging. Game elements are embedded directly into the content-for instance, users might earn points for completing quizzes, unlock new levels by finishing modules, or receive digital certificates for mastering key topics. The development team also ensures that the app supports offline access and is optimized for low-bandwidth environments, which is crucial for many migrant users.

4. Implementation

The implementation phase involves piloting the gamified app with real users in the partner countries. Migrants, volunteers, and professionals are invited to test the app in real-world settings, such as community centers or language classes. Feedback is collected on usability, engagement, and learning outcomes. This phase is iterative based on user feedback, the app is refined to better meet the needs of its audience. Implementation also includes training sessions for facilitators who will use the app in their work with migrants.

5. Evaluation





Finally, the evaluation phase measures the effectiveness of the gamification strategy. This includes both qualitative and quantitative methods: user surveys, interviews, app analytics, and engagement metrics. Key indicators include time spent on the app, module completion rates, user satisfaction, and perceived usefulness. The evaluation also looks at broader impacts, such as increased confidence in navigating public services or improved digital literacy. Insights from this phase are used to inform future iterations of the app and to share best practices with other organizations working in migrant integration.

11. Final Gamification Strategy for the PIPE Project

The PIPE project's gamification strategy is designed to support the integration of migrants, refugees, and asylum seekers through a mobile application that is not only informative but also engaging, empowering, and psychologically supportive. This strategy is built on three foundational pillars:

- 1. **The ADDIE instructional design model** as the structural framework.
- 2. **Self-Determination Theory (SDT)** to ensure intrinsic motivation through autonomy, competence, and relatedness.
- 3. **Flow Theory** to sustain deep engagement through optimal challenge, clear goals, and immediate feedback.

11.1 Structuring the Strategy with ADDIE

The ADDIE model-Analysis, Design, Development, Implementation, and Evaluation-provides a systematic approach to designing the gamified experience. Each phase is enhanced with motivational and engagement principles from SDT and Flow Theory:

- Analysis: This phase identifies the needs, challenges, and digital readiness of the target audience. It emphasizes autonomy by involving users in co-design processes and understanding their preferences and motivations. This ensures that the gamified experience is relevant and user-driven.
- **Design**: Here, the content is structured into gamified learning paths. Game mechanics such as missions, badges, and progress bars are selected to foster competence. The design also incorporates clear goals and feedback mechanisms to support flow and help users stay focused and motivated.
- **Development**: The app is built with modular, multilingual content that is mobile-friendly and accessible. This phase integrates relatedness by embedding social features such as peer stories, digital mentors, and community challenges. It also ensures that tasks are scaffolded to maintain a balance between challenge and skill.
- Implementation: The gamified app is piloted with real users. This phase focuses on maintaining
 flow by minimizing distractions, offering intuitive navigation, and ensuring that users receive
 immediate feedback. It also supports autonomy by allowing users to choose their learning
 paths and pace.





 Evaluation: Engagement, learning outcomes, and user satisfaction are measured using both qualitative and quantitative methods. This phase ensures that the gamification strategy remains aligned with user needs and continues to support intrinsic motivation and sustained engagement.

11.2 Embedding SDT Principles

- **Autonomy**: Users are given control over their learning journey. They can choose which modules to complete, set personal goals, and engage with content in a way that suits their preferences and pace.
- **Competence**: The app provides structured challenges, instant feedback, and visible progress indicators. These elements help users build confidence and recognize their achievements.
- Relatedness: Social features such as community stories, shared achievements, and collaborative tasks foster a sense of belonging and connection, which is critical for migrants who may feel isolated.

11.3 Sustaining Engagement with Flow Theory

- Challenge-Skill Balance: Content is tiered and adaptive, ensuring that users are neither bored nor overwhelmed. This balance keeps users in a state of flow, where learning feels natural and rewarding.
- **Clear Goals**: Each module has defined objectives, helping users understand what they are working toward and why it matters.
- **Immediate Feedback**: Quizzes, interactive tasks, and progress tracking provide users with real-time responses, reinforcing learning and encouraging continued use.

This integrated strategy ensures that the PIPE app is not just a tool for information delivery, but a dynamic, user-centered platform that supports learning, empowerment, and social inclusion. By combining the structure of ADDIE with the motivational depth of SDT and the immersive power of Flow Theory, the PIPE gamification strategy offers a scalable and adaptable model for digital inclusion in migrant support contexts.

11.4 PIPE Gamification Strategy ADDIE Framework

Here's a step-by-step framework that integrates the ADDIE model with the motivational principles of Self-Determination Theory (SDT) and Flow Theory, tailored specifically for the PIPE project's gamification strategy:

Step 1: Analysis

Goal: Understand the needs, motivations, and digital readiness of migrant users.

• SDT Focus:





- Identify how to support autonomy (e.g., user choice in learning paths).
- Understand competence gaps (e.g., digital literacy, language).
- Explore opportunities for relatedness (e.g., peer support, community stories).

• Flow Focus:

- Assess users' skill levels to calibrate challenge appropriately.
- Identify potential barriers to immersion (e.g., language, tech access).

Actions:

- Conduct surveys, interviews, and focus groups with migrants and support staff.
- Map the integration journey and identify key learning moments.
- Define user personas and motivational profiles.

Step 2: Design

Goal: Structure the gamified experience to align with user needs and motivational drivers.

SDT Focus:

- Embed autonomy through branching paths and optional modules.
- Design for competence with scaffolded tasks and visible progress.
- Foster relatedness via social features (e.g., digital mentors, shared achievements).

• Flow Focus:

- Set clear goals for each module.
- Design tasks that balance challenge and skill.
- Plan for immediate feedback (e.g., quizzes, badges, visual cues).

Actions:

- Select game mechanics (e.g., points, levels, badges, missions).
- Create user journeys with progressive difficulty.
- Design feedback systems and motivational triggers.

Step 3: Development

Goal: Build the gamified content and integrate it into the mobile app.

SDT Focus:

- Ensure content is culturally relevant and respectful.
- Provide opportunities for users to demonstrate mastery.
- Include stories and testimonials to build connection.
- Flow Focus:





- Use multimedia (audio, visuals, interactivity) to enhance immersion.
- Ensure intuitive navigation and minimal distractions.
- Embed real-time feedback and adaptive content.

Actions:

- Develop multilingual, mobile-first modules.
- Implement gamified UI/UX elements.
- Test internally for usability and motivational alignment.

Step 4: Implementation

Goal: Pilot the gamified app with real users and refine based on feedback.

• SDT Focus:

- Empower users to set personal goals and track their progress.
- Encourage peer interaction and support.
- Recognize user achievements publicly (if appropriate).

• Flow Focus:

- Monitor user engagement and drop-off points.
- Adjust difficulty and pacing based on user feedback.

Actions:

- Launch pilot in selected communities.
- Collect user feedback through surveys and interviews.
- Iterate on design and content based on real-world use.

Step 5: Evaluation

Goal: Measure the impact of the gamification strategy and optimize for scale.

SDT Focus:

- Evaluate how well the app supports autonomy, competence, and relatedness.
- Assess user satisfaction and perceived value.

Flow Focus:

- Analyze engagement metrics (time on task, completion rates).
- Identify which features sustain flow and motivation.

Actions:





- Use analytics to track user behavior.
- Conduct outcome evaluations (e.g., knowledge gain, confidence).
- Refine strategy for broader deployment.

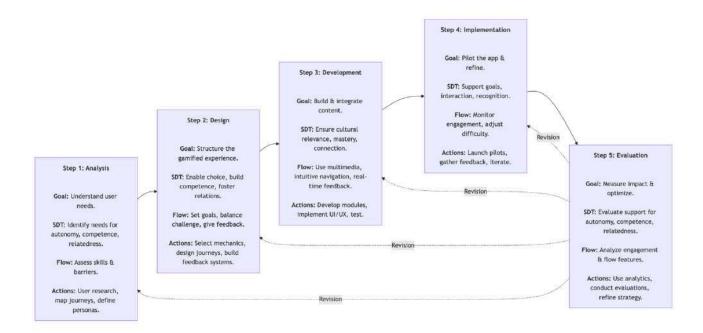


Figure 7: PIPE Gamification Strategy ADDIE Framework.

12. Integrating the New European Bauhaus Initiative into the PIPE Gamification Strategy

12.1 What is the New European Bauhaus?

The New European Bauhaus (NEB) is a creative and interdisciplinary initiative launched by the European Commission to give a cultural and human dimension to the European Green Deal. It aims to bridge the worlds of science, technology, art, and design to create beautiful, sustainable, and inclusive living spaces. The NEB promotes a holistic approach to innovation by combining aesthetics, functionality, and social inclusion in the transformation of public spaces and communities (European Commission, 2025a).

The NEB Facility 2025–2027, anchored in Horizon Europe, supports projects that connect green transformation, social inclusion, and local democracy. It emphasizes co-creation with communities, circular and regenerative design, and innovative funding models to revitalize neighborhoods and improve quality of life (European Commission, 2025a, 2025b).





12.2 Why NEB and Gamification Belong Together

The PIPE project's gamification strategy-designed to support the integration of migrants, refugees, and asylum seekers-shares many of the NEB's core values. Both initiatives aim to empower individuals, foster inclusion, and create environments that are not only functional but also emotionally and socially enriching.

By integrating NEB principles into the PIPE gamification strategy, the project can go beyond digital engagement and contribute to place-making, community cohesion, and cultural expression. This synergy can transform the PIPE app into a tool that not only informs and motivates but also connects people to their physical and social environments in meaningful ways.

12.3 Applying NEB Principles in the PIPE Gamification Strategy

1. Sustainability through Digital Empowerment

The NEB promotes sustainability not only in architecture and materials but also in how people interact with their environments. The PIPE app, through gamified learning, can teach migrants about sustainable living practices in their host countries-such as recycling, energy efficiency, and public transport use-while also encouraging digital sustainability by promoting responsible technology use and digital literacy.

Gamified modules could include:

- "Eco Missions" where users earn points for learning about local recycling systems.
- Interactive maps that guide users to green spaces, community gardens, or eco-friendly services.

2. Inclusion through Co-Creation and Representation

NEB emphasizes inclusive design that reflects the diversity of communities. The PIPE app can incorporate this by involving migrants in the co-design of content, ensuring that the app reflects their voices, cultures, and needs. This aligns with the SDT principle of relatedness, fostering a sense of belonging and representation.

Examples include:

- Storytelling features where users share their migration journeys.
- Community challenges that encourage collaboration between migrants and locals.

3. Beauty and Belonging through Cultural Engagement

The NEB redefines beauty as something that enhances well-being and reflects cultural identity. The PIPE app can integrate aesthetic and cultural elements-such as music, art, and language-that resonate with users' backgrounds and help them feel at home in their new environment.

Gamification can support this by:

- Unlocking cultural content as users progress (e.g., local traditions, festivals).
- Offering creative challenges like "Design Your Neighborhood" where users imagine inclusive public spaces.





12.4 Strategic Benefits of Combining NEB and Gamification

- Holistic Integration: NEB brings a spatial and cultural dimension to the PIPE app, while gamification ensures sustained engagement and learning.
- Community Activation: Both approaches encourage grassroots participation, making migrants not just recipients of services but active contributors to community life.
- Scalability and Visibility: Aligning with NEB opens opportunities for funding, partnerships, and visibility within the EU's broader innovation and inclusion agenda.

The New European Bauhaus and the PIPE gamification strategy are natural allies. Together, they can create a digitally enhanced, socially inclusive, and aesthetically meaningful integration experience for migrants across Europe. By embedding NEB values into the gamified design of the PIPE app, the project can help build not just digital skills-but also a sense of place, purpose, and belonging.

13. Conclusions

The PIPE project's gamification strategy presents a pioneering approach to digital inclusion by integrating the ADDIE instructional design model with Self-Determination Theory (SDT) and Flow Theory. This hybrid framework is designed to transform a mobile application into a dynamic, user-centered tool that supports the integration of migrants, refugees, and asylum seekers across Europe.

At its core, the strategy follows the five phases of the ADDIE model-Analysis, Design, Development, Implementation, and Evaluation-each enriched with motivational and psychological insights. During the **Analysis** phase, user needs and digital readiness are assessed to ensure relevance. The **Design** phase structures content into gamified learning paths, embedding game mechanics like missions and badges. **Development** focuses on creating multilingual, mobile-friendly modules with embedded feedback and rewards. **Implementation** involves real-world piloting and iterative refinement, while **Evaluation** measures engagement, learning outcomes, and user satisfaction.

This structured approach is deeply informed by **Self-Determination Theory**, which emphasizes the psychological needs of autonomy, competence, and relatedness. The app supports autonomy by allowing users to choose their learning paths, builds competence through scaffolded challenges and feedback, and fosters relatedness via community stories and social features. Simultaneously, **Flow Theory** ensures that users remain immersed and motivated by balancing task difficulty with user skill, providing clear goals, and delivering immediate feedback.

The strategy's **target group** includes newly arrived migrants with limited digital literacy, as well as professionals and volunteers supporting their integration. By gamifying essential information-such





as healthcare access, legal rights, and public services-the app becomes more than a guide; it becomes a motivational companion that encourages exploration, builds confidence, and promotes sustained engagement.

This innovative integration of instructional design and motivational psychology is not only a response to the challenges of migrant integration but also a model for inclusive digital transformation. It ensures that critical information is not only accessible but also engaging and empowering-turning learning into a journey of growth, agency, and belonging.

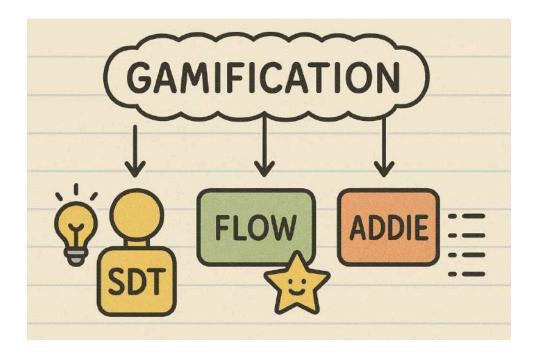


Figure 8: PIPE Gamification Strategy approach





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